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Unconditional Basic Income: Who gets it? Who pays for it? A social Accounting Approach to Distribution[1]

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Abstract:

Unconditional basic income is not a new topic in political economy, and it gains new momentum as more and more research is being devoted to it. The discussion focusses on the adequacy and effects such a policy measure may entail for a person and his socio-economic situation, usually. Object of investigation is the individual, and the corresponding theory is of micro-economic descent. In this paper, in contrast, we develop a method of how to assess feasibility and consequences of an unconditional basic income for a modern, open economy, on the macroeconomic level, using concepts and statistics of a Social Accounting Matrix (SAM) as our main tool. A SAM-based approach can measure, and perhaps model, the impact on the economic activity of a country, and on its economic institutions of new policy measures such as introducing an unconditional basic income. The economic activity of a country is expressed in monetary flows as registered in the National Accounts. So their underlying principles and definitions are adopted. However, the habitual way of putting an economy into a sequence of institutional accounts connecting each institution's income to the cost, - similar to business accounting - reveals only one, namely the inner-institutional half of the economic circuit. The other, outer half, namely, how the costs of one institution generate income for another one is better captured by the format of a Social Accounting Matrix. In the paper, the impact of an unconditional basic income is quantified, for macroeconomic aggregates of institutional sectors and socio-economic groups of households, taking the German and the Portuguese economies as examples. Purpose of the paper is not to argue for, or against, an unconditional basic income, but to offer a scientific tool with which to calculate and assess possibilities and consequences of the proposal, for a national economy as a whole.

Keywords: social accounting matrix; unconditional basic income; income distribution.

JEL Classification: E01; E02; E16; E64.

Introduction

Present state of the economic theory of income distribution

The idea of an "unconditional basic" income is not new. It has its predecessors in the history of economic thought, never realized in practice, but appearing and re-appearing whenever there is political debate about how to repartition the value added generated by an economy among its individual institutions and members. Increasing inequality of incomes, which has marked the last decades of world economic development is such an issue, today, and so the idea of a lower boundary to that inequality is proposed, and tested, as a possible answer (Vanderborght and Van Parijs 2005).

At the same time, and quasi as a counterpoint, the topic of income distribution lost relevance, in academic circles. It has disappeared from the standard curricula of economics departments. Twenty years ago, before introduction of the famous Bologna reforms, an ordinary economics student was trained in three fields of study,

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microeconomics, macroeconomics, and last, but not least, distribution of income, at (West-) German and Portuguese universities. One chair would always be devoted to that topic, in an ordinary economics department (Bartmann 1981). Today, neither the bachelor nor the master of economics get a taste of it. Income distribution is not a field of learning in standard economics, any more.

Given that disinterest on the theoretical side, it is natural that new research on income distribution, triggered by the phenomenon of newly rising inequality has not been founded on economic theory, but grew as a quest for more and new data, and as a mainly statistical endeavor. In this line of thought, the social activity of partitioning the national income is treated as being similar to the statistical "distribution" of a random variable around its mean. The corresponding scientific work was perceived as the task to choose and single out, from the plethora of distribution measures that exist, a specific index that would be used as a standard. Distribution of income being essentially an asymmetric affair, ordinary measures of variance and coefficients of distribution seemed to be inadequate, and, as a result, the Gini-coefficient has been established as the generally accepted measure of income inequality, now. In this way, the problem of how to distribute an income generated by a society is dealt with on a formal level, and conceived as being no different from describing any other "distribution of frequencies" occurring in a technical process. Distribution of income, in the abstract statistical approach, is treated as "dispersion", as a pure measurement issue without any explanation for possible reasons of an observed statistical deviation from what is then implicitly postulated as ideal, namely equality of incomes. "The problem with which we are concerned is basically that of comparing two frequency distributions f(y) of an attribute y which for convenience (sic!) I shall refer to as income." (Atkinson 1980, 23)

The purely statistical approach, and absence of economic theory, has its consequences. Firstly, it implicitly defines an illusionary political ideal, namely equality of all incomes. If a lower Gini coefficient is preferable to a high one, and if there is no other theoretical bound a Gini coefficient of zero appears as the best of all distributional states, implicitly while, secondly, no way, or method, of how to attain that ideal may be deduced from the research. It needed a political breakthrough such as the book written by Thomas Piketty (2014) to bring the issue of income distribution back into the academic economics arena, and the proposition of an unconditional basic income is a result of that new social movement.

Yet, the simplistic academic approach to the distribution of a nation's income - as a mere problem of measuring a quantitative variable appearing under statistical disturbances - has not failed to produce its simplistic counterpart, in the political arena: "At the root of our present preoccupation with equality is the instinctive notion that differences somehow need to be justified. But although this is very frequently asserted there is no obvious reason why it should be so. Why should equality be the point of reference from which any existing distribution of resources must be measured? An equal society of a kind which had never existed in the recorded history of mankind save among the most primitive nomadic hordes, became the norm by which all advanced societies were to be measured and judged. Only when one remembers this striking sleight of hand is it possible to understand why Professor Atkinson for example should have it found unnecessary to devote no more than one page of a book wholly concerned with describing real or imagined inequalities, to explaining what was wrong with them." (Keith and Sumption 1979, 83) And the authors continue: "The Professor's view rests ultimately upon a false analogy between the distribution of wealth and the sharing out of cakes, which frequently adorns editorials and political speeches. The analogy runs something like this. If a mother has baked a cake for her five children and she divides it into five equal parts, nobody will expect her to justify this division. Only if she divides it unequally will an explanation be expected. The explanation may be that the largest slice goes to the best-behaved child, or to the neediest, but explanation of some sort there must be. What, asks the egalitarian, is the explanation for a distribution of national wealth, which accords neither with perceived merit nor with need? The notion that all men are the same except that some happen to have more money than others is simply untrue, and it is implicitly recognized to be untrue by everyone who suggests that a controlled economy is a rout to an equal society. By and large, differences of wealth do represent real differences of economic aptitudes; they also reflect real differences in the value of individual contributions to the total wealth which exists in a society. He owes it to his own talents, not to the society in which he lives, and if somebody else proposes to take it away from him, it is incumbent upon that other to advance some satisfactory reason for his proposal."

Whatever one thinks of the general battle against "egalitarianism" in which the authors indulge with their book at large, their critique that a simple strive for equality in terms of a smaller Gini-index cannot form the basis of an intelligent and convincing income policy in a developed economy is hard to refute. That purpose requires more of theory, evidently, but also more tools of statistics describing the actual state of affairs. Concerning the first issue, the political side of the matter, it is true that little material is found that may be of help, in the actual teaching of economics. Here it is worth, rather, to look into a neighboring social science discipline, such as sociology (Groß

2008) or political science (Bolz 2009). Concerning the second issue of enhancing statistical information, we propose to compile a social accounting matrix as a macroeconomic complement to the microeconomic Gini-index. The Gini-index is a count of independent and non-interacting individuals, the atoms – so to speak -of a society. It represents each individual with his income, alone. A social accounting matrix, in contrast, constructs a macroeconomic context around the individual household, in the same way as national accounts and input-output tables serve as a framework for studying the economic actions of individual enterprises and businesses. While the classical schemes of national accounts and input-output tables focus on the production and circulation of goods and services a social accounting matrix explicates generation and circulation of the corresponding flows of income in all its different forms and ways of payment.

"All men are created equal." Does that first sentence of the declaration of independence imply equality of personal incomes? Evidently not, or the historic practice of the United States would have to be judged unconstitutional. On the contrary, a society consists of, and joins individuals of very different characters and capabilities, one of the variables by which to distinguish them being their personal income. So it is in sociology rather than in economics that you find an explanation and theory of "The structure of social inequality" (Vanfossen 1979). An example of designing such a structure is given by Table 1.

The table distinguishes two classes of households existing in a society, the owners of means of production on the one hand, and the non-owners, on the other. The latter are the majority of people and they earn their living by working for the owners, receiving a wage in return. That simple dichotomy must be diversified, in order to reflect the actual complexity of a society in more than one dimension. If the economic Gini-index is to be criticized for its one-dimensionality, the simple dichotomy of owner and non-owner is also inadequate as a description of a developed economy. Further dimensions are articulated in the table. The "Bourgoisie" owns enough capital to employ other workers, they do not necessarily work themselves. The "Small employers" may employ other workers, but work themselves, as well. Households of the "Petty Bourgoisie" own just enough capital for making a living, themselves, but are unable to employ further labor.

The other, larger group of non-owners may be further divided in two dimensions, one is the organizational power over subordinates (the vertical direction in Table 1) and the other is credentials of qualification (horizontal direction in Table 1). Groups 4, 5, and 6 have in common high qualification, but they differ in respect to the power they exert within their organization, such as the number of workers they control, for example. Managers 4 stand above the supervisors 5, and group 6 employees do not manage at all, performing highly qualified work, nevertheless. Groups 7, 8, and 9 follow the same pattern except that their members have lower credentials of qualification. By the same logic, you have finally a group of workers, shown in the last column to the right whose members have no credentials, at all, but work at different levels of an organizational hierarchy. The two dimensions of qualification and organizational power are independent, so the table suggests, although an empirical correlation may, of course, be observed in reality. Table 1 is not the only way to classify and structure a given society; other schemes exist, and are used (Lepsius 2015). Nevertheless, it is sufficient for demonstrating that equality of different incomes in the sense of minimizing a national Gini-index is not a sensible political or economic goal to attain, in itself, but that other variables must be taken into account in order to assess equality or inequality of incomes within in a developed economy in a meaningful way.

Table 1. Class structure of a society

Possession of means of production	No possession of means of production (wage labor) Qualification/credentials			Organizational assets (status)
	High	Low	None	
1 - Bourgoisie	4 - Highly qualified managers	7 - Managers with medium credentials	10 - Managers without credentials	High
2 - Small employers	5 - Highly qualified supervisors	8 - Supervisors with medium credentials	11 - Supervisors without credentials	Low
3 - Petty bourgoisie	6 - Highly qualified non-managers	9 - Workers with medium credentials	12 - Unqualified workers	None

Source: Wright, E.O. quoted from Groß, M. (2008, 84)

Table 1 expresses an inequality, not in terms of a quantity ("income"), but in quality ("qualification"). Statistically speaking, a population over which you distribute income is not homogeneous, as is supposed in the Gini-index; in using that index, we compare as one says, apples with pears. The SAM approach allows to deal with that inhomogeneity, if only at an aggregated level. Enterprises and households are grouped in a specific classification derived from, or similar to, the one shown in Table 1, and substantiate the fact of inhomogeneity, and

thus incomparability, at the macroeconomic level. There are two theoretical goals discussed in income politics: one is equality of all incomes, across the economy, implied by the Gini-index. The other one is known as the poverty approach, where you recognize the difficulty of comparing different social positions, and are satisfied with guaranteeing a certain minimum level of income for every citizen, which is also a way of expressing a certain equality between them. The project of an unconditional basic income belongs to the latter.

In this paper, we develop a method for assessing the feasibility and consequences of an unconditional basic income for a modern, open economy, at the macroeconomic level, using the concepts and statistics of a Social Accounting Matrix (SAM) as our main tool. A SAM-based approach can measure, and perhaps model, the impact on the economic activity of a country and on its economic institutions of new policy measures, such as introducing an unconditional basic income. We begin with some remarks about the roots and evolution underlying the idea of an unconditional basic income (Section 2). We then construct the circuit of income flows that underlie and feed the macro economy (Section 3). To conclude, we analyze the impact if such an income is quantified, using macroeconomic aggregates of institutional sectors and socio-economic groups of households, taking the German and the Portuguese economies as examples (Sections 4 and 5, respectively). The purpose of the paper is not to argue for, or against, an unconditional basic income, but to offer an analytical tool with which to calculate and assess the possibilities and consequences of the proposal, for a national economy as a whole.

1. Unconditional basic income: An old idea in new disguise

Within the simple three-polar economy discussed by Francois Quesnay, the role of income is well defined and simple. The peasant class must be fed, in order to enable it to work, the artisans in towns are sterile, they consume what they produce, and income of the economy consists of the economic surplus, namely the rent received by the lords and owners of land, only. Today's picture of an economy looks different, but in one aspect, it is still alike. Income is not a one-way affair, but it circulates within the economy among the economic institutions, and the speed with which it circulates is just as important as its size. Not bad harvests are the imminent dangers, but slumps in the circulation of commodities, and as a result, of income. Basic income, in the world of Quesnay, would be the cost of keeping the peasant class alive and able to perform their work. It is conditional on that task. Income of the feudal class is also conditional in that it is coupled to the ownership of and authority over productive land. The modern version of this twofold conditioning is well expressed by the national accounts (Table 2). First, there is the claim of labor, registered in the account "generation of income", because that is what labor does. The account then defines the "operating surplus" remaining with the producing unit after having paid its producers. All kinds of property income (interest, dividends, and rents) are paid out from it, and received in addition, as well, - resulting in a balance defined as "primary income". Finally, all transfers paid and received are registered on the "secondary distribution account", yielding "disposable income" as its balance. It is this disposable income, which stands in the center of distribution analysis, at present, and its modification is the topic of unconditional basic income.

Table 2 Logical sequence of national income measures

EXPENDITURES	REVENUES
Generation of Income Account	
Compensation of employees **Operating surplus**	**Value added generated**
Primary Distribution Account	
Property income paid **Primary income**	**Operating surplus** Property income received
Secondary Distribution Account	
Transfers paid **Disposable income**	**Primary income** Transfers received

Source: Own construction.

At this point, the microeconomic point of view and its macroeconomic complement diverge. The economic man, the figure represented by a utility maximizing individual takes his disposable income as given and decides about how to spend it. Disposable income is in focus here because it is deemed to represent a measure of welfare. What happens in the economy before that income is put at the disposition of some individual citizen is irrelevant, in that view. The macroeconomic view, in contrast, begins before that. Recognizing that fact that income is generated by production of goods and services, only, the different ways of forming and distributing it among the economic units of an economy stand in the center of attention. In this perspective all institutional units of an economy are related to one another by way of different kinds of income flows, forming an open or closed but at any

rate a full and complex economic circuit, among themselves. Not maximization is the aim, but rather regularity of incomes over time, avoidance of gluts or crises of the value flow. It is a much more dynamic concept than the microeconomic view, and based on national accounts while the microeconomic view uses household ledgers as it main source of statistical information and set of explanatory variables. This paper takes the macroeconomic approach attempting to integrate the microeconomic aspect into it.

The concept of unconditional basic income has become increasingly popular among economists, managers, activists and entrepreneurs as an alternative to traditional social policy. Instead of providing social benefits in an emergency situation, or unemployment or old age, government would pay every adult the same amounts as a lump sum in the future – around 1,000 - 1,200 Euros a month. There would then be no social benefits, no Hartz IV (Germany's long-term jobless benefits), and most likely no pension or unemployment insurance. This universal basic income promises, so the idea, each person the freedom to decide if they want to be employed, to do volunteer work – or do nothing at all. It relieves politicians of the worry about unemployment. In addition, it gives companies an elegant way to carry out job cuts. Jobs that fall victim to technological change or globalization are no longer a problem, as those affected are financially secure and can look after their children at home. Nevertheless, the basic income may be turn out to be unfeasible. The reason for this, of course, is financing. Its costs are difficult to quantify, but it is certain that they will be high. Just how income and wealth should be taxed to pay for it remains an open question. Radically transforming the social system to a basic income would be the greatest financial experiment in recent history.

The idea is controversial, and discussed in all corners of the political arena. There are people who support it, on the left wing as well as on the right wing of the political spectrum, and there is opposition on both sides as well (Neuendorff *et al.* 2009). Two observations motivate people to consider the idea. The trickle-down theory that economic growth will reach the poor, once it has begun with the rich is no longer true. Wages have stagnated over the last decades while high property incomes have thrived. On the other hand, the equally old idea of hard work as a sufficient lever to a satisfactory income has been disappointing. In contrast, the economic assumption of work as "disutility" as something that is and must be compensated by the wage also has lost credibility. When asked whether they would continue going to work with a basic income between 70 and 80 percent of the German population would continue going to work. (Handelsblatt 2018)

A crucial point is the effect of the new measure on the labor market. It decouples work from income, in spite of the fact that income is generated only through work. The incentive to work, of being paid for the disutility of doing it, will be suspended and it is unknown how this will affect the supply of labor. It may be that people, being lazy by nature, will stop working, and not do anything (Hüther 1991). It may also be, in contrast, that the assured minimum existence allowance sets free forces for self-determined and self-satisfying work: make up your own company, join in public unpaid social activities, raise and care for children or parents (Götz and Goehler 2010). On the demand side, wages may shrink, may also become more equal, as the subsistence level is guaranteed. Another area of concern is finance. Where should the money to pay for the basic income come from? If it is taxes, how and on what should those taxes be levied? Would that create more or less equality? On the social side, a main argument is that a basic income would eliminate poverty in an otherwise rich society, and thus enhance solidarity and communal interest. The question is then what to do with those institutions that have been created in history, precisely, for that purpose.

Table 3 summarizes schemes, which have been proposed for Germany. The estimated amounts vary between 400 and 2,000, averaging around 1,000€ per month. The required finance lies between 306 and 731 billion € per year, to be raised, essentially by means of a flat tax on all other gross income. Social benefits of health and nursing care are not reduced, but covered by insurance. In response to what they would do in case of receiving an unconditional basic income a sample of 600 working people answered: 50% would continue working, 20% would wait and see, 6% look for a different job, 15% would work less hours per week and 10% would stop working. 60% of the sample find a basic income makes sense, they believe, however, that 30% of their fellow citizens would quit their job, while only 15% of the respondents would quit themselves if they had a basic income of 1,250 € per month. (Handelsblatt 2018).

Table 3. Schemes of unconditional basic income proposed for Germany

Author	Monthly Amount	Yearly Requirement	Financial Resources
Left Party 2014	540 € under age of 16; 1,080 € over age 16	474 bill. €	33.5% fee on all gross incomes
SPD County Rhein-Erft 2010	500 € under age of 18; 800 € over age 18	731 bill. €	50% flat tax on all gross incomes, basic income deducted from tax bill
Emmler/Poreski (Greens) 2008	400 € under age of 18; 500 € over age 18 plus 360 € for housing and heating	327 bill. €	25% flat tax on all gross incomes
D. Althaus (CDU) 2010	400 € plus costs for housing and heating	306 bill. €	40% flat tax, increase value added tax to 19 percent
Th. Straubhaar 2017	600 € to 2000 €	depending on amount	Flat tax
Israel/Mai (Pirates) 2012	900 € including lump sum for housing	566 bill. €	50% flat tax and 15% additional tax for housing
R. Carls 2016	500 € under age of 18; 1,100 € above age of 18	63 bill. € [1)]	62.5% flat tax, only one class, no deductions

Note: [1)] Probably a printing error, given the other estimates, 630 bill. €, perhaps.
Source: Handelsblatt (2018)

The political argument goes like this: If some other group of people controls resources necessary to an individual's survival, that individual has no reasonable choice other than to do whatever the resource-controlling group demands. Before the establishment of governments and landlords, individuals had direct access to the resources they needed to survive. But today, resources necessary to the production of food, shelter, and clothing have been privatized in such a way that some have gotten a share and others have not. Therefore, this argument goes, the owners of those resources owe compensation back to non-owners, sufficient at least for them to purchase the resources or goods necessary to sustain their basic needs. This redistribution must be unconditional because people can consider themselves free only if they are not forced to spend all their time doing the bidding of others simply to provide basic necessities to themselves and their families. Under this argument, personal, political, and religious freedom are worth little without the power to say no. Basic income provides an economic freedom, which—combined with political freedom, freedom of belief, and personal freedom - establish each individual's status as a free person.

Both sides, proponents and opponents, agree that an unconditional basic income implies a major alteration, if not completely new construction of the system of income distribution. The national accounts are only inadequately prepared to deal with the matter. They focus on production and circulation of commodities between industries and users, as exemplified in traditional input-output tables. The microeconomic complement, household statistics of household income and expenditure are also insufficient as they ignore the sources and mutual transformation of one form of income into another within the economy, at large: Wages are paid to households, these pay taxes to government, form which salaries to other households are paid. These again pay interest to banks, which also pay salaries as well as taxes etc. Circulation not of products, but of incomes within a national economy is hardly reflected in ordinary national accounts, and even less in input-output tables. The social accounting matrix, in contrast, is built expressly to serve that purpose. It forms the proper analytical and statistical tool employed in this paper. An estimated social accounting matrix for Germany is used to calculate the effect of different schemes of a basic income proposed on the economy as a whole, and its households, in particular. To give an example: assume you want to raise the income of all households disposing of less than 900 Euros per month above that level, the matrix reveals from which income generated this transfer is to be financed within the present distribution structure. In turn, although Portugal does not have a history identical to that of Germany with regards to the preparation of proposals for an unconditional basic income, identical effects are calculated, using a social accounting matrix, with an estimated disaggregation for low income households.

2. Macroeconomic analysis. The national distribution of income flows

Conventional income studies take households, or individuals, of a population as their object of investigation, collecting data about sources of their income, and the manner of spending it. They summarize their findings by way of a statistical measure of dispersion, usually the Gini-index. The method corresponds to a microeconomic approach to economics. It is well known, however, that a microeconomic approach does not grasp the working mechanism of a full national economy where income of households and its expenditure are closely related to, and

embedded in, a complex network of interrelated flows of value of different kinds, and among different institutions, and income is distributed, circulating, and regathered in regular motion. A simple example may illustrate the matter.

Goetz and Goehler (2010) propose an unconditional basic income of 1000€/month be paid to every member of a nation. The existing present system of conditional social security transfers should have abolished, at the same time, and the new unconditional basic income replacing it be financed by way of a value added tax. Table 4 suggests some simple figures for studying the proposal. It identifies three types of institutions. There are the corporations organizing production, general government organizing social order, and households organizing individual people. Let these be distinguished in two groups (following Table 4) called households A and households B. Rows of Table 4 contain receivables, and columns the payables of a sector. Corporations receive operating surplus of 30 generated in production (see Table 2), and in this simple example the surplus is not distributed but completely retained in the form of capital formation. Value added tax of 20 is levied by general government, 20 and 80 are earned by household groups A and B as employment compensation. Total value added generated, (and distributed in the form of these three components) is 170. There is one form of redistribution: Households B pay social security contributions of 10 to government, and government redistributes the amount as social benefit to households A.

Table 4. Blackboard example of a matrix describing a national circuit of income distribution (billions of a national currency)

	Corpora-tions	General Government	House-holds A	House-holds B	Compens. of employees	VAT	Opera-ting surplus	Total revenues
Corporations							30 (-?)	30
General Government				10 (- 10)		20 (+ 10)		30
Households A		10			20 (-?)			30
Households B					80 (-?)			80
Disposable income	30	20	30	70				
Total outlays	30	30	30	80				

Source: Own construction.

The Goetz-Goehler proposal is indicated by figures in brackets. You cancel the expenditure of 10 by households' B and increase value added tax by the same amount. The inevitable question is then: Does the increase in value added tax go at the expense of labor (employment income, 20 -?, 80 -?), or capital (operating surplus, 30 -?), or both, given that total value added does not change by the measure? You cannot plan a certain distribution of disposable income without answering the question as to its re-partition at the stage of generation.

Table 4 is not a full Social Accounting Matrix in the standard sense in which it is understood today (see Section 5), but an excerpt of its distributional part. It has been structured in the way of an input-output table. The II. Quadrant is assumed as being exogenous to the system. It represents final use of products, in input-output analysis, while here under the purpose of income analysis, it represents generation of value added. The endogenous circulation of products (in input-output analysis), or incomes (here), is captured by the I. quadrant. The III. Quadrant, finally, contains value added resulting from circulation of products, in input-output analysis, and it exhibits disposable income resulting from circulation of property and transfer incomes here. We now apply the same formalism, which is used for analyzing circulation of products to analyzing circulation of incomes. Let $Z = \{z_{ij}\}$ be the matrix of primary and secondary incomes payed, and received by economic sectors (I. Quadrant), let $V = \{v_{ik}\}$ be the matrix of income generated, in its different forms of value added (II. Quadrant), and let $Y = \{y_{ij}\}$ be a matrix of disposable income, (III. Quadrant). The purpose of the following algebra is to define a fourth matrix $\mathbf{Q} = \{q_{ik}\}$, which maps different forms of value added generated re)directly into sectors' disposable income,

$$M = \begin{pmatrix} Z & V \\ Y & Q \end{pmatrix}. \quad (1)$$

The mapping is performed in the following way. Compile a matrix of distributional coefficients

$$A = \{a_{ij}\} = \left\{\frac{z_{ij}}{s_i}\right\} \quad (2)$$

where: $s = \{s_i\}$ represents the sum of a line i,

$$s = \{s_i\} = \left\{ \sum_j z_{ij} + \sum_k v_{ik} \right\}. \quad (3)$$

Define a corresponding coefficient matrix of disposable income by

$$B = \{b_{ij}\} = \left\{ \frac{y_{ij}}{s_j} \right\}. \quad (4)$$

In input-output analysis equations 1 to 4 are interpreted as mapping final use of products into the matrix of value added components. They answer the question, for example, of how much value added is generated by the exports of an economy, or by its fixed capital formation. In a similar way, Table 4 suggests a mapping of value added components into disposable income distributed, by defining a matrix Q in the following way:

$$Q = B\,(I-A)^{-1}V \quad (5)$$

Appendix I shows the resulting matrix for Germany. We call it "incidence matrix", because it expresses the amount of a specific value added component, generated in the economy, and falling into a particular sector's disposable income ("incidence"). Matrix Q exhibits the amount of value added components contained in disposable income of each institutional sector or social stratum of households.

3. Approach applied to Germany

A Social Accounting Matrix for Germany has been prepared, and published, by the Federal Statistical Office only once, for the year 2000; we take it as a point of departure. Yet, in order to derive a workable incidence matrix of income flows, it must be disaggregated in similar detail, as it is customary to do for input-output tables when monitoring the flow of products through an economy. The table we have estimated is too large to be included in a paper. The income incidence matrix Q derived from it is exhibited in the appendix. Table 5 gives a summary. It shows income received by households before and after the distribution process, for each income stratum, separately. The lowest income group living with less than 900 Euros/month of net income receive 1.6 billion Euros from self-employment before, and retain 1.4 billion after, the distribution process. They earn 1.1 bill. Euros/year as compensation of employment, themselves, and another 1.1 bill. Euros from wages of other households groups through redistribution, altogether 2.2 bill. Euro/year after distribution. Hence, part of their disposable income originates in wages of other household groups. Their major source of income are the economic institutions. 3.5 billion Euros/year have been generated as value added tax, and last, but not least 4.8 billion Euros come out of corporations' operating surplus, both of which households had no share in, before distribution, of course. The highest income layer of households (5000 – 18000 euro/month) earns 78.4 billion dollars, - half of total self-employment income - before distribution, directly, loses part of it in the further distribution process (78.4 -64.3 = 14.1), and it also loses some wage income. 195.7 billion Euros, however, are acquired out of the operating surplus of companies. Half of total operating surplus goes to that group, an empirical support of the social structure designed in Table 1. Secondary distribution has mollifies the initial cleavage, but primary distribution dominates.

Table 5. Incidence of components of value added before and after distribution (bill. euro/year)

Households with net income between …and… (euro/month)	Income from self-employed		Compensation of employees		Value-added tax	Operating surplus
	before	after	before	after	after	after
0 -900	1.6	1.4	1.1	2.2	3.5	4.8
900 - 1300	3.2	4.1	7.6	9.6	4.5	26.0
1300 – 1500	2.7	3.0	6.0	6.8	2.7	21.1
1500 – 2000	5.0	6.0	21.8	22.0	5.5	28.9
2000 – 2600	9.4	10.0	31.4	30.4	6.6	43.7
2600 - 3600	17.2	16.8	72.3	63.9	11.7	74.9
3600 – 5000	25.3	21.9	102.5	83.8	13.5	89.5
5000 - 18000	78.4	64.3	76.5	68.4	21.5	195.7
TOTAL	142.8	127.5	319.2	287.1	69.5	484.6

Source: Federal Statistical Office (2015) and own calculations

The figures must not be read as an adequate description of the actual German economy, in this precision, the may serve, rather, as an illustration of what might occur in an economy constructed in similarity to it. The underlying social accounting matrix is a first estimate, no more.

This is not the place to discuss the economic pros and cons of an unconditional basic income. We raise, and briefly answer, in a cursory way, some issues, as an illustration of how a social accounting matrix, and the income incidence matrix derived from it, may be yield a truly macroeconomic analysis of the matter.

a) The yearly finance required for the envisaged unconditional income payments is estimated to lie between 306 (D. Althaus) and 731 (SPD county Rhein-Erft) billion Euros (Table 3). National income has been estimated 3184 billion Euros in our SAM (Appendix I). The project touches on roughly ten percent of that sum, not an easy amount to re-allocate. If it is decided, it cannot be introduced from one year to the next, probably, but only in a stepwise fashion over the span of a decade or more if it is to grow to that size;
b) The required finance must be raised by means of a tax, essentially, where all authors agree on a "flat" tax, levied on gross incomes with rates varying between 25% (Emmler/Poreski) and 62.5% (R. Carls). Income of government is not taxed, private income is the sum of employment compensation and operating surplus, namely 2,850 billion Euros in our SAM. The government revenue gained from that tax lies between 710 and 1781 billion Euros. The first figure may be feasible, the second is rather unlikely to happen;
c) Besides the mere size of the project there are questions about its institutional compatibility, with existing social security schemes, in particular. Present social security payments amount to 280 billion Euros. It is hardly conceivable that both schemes exist side by side. The question of how to integrate them must be answered, in the project. Our incidence matrix (appendix I) shows that reducing social security payments (as part of wages), and increasing value added tax instead, by 1 Euro would raise disposable income of general government by 57 cents, and lower income of the three richest groups of households by 47 cents. It is not certain a national parliament would vote for such a change;
d) One of the side-effects of an unconditional basic income, so it is feared, or hoped, is a lowering of wages paid by employers. The point can be studied by means of the incidence matrix shown in Table 5. Lower wages mean higher profits. But higher profits in contrast mean higher taxes, so the effect may be mollified. An initial decrease of wages by 1 Euro will shrink to 89 cent (287.1/319.2) and so will the gain resulting in operating surplus when distribution and redistribution are taken into account.

Table 6 shows a more elaborate experiment. It simulates the macroeconomic effect of introducing a flat tax of 50% on primary income combined with the payment of an unconditional basic income of 7,500 Euros/household/year, in replacement of present social security schemes. The proposal is revolutionary in dealing with established institutions ("It does not help to stabilize the walls when the whole house is about to crumble," Straubhaar 2018, 7), but is it economically feasible? Households in the lowest income group have their income rise from 1,254 to 8,127 Euros/year, an almost 7-fold increase. Households in the richest bracket, in contrast, see their income shrink from 151 thousand to 83 thousand Euros per year. The turning point from households receiving to households paying an income transfer is around 14000 Euros per year. The net amount retained by general government levying the tax is 1,113 billion dollars of which it retains (1113 – 294 =) 819 billion Euros for its own purposes. The total amount of tax paid by households is 464 billion Euros in our social accounting matrix. That is far apart, but a tax of 483 billion dollars, which make up half of the total amount alone is unlikely to be paid by the top income group. Actually, the proposal is not 7500 Euros per household, but that amount per person. The number of persons is roughly twice the number of households in Germany. Basic income deducted would double, consequently, and the borderline between income receiving and income paying households would lie between 2000 and 2600 Euros/month. Income of general government would shrink to about 500 billion Euros, which reflects the amount it receives, at present. In summary, after this brief and cursory analysis, the proposal seems to lie within the limits of the described economy. Other proposals may be tried, and compared the same way, once a reliable social accounting matrix is at hand.

Deciding on an unconditional basic income is a political rather than an economic matter, mainly, but it must be done with due regard to existing macroeconomic distribution structures. A social accounting matrix describing that structure can be of great use for exploring projects of basic income and carrying out thought experiments. Statistical offices ought to be encouraged to prepare them.

Table 6. Effect of a flat tax of 50 percent on primary income of households combined with an unconditional income of 7,500 Euro/household/year

Income bracket (euro/month)										
		<900	<1300	<1500	<2000	<2600	<3600	<5000	<18000	TOTAL
Number of households	Thousand	2,935	4,042	2,129	5,273	5,578	6,925	6,079	6,365	39,326
Primary income total	Bill. Euro/year	3.6	52.5	44.7	123.5	193.7	350.1	491.6	966.7	2,226.5
per household	Euro/year	1,254	13,000	20,991	23,420	34731	50,558	80,867	151,871	
Flat tax 50 percent	Bill. Euro/year	1.8	26.3	22.3	61.7	96.9	175.1	245.8	483.3	1,113.2
Basic income 7500/HH	Bill. Euro/year	22.0	30.3	16.0	39.5	41835	51.9	45.6	47.7	294.9
Disposable income	Bill. Euro/year	23.9	56.6	38.3	101.3	138.7	227.0	291.4	531.1	1,408.2
per HH	Euro/year	8,127	14,000	17,995	19,210	248,66	32,779	47,933	83,435	

Source: Own calculations.

4. Approach applied to Portugal[3]

4.1. The Social Accounting Matrix (SAM) framework

The SAM presented here is consistent with the rules and nomenclatures of the latest version of the SNA (ISWGNA, 2009). This is a version of the author, which was a result of research supported mainly by Stone (namely, 1986, 1981, 1973), Pyatt (namely, 1991, 1991a, 1988), and Pyatt and Round (namely, 1985).

Following the convention, our SAM is a square matrix, with equal row and column sums, in which, inflows are entries in rows, and outflows are entries in columns. Its adaptation to the SNA also allows us to state that the former describe resources, incomes, receipts or changes in liabilities, and net worth; whereas the latter describe uses, expenditures, or changes in assets.

Table 7 represents a so-called "macro SAM", representing the highest aggregated level allowed by the national accounts, following a top-down method. From that level, the accounts (rows-columns) can be broken-down into categories without losing the initial consistency. Numbers between brackets correspond to an application to Portugal in 2015, and can be used to illustrate how the activity of a country in a specific year is portrayed with this macro SAM.

Therefore, with production and institutions' accounts representing the (domestic) economy and the underlying transactions, an extended "circular flow of income" can be identified and specified. On the other hand, by means of the rest of the world account, the transactions between the (domestic) economy and that of abroad can be identified. Let us first take a snapshot of the activity of Portugal in 2015, as described below.

At the level of production accounts, the factors of production account shows the aggregate or primary income generated in 2015, which is also designated as compensation of the factors of production, namely of labour and capital, which was in the sum of 162,306 million Euros. Reading in rows, this amount was respectively composed of 155,958 and 6,347 million Euros, received from domestic activities and from the rest of the world. Reading in columns, this amount was composed of 149,923 and 12,382 million Euros, paid to domestic institutions and to the rest of the world, respectively.

In turn, continuing at the level of the production accounts, the activities account shows, respectively, the production value and the total costs associated with the process of production, which totaled 318,313 million Euros. In rows, this amount represents the output of goods and services. In columns, it is comprised of 155,958 million Euros of compensation of factors of production, 161,475 million Euros of intermediate consumption, 1,867 million Euros of net taxes on production received by the Portuguese Government, and – 986 million Euros of net taxes on production received by European Union institutions.

Finally, still at the level of the production accounts, the products account shows the main components of the aggregate demand and supply of the goods and services in the Portuguese economy in 2015, which amounted to 412,884 million Euros. Reading in rows, the aggregate demand was composed of 161,475 million Euros of

[3] Part of this Section is also in Santos S. (2018) Using a Social Accounting Matrix for analysing institutions' income: A case from Portugal". In: Gokten, S. and Gokten, P. (eds) - *Sustainability Management in 21st Century*, InTechOpen (open access book), London (UK) pp.1-15.

intermediate consumption, 150,311 million Euros of final consumption, 28,452 million Euros of gross capital formation, and 72,648 million Euros of exports. Reading in columns, the aggregate supply was composed of 318,313 million Euros of the output of goods and services, 23,078 million Euros of net taxes on products received by the Portuguese Government, - 108 million Euros of net taxes on products received by the institutions of the European Union, and 71,601 million Euros of imports – the last two being added in the same cell. The trade and transport margins also feature as a component in the products account, which amounts to zero at this level of disaggregation.

At the level of the domestic institutions accounts, in the current account, the aggregate income of the Portuguese institutions in 2015 is shown, which amounted to 271,610 million Euros. The origin of this income is shown in rows, with the following composition: 149,923 million Euros of compensation of the factors of production received by domestic institutions; 1,867 and 23,078 million Euros of net taxes on production and net taxes on products, respectively - both received by the Portuguese government, and; 90,027 and 6,716 million Euros of current transfers within domestic institutions and from the rest of the world, respectively. In turn, the destination or use of that same income is shown in columns, with the following composition: 150,311 million Euros of final consumption; 90,027 and 4, 415 million Euros of current transfers within domestic institutions and to the rest of the world, respectively, and; 26,858 million Euros of gross savings.

The capital account, apart from showing the net lending (or borrowing) of institutions, also shows information regarding acquisitions less disposals of non-financial assets (or the various types of investment in non-financial assets) and capital transfers, which amounted to 31,425 million Euros. Reading in rows, this amount represents investment funds, and was composed of: 26,858 million Euros of gross savings, and; 2,131 and 2,436 million Euros of capital transfers within domestic institutions and from the rest of the world, respectively. Reading in columns, this amount represents aggregate investment and was composed of: 28,452 million Euros of gross capital formation; 2,131 and 276 million Euros of capital transfers within domestic institutions and to the rest of the world, respectively, and 567 million Euros of net lending.

The financial account represents the net flows associated with the acquisition of financial assets and the incurrence of liabilities, underlying which is the above-mentioned net lending. These flows amounted to 8,022 million Euros. Reading in rows, this amount is composed of 567 million Euros of net lending, 878 million Euros of net financial transactions within domestic institutions, and 6,577 million Euros of net financial transactions from the rest of the world. Reading in columns, besides the net financial transactions between domestic institutions (878 million Euros), this amount also includes 7,144 million Euros of net financial transactions to the rest of the world.

The rest of the world account shows all the transactions between resident and non-resident actors in the accounts described above (production and domestic institutions), or between the Portuguese economy and the rest of the world in 2015, which amounted to 94,724 million Euros. Thus, the row represents the flows to the rest of the world, with the following composition: 12,382 million Euros of compensation of factors of production, – 986 million Euros of net taxes on production (taxes received minus subsidies paid by European Union institutions), 71,493 million Euros of imports (71,691 million Euros), to which is added net taxes on products (- 108 million Euros, of taxes received, minus subsidies paid by European Union institutions), 4,415 million Euros of current transfers, 276 million Euros of capital transfers, and 7,144 million Euros of financial transactions. In turn, the columns show the decomposition of the flows from the rest of the world, as follows: 6,347 million Euros of compensation of factors of production; 72,648 million Euros of exports; 6,716 million Euros of current transfers; 2,436 million Euros of capital transfers, and; 6,577 million Euros of net financial transactions.

Therefore, as can be checked in the structure of an integrated economic accounts table of the national accounts[4], practically all the flows measured by the latter are covered by the SAM – the grand totals in the above-presented macro SAM; other levels of disaggregation in SAMs constructed for specific studies, always respecting those grand totals.

[4] Available, for instance in the appendix of: Santos, S. and Araújo, T. (2018). The networks of inter-industry flows in a SAM framework. Working Paper No. 40 /2018/ REM (Research in Economics and Mathematics) - ISEG (School of Economics and Management) /Universidade de Lisboa (https://ideas.repec.org/p/ise/remwps/wp0402018.html).

Table 7. A macro SAM of Portugal in 2015 (in millions Euros).

Outflows (expenditures, ..) / Inflows (incomes, ..)		PRODUCTION			INSTITUTIONS			Rest of the World (RW)	TOTAL
		Factors of Production	Activities (Industries)	Products	CURRENT ACCOUNT	Capital Account	Financial Account		
Production	Factors of Production	0	Gross Added Value (155,958)	0	0	0	0	Compensation of Factors from the RW (6,347)	Aggregate Factors Income (162,306)
	Activities (Industries)	0	0	Production (318,313)	0	0	0	0	Production Value (318,313)
	Products	0	Intermediate Consumption (161,475)	Trade and Transport Margins (0)	Final Consumption (150,311)	Gross Capital Formation (28,452)	0	Exports (72,648)	Aggregate Demand (412,884)
Institutions	Current Account	Gross National Income (149,923)	Net taxes on production (1,867)	Net taxes on products (23,078)	Current Transfers (90,027)	0	0	Current Transfers from the RW (6,716)	Aggregate Income (271,610)
	Capital Account	0	0	0	Gross Saving (26,858)	Capital Transfers (2,131)	0	Capital Transfers from the RW (2,436)	Investment Funds (31,425)
	Financial Account	0	0	0	0	Net Lending (567)	Financial Transactions (878)	Financial Transactions from the RW (6,577)	Total financial transactions (8,022)
Rest of the World (RW)		Compensation of Factors to the RW (12,382)	Net taxes on production (-986)	Imports + net taxes on products (71,601 + 108)	Current Transfers to the RW (4,415)	Capital Transfers to the RW (276)	Financial Transactions to the RW (7,144)		Transactions Value to the RW (94,724)
TOTAL		Aggregate Factors Income (162,306)	Total Costs (318,313)	Aggregate Supply (412,884)	Aggregate Income (271,610)	Aggregate Investment (31,425)	Total financial transactions (8,022)	Transactions Value from the RW (94,724)	

Sources: Statistics Portugal (*INE*); Portuguese Central Bank (*Banco de Portugal*) [own calculations, from: Appendix II]

On the other hand, as practically all the flows observed and measured by the National Accounts are included in this version of the SAM, it is possible to calculate and/or extract from it the main macroeconomic aggregates that are usually considered.

The following description is based on the Table 7. Gross Domestic Product (GDP) can be calculated using the three known approaches: the production approach - in which intermediate consumption (161,475) is subtracted from production, or from the output of goods and services (318,313), adding the net taxes on products (23,078 - 108); the expenditure approach - in which final consumption (150,311), gross capital formation (28,452), and net exports (72,648 – 71,601) are added; and the income approach - in which net taxes on production and imports (23,078 - 108 + 1,867 - 986) are added to the gross added value (155,958). The Portuguese GDP in 2015 was 179,809 million. GDP is the income generated in the domestic economy by residents and non-residents, added to the total net taxes on production and imports, to be valued at market prices.

Gross Domestic Product can be converted into Gross National Product or Income (GNI), by adding the compensation of factors of production (labor and capital) received from the rest of the world (6,347), and by deducting the compensation of factors of production (labor and capital) and net taxes on production and imports sent to the rest of the world (12,382 – 986 - 108). GNI can also be calculated directly from the SAM by adding the compensation of factors received by domestic institutions to the net taxes on production and on products received by domestic institutions (149,923 + 1,867 + 23,078). The corresponding amount for Portugal in 2015 was 174,868 million Euros.

GNI is the income generated in the domestic economy and in the rest of the world by residents, added to the part received by the general government of net taxes on production and imports, to be valued at market prices.

Disposable Income (DI) can be calculated by adding the net current transfers received by domestic institutions (6,716 - 4,415) to GNI. In our application for Portugal, this was 177,168 million Euros.

Gross Saving and Net Lending or Net Borrowing are usually presented with the above macroeconomic aggregates, which are items that are provided directly by the SAM and, in the case of Portugal in 2015, were 26 858 and 567 million Euros, respectively, with the last being Net Lending.

Representing the capital and financial accounts the investment in non-financial and financial assets, respectively, which is the so-called accumulated income of institutions, the study that follows is going to be on the current or aggregate income of institutions. Thus, let us focus our attention on the current account of institutional sectors, highlighted with a thicker borders in Table 7.

4.2. The origin and the use of institutions' aggregate income

From the reading of the macro SAM presented above, is possible to see that the results of the study of the institutions' income, in general, and of the effects of a social policy measure that affects households' income – such as the introduction of an unconditional basic income, which, in particular, involves the current or aggregate institutions' income, which assumes the disaggregation of the institutions' current account. On the other hand, as illustrated in Table 7, because the main source of the institutions' aggregate income is GNI, that is to say, the compensation of factors of production received by residents or the income generated by them in the (domestic) economy and abroad, the factors of production account should also have some disaggregation.

According to the SNA nomenclatures and the available information provided by the national accounts, the disaggregation of the factors of production account are going to be divided into 'labor' and 'others' (factors of production), with the former (labor) including the compensation of employees, and the latter (others) including the compensation of employers and own-account (or self-employed) workers, as well as the compensation of capital, namely property income. In turn, although five main institutional sectors can be identified in the institutions' current account, considering the purpose of the research is to study the effects of the introduction of an unconditional basic income, this disaggregation is going to be divided into: 'households' - "all physical person in the economy", distinguishing 'low income households'[5], from 'other households'; '(general) government' - with the political responsibility of redistributing income, and; 'others' - the non-financial and financial corporations and non-profit institutions serving households.

[5] This disaggregation is an estimate, calculated from the Household Budget Survey - 2015/16, published by Statistics Portugal. In this estimate the total income and expenditure of that Survey was adapted to the universe of the National Accounts and the 'low income households' were identified as being those with an income lower that the national minimum wage. The following assumptions were also adopted: the total expenditure is equal to the total disposable income and, therefore, there is no gross saving; there are no current transfers from, and to, the rest of the world; the distribution of the share of gross national income by factors of production has the same structure as the total households.

Following the application to Portugal, Tables 8 and 9 represent the result of this disaggregation regarding, respectively, the origin (rows) and use (columns) of the aggregate income, which can be found in the totals of these tables – the amounts between brackets in the cells of the row and the column with the thicker border in Table 7 (the institutions' current account), or "Total – dic" in Appendix II.

Even when compiled at a high level of aggregation, much information regarding institutions' aggregate income can be taken from the following two tables. Our focus will be directed mainly on low income households[6]. Government, as an intervenient in the households' income through (re)distribution policies, also deserves special attention.

Households hold 60.8% (152,446 million Euros) of the total aggregate income (271,610 million Euros), with the share of the low income group being estimated as only 4.6% (12,569 million Euros). In turn, Government holds 24.6% (66,871 million Euros), and the other institutions (non-financial and financial corporations and non- profit institutions serving households) hold the remaining 14.6% (39,724 million Euros).

As shown in Table 8, the source of households' income is mainly compensation of factors of production (73.8%), where labour represents the main part (47.7%). The other sources of households' income are current transfers from domestic institutions (23.3%) and from the rest of the world (2.9%). Within these transfers, the largest share comes from the Government (19.1%).

Table 8. The origin of aggregate income of institutions in Portugal in 2015

Inflows (incomes,..)		Current Account of Institutions											
		Households						Government		Others (institut.)		Total	
		low income		*others*		total							
		millions of euros	*%*	*millions of euros*	*%*	millions of euros	%	millions of euros	%	millions of euros	%	millions of euros	%
Compensation of factors of production (gross national income)													
Labor		*7 632*	*60.7*	*71 092*	*46.6*	78 724	47.7	0	0.0	0	0.0	78 724	29.0
Others (factors..)		*4 167*	*33.2*	*38 817*	*25.5*	42 984	26.0	-1 330	-2.0	29 545	74.4	71 199	26.2
(sub)total		*11 800*	*93.9*	*109 908*	*72.1*	121 708	73.8	-1 330	-2.0	29 545	74.4	149 923	55.2
Net taxes on production and imports													
from industries and products		*0*	*0.0*	*0*	*0.0*	0	0.0	24 945	37.3	0	0.0	24 945	9.2
Current transfers from domestic institutions													
Households	*low income*	*42*	*0.3*	*0*	*0.0*	*42*	*0.0*	*715*	*1.1*	*102*	*0.3*	*858*	*0.3*
	others	*0*	*0.0*	*2 056*	*1.3*	*2 056*	*1.2*	*35 021*	*52.4*	*4 976*	*12.5*	*42 053*	*15.5*
	total	*42*	*0.3*	*2 056*	*1.3*	2 098	1.3	35 736	53.4	5 078	12.8	42 912	15.8
Government		*630*	*5.0*	*30 877*	*20.3*	31 507	19.1	22	0.0	2 169	5.5	33 698	12.4
Others (institut.)		*97*	*0.8*	*4 745*	*3.1*	4 842	2.9	6 225	9.3	2 350	5.9	13 417	4.9
(sub)total		*769*	*6.1*	*37 677*	*24.7*	38 446	23.3	41 983	62.8	9 597	24.2	90 027	33.1
Current transfers from...													
Rest of the world		*0*	*0.0*	*4 860*	*3.2*	4 860	2.9	1 273	1.9	582	1.5	6 716	2.5
Total (received)		*12 569*	*100.0*	*152 446*	*100.0*	165 014	100.0	66 871	100.0	39 724	100.0	271 610	100.0

Source: Statistics Portugal (*INE*) (own calculations, from: Appendix II)
Note: *estimated values in italic.*

[6] A group that represents 6.4% of the universe of the Household Budget Survey - 2015/16, published by Statistics Portugal. In our estimate, when total income and expenditure of that Survey was adapted to the universe of the National Accounts, a significant share of the difference between those sources of information was affected to this group, assuming a direct relation between that difference and the group of persons living permanently in institutions, as is the case of: members of religious orders living in monasteries, long-term patients in hospitals, prisoners serving long sentences, old persons living permanently in retirement homes (EU, 2013 – paragraph 2.119). Therefore, we think that is reasonable to estimate that the share of the low income households was 7.5% of the total of Portuguese households in 2015.

In the estimation, made by the types of flows of the national accounts included in this SAM sub-matrix, almost all the income of the low income households (93.9%) has its origin in compensation of factors – 'labor', or compensation of employees (60.7%) and also 'other', namely compensation of employers and own-account (or self-employed) workers (33.2%). Current transfers are the other source of income of this group, representing 6.1% of the corresponding total aggregate income, with those from the Government representing 5% of the total.

In turn, the main source of the Government's income is current transfers from domestic institutions (62.8%) in general, and from households (53.4%) in particular, with an estimated share of 1.1% for the low income households. Taxes on production and imports, net of subsidies, also have a significant share of 37.3%, which helps to compensate the negative share of compensation of factors of production, due to the high amount of interests to pay.

Therefore, households is the only institutional sector that receives compensation of labor, which represents 29% of the total aggregate income. In the latter case, current transfers from households represent 15.8% (0.3% from low income households), and from the Government, 12.4%. These three items represent more than half of the aggregate income of Portugal in 2015, meaning that changes in them will certainly have non-negligible effects.

From Table 9, it can be seen that final consumption is the main destination of households' income (69.1% for total households and 93.2% estimated for low income households), followed by the current transfers to the Government (21.7% for total households and 5.7% estimated for low income households), in which taxes on income are included. In turn, the Government uses almost equal shares of its aggregate income in final consumption (48.7%) and current transfers to households (47.1%), where social benefits are included. Both for households and for Government, all the other items identified as destinations of income have a residual or non-existent meaning.

Table 9. The use of aggregate income of institutions in Portugal in 2015

Outflows (expenditures,..)		CURRENT ACCOUNT											
		Households						Government		Others (institut.)		Total	
		Low Income		*Others*		Total							
		millions of euros	*%*	*millions of euros*	*%*	millions of euros	%	millions of euros	%	millions of euros	%	millions of euros	%
Final Consumption													
.. of products		*11 710*	*93.2*	*102 348*	*67.1*	114 058	69.1	32 584	48.7	3 669	9.2	150 311	55.3
Current Transfers to Domestic Institutions													
Households	*low income*	*42*	*0.3*	*0*	*0.0*	*42*	*0.0*	*630*	*0.9*	*97*	*0.2*	*769*	*0.3*
	others	*0*	*0.0*	*2 056*	*1.3*	*2 056*	*1.2*	*30 877*	*46.2*	*4 745*	*11.9*	*37 677*	*13.9*
	total	*42*	*0.3*	*2 056*	*1.3*	2 098	1.3	31 507	47.1	4 842	12.2	38 446	14.2
Government		*715*	*5.7*	*35 021*	*23.0*	35 736	21.7	22	0.0	6 225	15.7	41 983	15.5
Others (institut.)		*102*	*0.8*	*4 976*	*3.3*	5 078	3.1	2 169	3.2	2 350	5.9	9 597	3.5
(sub)total		*858*	*6.8*	*42 053*	*27.6*	42 912	26.0	33 698	50.4	13 417	33.8	90 027	33.1
Current Transfers to the ..													
Rest of the world		*0*	*0.0*	*1 219*	*0.8*	1 219	0.7	2 241	3.4	956	2.4	4 415	1.6
Gross Savings													
Households		*0*	*0.0*	*6 826*	*4.5*	6 826	4.1	0	0.0	0	0.0	6 826	2.5
Government		*0*	*0.0*	*0*	*0.0*	0	0.0	-1 652	-2.5	0	0.0	-1 652	-0.6
Others (institut.)		*0*	*0.0*	*0*	*0.0*	0	0.0	0	0.0	21 683	54.6	21 683	8.0
(sub)total		*0*	*0.0*	*6 826*	*4.5*	6 826	4.1	-1 652	-2.5	21 683	54.6	26 858	9.9
Total (expended)		*12 569*	*100.0*	*152 446*	*100.0*	165 014	100.0	66 871	100.0	39 724	100.0	271 610	100.0

Source: Statistics Portugal (*INE*) (own calculations, from: Appendix II)

4.3. Effects of the introduction of an unconditional basic income

From the previous presentation of the SAM version used for the approach applied to Portugal, in the research carried out on the introduction of an unconditional basic income, we can say that we are dealing with an injection of income into the low income households, originating from the government (or a leakage from the government to

the low income households). As we are dealing with redistribution of income, and assuming that the government budget does not support an increased deficit, we also have to consider that there may be one or more leakages from somewhere to the government (or injections into the government), to compensate it.

Considering the matrix representation of the network of linkages of the nominal or monetary flows underlying the activity of a country provided by the SAM, and after having taken a snapshot of that activity from the numerical version, as presented in 4.1 and 4.2 of this Section, we are now able to better identify those changes and study their macroeconomic effects. For this study, we are going to use the accounting multipliers, whose main methodological lines are those described in Section 3, with details that can be found in Santos (2018, Section 5.1).

Accordingly, in the case of the introduction of an unconditional basic income which is an injection of income from the government to the low income households, considering the representative sources of the aggregate income of the low income households in the SAM framework described previously, we have to work with a current transfer from the government to that group of households. Based on the results of the "Adequate Income in Portugal"[7] project, we identify the amount of that change as being 10% of the total aggregate income of that group of households, that is to say, approximately: 1,257 millions of Euros.

Regarding the change or changes in the same amount to compensate the previous, although the principle of such income involves the lack of the social security system, as mentioned in Section 2, which could be a possibility, the lack of detailed data and the low significance of the amounts of the social contributions and benefits estimated for the low income households, led us to maintain it. On the other hand, considering the above-described sources of the aggregate income of the government and the approach applied to Germany, we were led to consider two alternatives of sources for funding the above-identified amount: the generated income, or gross added value, as a whole, and; the part concerning the compensation of capital. The former is generated through value added tax – a component of the net taxes on products. The latter is generated through a tax on the component of compensation of capital, which would be included with the net taxes on production. See Table 7 to better identify the accounts involved, and the cells of the SAM. There is no doubt that the effect of the former would be adverse, because it would mainly be paid by consumers and, as seen above, final consumption is the main destination of the households' income. The latter, in turn, seems to be a very interesting and fair alternative, considering that up until now, the social security system has been mainly financed through the other component of the gross added value, namely, compensation of labor. Let us thus consider those two alternatives to finance the above mentioned amount.

As the government intervenes both in the described injection and in the leakages of income, limitations of the adopted methodology do not allow for the calculation of the multiplier effects that result from the two simultaneously. Thus, we have to treat those effects separately, associating to each a Scenario: A, for the introduction of an unconditional basic income; B, for an increase in net taxes on products; C, for an increase in net taxes on production. All the three involve 1,257 million Euros: an injection into the current account of low income households from the current account of government, in Scenario A; a leakage from the (production) account of products to the current account of government, in Scenario B; a leakage from the (production) account of activities to the current account of government, in Scenario C.

According to the methodology underlying accounting multipliers, in these three scenarios, the rest of the world and the capital and financial accounts were set as exogenous. The current account of the government, the products account, and the activities account were also set as exogenous in Scenarios A, B and C, respectively. In each scenario, from SAMs organized accordingly into endogenous and exogenous accounts, the calculated accounting multipliers represent quantitative approximations of the effects of unitary changes (positive or negative) on the income of endogenous accounts, *ceteris paribus*. These approximations were then applied to the above described changes (amounting in total to 1,257 million Euros), new SAMs, and the corresponding macroeconomic aggregates were then calculated.

Table 10 quantifies the effects (or impact), in terms of percentage changes, of the changes associated with the identified scenarios.

[7] Details about that project can be found in: http://www.rendimentoadequado.org.pt/

Table 10. Effects associated with the introduction of an unconditional basic income in Portugal in 2015, and with two possible sources of funding - Unit: %

		Scenarios		
		A	B	C
Gross Domestic Product (GDP)		0.72	0.70	0.58
Gross National Income (GNI)		0.70	0.72	0.60
Aggregate Income	Total (AI)	1.35	0.80	0.84
	Households (total)	1.30	0.42	0.44
	Households (low income)	10.70	0.11	0.11
	Households (others)	0.53	0.44	0.47
	Government	1.88	2.12	2.24
	Other Institutions	0.63	0.18	0.19
Disposable Income	Total (DI)	0.63	0.71	0.75
	Households (total)	1.44	0.46	0.48
	Households (low income)	9.90	0.62	0.63
	Households (others)	0.53	0.44	0.47
	Government	- 2.53	2.12	2.24
	Other Institutions	0.62	0.21	0.22
Final Consumption	Total (FC)	1.20	0.80	0.84
	Households (total)	1.57	0.41	0.43
	Households (low income)	10.70	0.11	0.11
	Households (others)	0.53	0.44	0.47
	Government	0.00	2.12	2.24
	Other Institutions	0.31	1.21	1.28

Source: Own calculations

Description of the change (of 1,257 million Euros) associated to the scenarios:

A. Introduction of an unconditional basic income, or an increase in the current transfers from the government to low income households;

B. An increase in net taxes on products (paid by the buyers of goods and services to the government);

C. An increase in net taxes on production (on the compensation of capital, paid by industries to the government).

These results have to be analyzed by considering that the quantified multiplier effects do not include those in the exogenous accounts, which were identified above, and that Scenarios B and C are alternatives to be performed with A. On the other hand, Scenarios B and C, besides the government account, involve the products and activities (production) accounts, respectively, which do not have a direct link with the income of the other institutional sectors and, therefore, the results reflect the effect of the increase on the income of the government, originating from taxes on the aggregate supply/demand, in Scenario B, and on the total costs of the economy, in Scenario C. Therefore, from Scenario A, we can see that, beside the aggregate and disposable incomes, and the final consumption of low income households, except for the cases of the government, all the other institutional sectors and, consequently, the economy as whole, benefit from it, as shown in Table 10, naturally with the changes associated to low income households much higher.

Regarding the two alternatives to provide funds to the government to introduce an unconditional basic income, the effects on the GDP and GNI are higher in the case of Scenario B, although Scenario C is generally more favorable in terms of the other items represented in Table 10.

Additional detail and improvement could be obtained with a less restrictive modelling, directly affecting the flows analyzed in Scenarios B and C, as well as the income and expenditures of all institutional sectors, with better and less aggregated data.

Conclusion

The effects, positive and negative, of an unconditional income are being widely discussed in politics and social science, under different perspectives. We have the impression, nevertheless, that the discussion is one- sided in that it takes the microeconomic approach as its point of departure, only, and ignores the macroeconomic implications. This lacuna is partially justified by the fact that standard national accounts forming the statistics basis of all macroeconomic investigation are of little use in studying issues of income distribution. Their aggregates are too broad for the purpose.

Our paper offers a method, which allows to include details of income distribution into the national accounting framework, and to detail important aggregates at a finer level than before. It provides a tool, in this way, to study the implications of an unconditional income at a higher, namely a macroeconomic level, and thus more adequately than before. The proposed format of a social (rather than a pure economic) accounting appears as being new; actually it ranges among the first proposals made for constructing national accounts, and was awarded the Nobel-Prize to its inventor, Sir Richard Stone. A modern version of a social accounting matrix may be an appropriate tool to clarify the possibilities and consequences of an unconditional basic income for the economy as a whole, and we strongly urge statistical offices to provide it.

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Appendix I. Income Incidence Matrix estimated for Germany 2016(*) (million Euros)

Type of household	Self-employed		Civil servants		White collar		Blue collar	
Type of work	Employment	Self-empl.	Employmt.	Self-emp.	Employmt.	Self-emp.	Employm.	Self-empd.
NFC, small	32	101	83	1	797	9	241	2
NFC, medium	32	101	83	1	797	9	241	2
NFC, international	26	85	70	1	666	8	201	2
Banks	234	722	618	11	5,326	69	1,492	14
Insurance	443	1,415	1,168	20	11,150	130	3,370	27
Federal government	468	1,458	1,237	22	10801	139	2,938	27
States	1,477	4,603	3,907	68	34,105	437	9,275	84
Communities	1,479	4,610	3,912	68	34,151	438	9,288	84
Social insurance	202	645	534	9	5,085	59	1,540	12
Private non-profit org.	305	978	806	14	7,666	90	2,292	19
Households by net income (Euros/month)								
0 - 900	273	1,369	659	23	6,896	82	2,174	27
900 - 1300	646	4,072	1,817	75	25,,731	191	9,614	82
1300 - 1500	493	2,976	1,130	37	19219	107	6,805	42
1500 - 2000	1,538	6,041	3,689	74	71,140	482	21,978	85
2000 - 2600	2,486	9,900	7,066	140	101,618	855	30,432	199
2600 - 3600	5,307	16,772	14,363	126	156,137	1,588	63,865	320
3600 - 5000	8,545	21,855	21,644	253	196,658	2,093	83,760	718
5000 - 18000	20,308	64,294	54,196	1,096	402,215	6,276	68,378	914
Rest of World	242	745	638	11	5,492	71	1,539	14
Total income generated	44,535	142,742	117,621	2,050	1,095,649	13,133	319,422	2,672

Note: (Columns show the origin of generation, rows show the final incidence of an income); (*) Incidence of forms of value added generated (labor compensation, capital earnings, and taxes) into disposable income of institutional sectors and households.

Explanation: Total value added generated, and distributed in the economy is 3,198,816 million Euros (last figure of the bottom line, next page). The bottom line shows be whom and in which form that value added has been generated. Households of self-employers, for example (first two columns) have generated 142,742 million Euros through self-employment, their main activity, and 44,535 million Euros by being employed, in addition. The column itself explains where, i.e. in whose disposable income that generated value added ended up after primary and secondary distribution had been completed. Almost half of the latter amount (20308 million Euros) went to the richest grouping of households (5000 – 18000 Euros/month), but some of it arrived even in disposable income of small enterprises (top figure in first column). The corresponding line shows for this group of households where their disposable income stems from: 402,215 million Euros have been generated in households of white collar workers from employment, and 6,272 million Euros by self-employment work. Altogether, this richest layer of households disposed of a sum of 871,952 million Euros for purchases of goods and services (last column, next page)

Appendix I. Income Incidence Matrix for Germany 2016 (continued)

Unemployed		Not in work force		Taxes on production		Gross operating surplus	ROW	Total disposable income	Sectors
Employment	Self-emp.	Emplmt.	Self-emp.	VAT	other taxes on pro.				
4	0	21	6	177	100	102,082	10	103,667	NFC small
4	0	21	6	177	100	102,082	10	103,667	NFC medium
3	0	18	5	148	84	85,342	9	86,667	NFK internat.
19	2	120	42	2,797	1,041	26,744	68	39,318	Banks
51	4	297	84	2,475	1,404	24,734	143	46,916	Insurance cp.
39	4	242	84	33,636	35,438	22,050	137	108,718	Federal gov.
123	12	763	267	101,112	2,381	68,447	432	227,494	States
123	12	764	267	2,860	2,398	49,106	432	109,993	Communities
23	2	134	38	359	364	2,841	65	11,912	Social ins.
35	3	202	58	537	543	3,741	98	17,386	Priv. NP-org.
HHs by net income (Euros/month)									
219	15	792	143	3,544	3,719	4,802	96	24,831	0 - 900
576	11	2,766	259	4,499	4,574	26,030	358	81,300	900 - 1300
395	27	1,194	157	2,651	2,647	21,078	254	59,213	1300 – 1500
709	49	2,959	490	5,472	5,642	28,800	887	150,036	1500 – 2000
432	29	3,103	606	6,632	6,771	43,689	1,262	215,220	2000 – 2600
487	13	4,206	990	11,723	11,952	74,918	2,125	364,893	2600 – 3600
516	18	3,932	1,318	13,454	13,680	89,451	2,739	460,634	3600 – 5000
1,208	194	7,140	3,577	21,464	21,197	194,682	4,812	871,952	5000 – 18000
20	2	123	43	5,281	1,965	98,745	70	115,000	Rest of World
Total income									
4,986	397	28,796	8,442	218,999	116,000	1,069,364	14,007	3,198,816	Generated

Source: Federal Statistical Office and own calculations

Appendix II. Social Accounting Matrix of Portugal in 2015(million Euros)

			f			a	p	dic								dik						dif	rw	Total
			l	o	total			*h(li)*	*h(o)*	h (total)	nfc	fc	g	npi	total	h	nfc	fc	g	npi	total			
			1	2		3	4	*5*	*6*		*7*	8	9	10		*11*	*12*	*13*	*14*	*15*		*16*	*17*	
f	l	1	0	0	0	78 604	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	333	78 937
	o	2	0	0	0	77 355	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6 014	83 369
	total		0	0	0	155 958	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6 347	162 306
a		3	0	0	0	0	318 313	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	318 313
p		4	0	0	0	161 475	0	*11 710*	*102 348*	114 058	0	0	32 584	3 669	150 311	5 404	18 643	- 318	4 145	577	28 452	0	72 648	412 884
dic	*h(li)*	5	*7 632*	*4 167*	*11 800*	0	0	*42*	*0*	*42*	*30*	*60*	*630*	*7*	*769*	0	0	0	0	0	0	0	*0*	*12 569*
	h(o)	6	*71 092*	*38 817*	*109 908*	0	0	*0*	*2 056*	*2 056*	*1 470*	*2 955*	*30 877*	*320*	*37 677*	0	0	0	0	0	0	0	*4 860*	*152 446*
	h (total)		78 724	42 984	121 708	0	0	*42*	*2 056*	2 098	1 500	3 015	31 507	326	38 446	0	0	0	0	0	0	0	4 860	165 014
	nfc	7	0	23 770	23 770	0	0	*30*	*1 470*	1 500	0	331	110	0	1 941	0	0	0	0	0	0	0	41	25 752
	fc	8	0	5 062	5 062	0	0	*56*	*2 750*	2 806	633	1 114	28	26	4 608	0	0	0	0	0	0	0	453	10 122
	g	9	0	- 1 330	- 1 330	1 867	23 078	*715*	*35 021*	35 736	5 224	954	22	47	41 983	0	0	0	0	0	0	0	1 273	66 871
	npi	10	0	713	713	0	0	*15*	*756*	771	173	51	2 032	22	3 048	0	0	0	0	0	0	0	89	3 850
	total		78 724	71 199	149 923	1 867	23 078	*858*	*42 053*	42 912	7 531	5 465	33 698	421	90 027	0	0	0	0	0	0	0	6 716	271 610
dik	h	11	0	0	0	0	0	0	*6 826*	6 826	0	0	0	0	6 826	0	0	452	41	0	492	0	150	7 469
	nfc	12	0	0	0	0	0	0	0	0	18 129	0	0	0	18 129	0	0	9	550	0	559	0	1 036	19 723
	fc	13	0	0	0	0	0	0	0	0	0	3 826	0	0	3 826	0	0	420	2 376	0	2 796	0	34	6 655
	g	14	0	0	0	0	0	0	0	0	0	0	- 1 652	0	- 1 652	4	248	0	0	23	275	0	1 125	- 252
	npi	15	0	0	0	0	0	0	0	0	0	0	0	- 272	- 272	0	0	14	182	0	196	0	93	17
	total		0	0	0	0	0	0	*6 826*	6 826	18 129	3 826	- 1 652	- 272	26 858	4	248	895	3 148	23	4 318	0	2 436	33 612
dif		16	0	0	0	0	0	0	0	0	0	0	0	0	0	3 975	- 1 315	6 408	- 7 918	- 583	567	878	- 7 144	- 5 699
rw		17	213	12 170	12 382	- 986	71 493	0	*1 219*	1 219	92	831	2 241	32	4 415	- 1 914	2 147	- 329	372	0	276	- 6 577		81 003
Total			78 937	83 369	162 306	318 313	412 884	*12 569*	*152 446*	165 014	25 752	10 122	66 871	3 850	271 610	7 469	19 723	6 655	- 252	17	33 612	- 5 699	81 003	

Accounts description:

Production
- p – products
- a – activities
- f – factors [l (labor (employees); o (others)]

rw – rest of the world

(domestic) Institutions
- dic - current account [*hi (households with low income); ho (other households)* ; nfc (non-financial corporations); fc (financial corporations); g (general government); npi (non-profit institutions serving households)]
- dik - capital account [h (households); nfc (nonfinancial corporations); fc (financial corporations); g (government); npi (non profit institutions serving households)]
- dif - financial account

Note: *estimated values in italic*.
Sources: Statistics Portugal (*INE*); Portuguese Central Bank (*Banco de Portugal*)

Factors Affecting Local Own-Source Revenue in Provinces in Indonesia

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Abstract:

This study observed the influence of non-economic factors (democracy, politics, corruption and governance) on Local Own-Source Revenues (PAD) in 30 Indonesian Provinces during the period of 2010-2017, and compares with economic factors (investment factors and development inequality), where the data obtained from BPS Indonesia was processed using Eviews 8 Software regarding the Fixed Effect Model regression showing that non-economic factors (factors of democracy, political factors, corruption factors and governance factors) had a significant effect and explained PAD by 79.18% in 30 provinces of Indonesia.

Keywords: local own source revenue; noneconomic factors; economic factors; fixed effect model.

JEL Classification: H710; H300.

Introduction

Local Own-Source Revenue (PAD) is one source of local income that can be an indicator of local independence and a measure of success in development. The more regional revenue that is collected, the more the allocation of local revenue can be used to finance the expenditure of local governments so that it will further encourage economic development in the area. This is supported by Law No. 29 of 2009 concerning Local Taxes and Retributions, the local government must seek its own sources of revenue to be able to finance development. This is also mandated by Law No. 23 of 2014 concerning Local Government, through decentralization, the transfer of authority from the Central Government to Local Government is expected to be able to regulate and manage their own areas in accordance with the needs and aspirations of the people, so that the degree of local independence increases or the level of local dependence on the central government is reduced.

1. Research Background

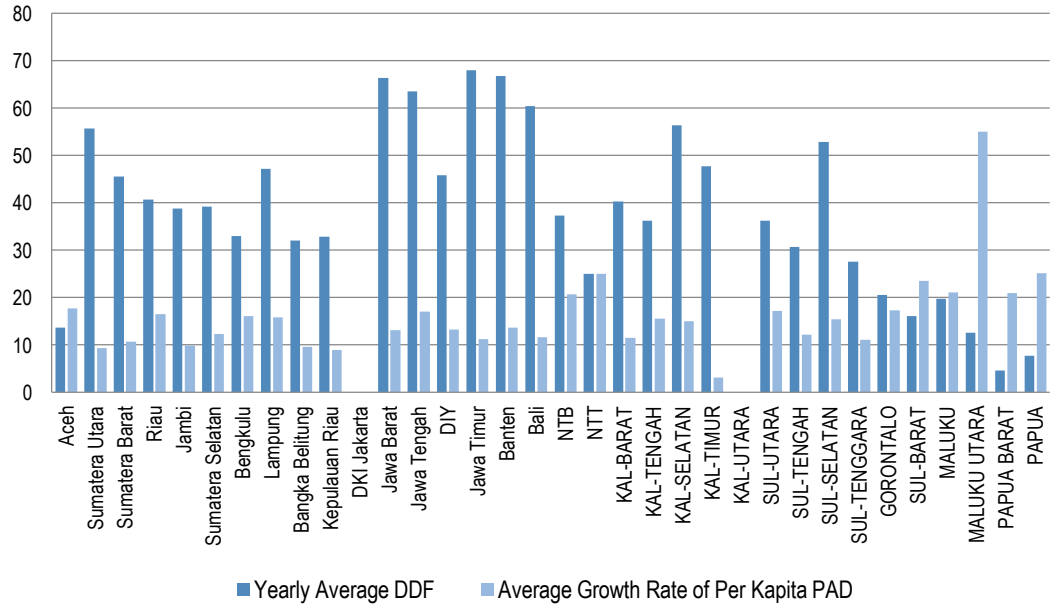
Studies of factors that influenced PAD has been studied. Research conducted in regencies/cities in Indonesia, for example, shows that factors such as GDP, government expenditure, investment, income per capita, economic growth, the number of people have a positive and significant influence on Local Own-Source Revenue. These factors caused by using macroeconomic indicators can be grouped into economic factors.

By looking at the tax collection circle (Mangkoesoebroto 2001) states that the tax/retribution collected will have an effect on economic activities both micro and macro, because the reduction in people's income as a result of tax collection conducted by the government will reduce purchasing power, affect the market, wage system, unemployment, up to the capital invested in development, which in turn raises a multiplier effect in society (Soemitro 1990). For this reason, the government in managing taxes and other types of revenues must pay attention to the principle of tax collection (Mardiasmo 2006) which includes fairness, must be based on laws, does not disrupt the

economy, efficient and simple. Sukirno (2010) criticizes the weakness of macroeconomic analysis which overestimates economic factors, the role of capital in development, and ignores the role of non-economic (non-economic) factors. There is no analysis of the influence of social conditions, social structures, political atmosphere, values life, the style of society's views and the style of society's culture. Though there are other factors that influence the willingness and behavior of the community/business entity in paying taxes, one of which is a non-economic factor.

The study of these non-economic factors in the provinces in Indonesia is still limited including Zulkarnaini (2014). This case study in North Aceh District and other Districts/City in Central Java Province shows that human resource, politics and administration factors significantly affect the local revenue.

Figure 1. Average DDF and average growth rate of per capita PAD/year (2010-2017)



Source: Badan Pusat Statistik (data processed)

As can be seen in Figure 1, the rate of growth of PAD per capita in Indonesia between 2010 and 2017 is seen that the provincial income per capita has increased from year to year. The biggest percentage of per capita growth in PAD occurred in North Maluku Province at 439.42% in 2017 compared to 2010, with an average growth rate of per capita PAD per year of 54.93%, followed by Papua Province with an average per capita growth rate amounting to 25.15% per year, while the smallest per capita growth of PAD from 2010 compared with 2017 occurred in East Kalimantan Province at 25.19% or with an average per capita growth rate of 3.15% per year. Otherwise, if it is noted that the degree of fiscal decentralization (DDF) in North Maluku Province 12.64% is included in the "less" category, it means that the growth of PAD which is in the "very good" category, but not followed by increasing the DDF. Likewise, the case with the Papua Province with an average growth rate of 'moderate' but the DDF is "very less" 7.76%. It turns out that after decentralization has been running out for several years, and even though there has always been an increase in PAD per capita each year, it does not necessarily establish the Province has a high degree of decentralization, should the increase in per capita PAD should reduce funds transfers from the central government, in other words that PAD is still not yet able to cover the lack of funding in the local area.

Article 285 paragraph 1 (a) of LAW No, 23 of 2014 states that PAD includes regional taxes, regional levies, results of separated regional wealth management and other legitimate local revenue. The objects of this PAD are compulsory taxes / levies, individuals and business entities managed by local governments to obtain income in the form of money which will later be used by local governments to improve the economic activities of the community, finance the administration and development in order to influence the economy society.

Sjafri and Silalahi (2014) stated that according to Hans Kelsen, "decentralization allows a closer approach to the idea of democracy than centralization" (in Winter 1981, 58), while Hart said that "participatory democracy is impossible without the extensive decentralization of public organization (Rosenbloom *et al.* 1994, 471). Therefore, Hart (Rosenbloom *et.al.* 1994, 474) says that "decentralization" is synonymous with "democracy" (Sjafri and Silalahi 2014). Furthermore, Sjafri and Silalahi (2014) also stated that "the political goal of the decentralization policy is to encourage accelerating the process of democratization at the regional level in Smith (1985, 4), Rosenbloom *et. al.*

(1994, 473), Eko (2005, 405), while the administrative goal of decentralization policy is "improving services" in Rosenbloom *et al*. (1994, 473). There is a connection between the two objectives of decentralization. When political goals are realized then administrative goals may be achieved. If the democratization process has been successful at the local level, this has become a condition or prerequisite for improving local services. Democracy has a positive impact on improving the quality of public service delivery.

The essence of democracy is "of the people, by the people, for the people" (Sjafri and Silalahi 2014). This has been proven since the amendment to the Constitution 1945 which was followed by the issuance of LAW No. 32 of 2004 that the people through political parties have the right to be able to elect and be elected as Regional Heads/Representatives and members of the People's Representatives Council (DPR)/Regional (DPRD) directly. In other words, the people participate directly in government are both from the financing and from the implementation. PAD is one of the financing sources which is collected from the people and one of the conditions that must be fulfilled by the government in withdrawing levies from the public is that it must be based on law and have legal guarantees, so that the money withdrawn is not considered robbery or coercion which can lead to resistance from the community. The law was established jointly between the Government and the DPR/DPRD, where the people's representatives could include the politics they wanted in tax regulations (Soemitro 1990). So it can be said that there is a relationship between democracy, politics and PAD, because both come from the people. Furthermore, the process of democracy and politics can only work if the administration of government is carried out with the quality of accountable and transparent public services which are free from corruption.

There are not many studies that examine the relationship between democracy and politics towards revenues or taxes. But there are also several studies that show a positive and significant relationship. Ehrhart (2011) examined the relationship between democracy and domestic tax in 66 developing countries with the conclusion that "high levels of democracy are specifically needed in natural resource rich countries to make natural resource rents contribute to higher domestic tax revenues and no longer be an impediment to a sustained tax system". Furthermore, Yogo and Njib (2018) saw the relationship between political competition and tax revenue in developing countries, which shows that political competition is positive and has a significant effect on tax revenues. Asatryan, Baskaran and Heinemann (2014) who conducted a study of the influence of direct democracy on the level and structure of local taxes, showed that "both actual direct activities are implemented and which can directly implement legislation measured by signature and quorum requirements increase local tax rates and shifts tax mix to taxes with narrower bases.

Budiyanto (2009) said that "democracy teaches that political power in government must be organized through the arena of political society, namely open competition between political actors and political participation" as a basis of society. This means that democracy and the politics of society will develop dynamically in the determination of regional development policies so that they will influence the size of the government. This is in accordance with the results of Eterovic's (2010) study, between political competition and political participation can influence the size of the government. Whereas the economic factors that positively and significantly affect PAD in Indonesia include Sumaryoto (2016) stated that regional income is a determining factor in government investment in Bekasi, where the higher the regional income that is obtained, it will increase investment and economic growth. An interesting phenomenon occurred in Mayza, Masbar and Nasir (2015), Oktari, Yolamalinda, and Jolianis (2014) study where population, inflation, market retribution, capital expenditure and investment in Aceh Province, West Sumatra Province and West Kalimantan Province had significant coefficients but did not affect the PAD.

Whereas Zulkefly *et al.* 2006, stated that most of the states in Kedah, Melaka, Pahang, Perak and Trengganu, the fiscal variable as in the form of a state of empire would determine the income before arranging the expenditure, whereas in the State of Perlis is vice versa which stated the aspects of expenditure before income. Johor, Kelantan and Pulau Pinang do not have a relationship between income and expenditure. Selangor and Negeri Sembilan show that expenditure or expenditure decisions are made together with income. In addition, GDP growth in the short term is significant to income growth in the Kingdoms of Kedah and Pahang, while for the long term GDP growth is significant with income in Perlis and Selangor, so this will increase economic growth. Further economic growth will also significantly affect the growth of royal spending in Negeri Sembilan, Negeri Pahang and Selangor in the long term, whereas for the short and long term economic growth affects expenditure in the Kedah State. In other words, the increasing of economic growth will increase royal spending.

Feld, Fischer and Kirchgassner (2006) examined direct democratic differences in income inequality in Switzerland, with the result that "less public funds are used to redistribute income and actual redistribution is lower, inequality is not reduced to a lesser extent in direct than in representative democracies for a given initial income distribution. this finding might well indicate the presence of efficiency gains in redistribution policies". According to Sjafrizal (2012), Some of the main factors that caused differences between regions, namely, differences in natural

resources, differences in demographic conditions, lack of smooth mobility of goods and services, coordination of regional economic activities, allocation of development funds between regions.

To quantify the development of democracy at the provincial level in Indonesia, an indicator is called IDI (Indonesian Democracy Index) in the form of a collection of figures that shows the level of democracy development in Indonesia based on several aspects of democracy, namely civil liberties, political rights, and institution of democracy. These three aspects of democracy are then translated into 11 variables and 28 indicators (BPS, 2009). The IDI is useful for the provincial government and its people to evaluate themselves in implementing democracy and make improvements to improve the quality of democracy (BPS 2009). As for describing the achievements of the level of democracy in IDI, a scale of 0 - 100 is used. This scale is a normative scale, with 0 to describe the lowest level and 100 to describe the highest level. The lowest level (index value = 0) theoretically can occur if all indicators get the lowest score (score 0). Conversely, the highest level (index value = 100) is theoretically possible if all indicators get the highest score. Furthermore, to give further meaning to the variation of the index produced, the scale of 0 - 100 is divided into three categories of levels of democracy, namely "good" (index> 80), "moderate" (index 60 - 80), and "bad" (index <60).

Jhingan (2013) stated that political and administrative factors also help the growth of the modern economy. Politics resulted from a democratic process that gives people the freedom to choose and be elected, resulting in a government recognized by their people. It is people's political participation that determines the one who lead the course of government, one of which is the determination of budget policy in carrying out development, Lewis in Todaro (2013) saw that government action plays an important role in stimulating or encouraging economic activity. Order, stability and legal protection encourage entrepreneurship. The greater the freedom, the more successful entrepreneurship will be. Technological advances, factor mobility, and a broad market, help stimulate effort and initiative. So if the political situation is conducive and supports the business world, the business will run smoothly, investors will be willing to invest their capital, production will increase, then the government can collect taxes, levies or other revenues, and finance development which will affect economic growth, and vice versa. Community participation in elections shows that there is a sense of distrust among the public to the prospective ruler who will impact on businesses. Community participation in elections can be seen by calculating the percentage of community participation (the number of valid votes and the number of invalid votes) against the permanent election list (DPT).

The results of the study of Zaidi, Karim and Kefeli (2005) on the development of financial sector, the size of the government, open trade and economic growth in 4 ASEAN Countries showed that open trade plays a major role in economic growth in Malaysia, Singapore and Indonesia followed by financial sector development, the size of the government in Malaysia, while in Singapore followed by the size of the government and financial sector development. In contrary to Indonesia, the size of the government is followed by the development of the financial sector. It is different with Thailand where no firm conclusions can be made, only the right policies have been taken by the country chosen to encourage higher economic growth.

Regarding the difference from the research conducted by Suprayitno (2011) on the relationship between fiscal decentralization and corruption in Indonesia, by using balance funds as a fiscal decentralization variable, it was found that fiscal decentralization had a positive effect on corruption, besides that this study also concluded that provinces in the center of government and economics such as DKI-West Java-Banten had higher corruption than other regions. An interesting phenomenon occurred in study which conducted by Saputra (2012) who also examined the impact of fiscal decentralization on corruption by using the Corruption Perception Index (CPI) in Indonesia, but with the result that fiscal decentralization has a significant and negative effect on the Corruption Perception Index (CPI), which means that higher levels of fiscal decentralization, the higher the level of corruption in Indonesia.

From this description in the background, this study is conducted on what non-economic factors affect provincial income in Indonesia and what non-economic factors are most dominant in determining PAD in provinces in Indonesia. In connection with that, the non-economic factors used in this study are factors of democracy, political factors, corruption factors and governance factors, while the economic factors used as a comparison are investment factors and factors of development inequality. This study consists of five parts, namely introduction, literature study that underlies this research, research methodology, results of data analysis and conclusions.

2. Methodology

In calculating national income, the notion of investment is the entire value of the purchase of entrepreneurs on capital goods and expenditure to establish an industry and the increase in the value of the stock of goods which have not yet processed and finished goods. The investment actors are Government, private and Government -

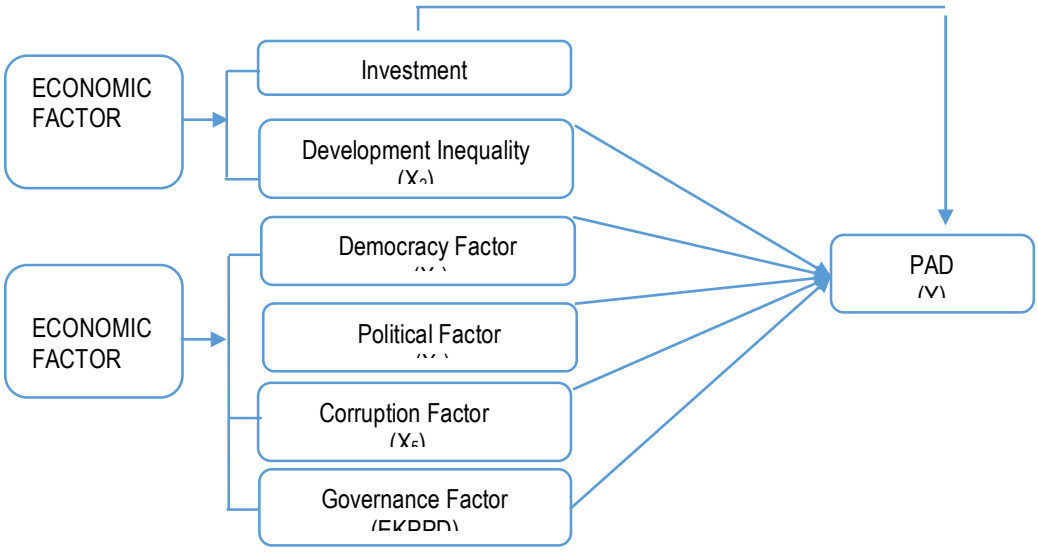
private cooperation. Government investment is generally carried out not with the intention of making a profit, but its main purpose is to meet the needs of the community.

The level of regional inequality can be calculated using several methods, namely the Williamson index, Klassen typology, Theil Entrophy Index and inequality based on the concept of relative GDP per capita. To find out the level of inequality between regions using a regional inequality index called the Williamson inequality index (Sjafrizal 2012). Williamson's index ranges from 0 <VW<1, which is getting closer to zero, which means that the region is increasingly unbalanced. Whereas when approaching one, the more inequality of the area under the study (Sjafrizal 2012)

Good governance according to the World Bank in Mardiasmo (2002) is as an implementation of solid and responsible development management in line with the principles of democracy and efficient markets, avoidance of misappropriation of investment funds, and prevention of corruption both politically and administratively, implementing budgetary discipline and creating legal and political framework for the growth of business activities. One way to achieve good governance is to maximally apply public service governance, accountability and transparency that are oriented to predetermined performance benchmarks, so as to increase government efficiency, increase public trust in local government and ultimately the community is willing to pay taxation which will boost local income. Specifically, for evaluating the performance of regional government operations, the Central Government through the Ministry of Home Affairs has evaluated the implementation of regional government, known as the Local Government Implementation Performance Evaluation (EKPPD). The assessment is carried out on the Regional Government Implementation Report (LPPD) every year. The ranking and performance status of regional government administration are grouped into five (5) performance achievement categories and given the following scores; Very high score of 3.3750 - 3.5000, high score of 3.2500 - 3.3750, while the score is 3.1250 - 3.2500, low score is 3,000 - 3,1250, and very low is 0 - 3,000.

Based on the explanations of the theories above, local income in this study can be influenced by economic factors, namely investment and development inequality, while non-economic factors are in the form of factors of democracy, political factors, corruption factors and governance factors in the form of conceptual frameworks which can be seen in Figure 2.

Figure 2. Conceptual Framework



The data used in this study are panel data from 2010-2017 in 30 provinces in Indonesia obtained from BPS Indonesia on Local Own Source Revenue (Y1) per capita. Democracy Factor (X1), Political Factor (X2), Corruption Factor (X3), Investment (X4), Development Inequality (X5), Governance Factor (EKPPD) (X6), assessed with three models:

Model I: Influence of economic factors

$$Y1 = \beta 0 + \beta 1\ X1it + \beta 2\ X2it + \varepsilon it \quad (1)$$

where: Y1 is PAD, X1 is Investment, X2 is Development Inequality, β0 is constant, β1 is investment estimation coefficient, β2 is estimated coefficient of development inequality, ε is error term.

Model II: Influence of non economic factors

$$Y2 = \beta 0 + \beta 3\ X3it + \beta 4\ X4it + \beta 5\ X5it + \beta 6\ X6it + \varepsilon it \quad (2)$$

where: Y2 is PAD, X3 is the Factor of Democracy, X4 is a Political Factor, X5 is a Corruption Factor, X6 is a Governance Factor, β0 is a constant, β3 is a coefficient of estimated factor of democracy, β4 is a coefficient of estimation of political factors, β5 is a coefficient of factor estimation corruption, β6 is the coefficient of estimation of governance factors.

Furthermore, model I and model II were modified to model III, a model that can show the influence of economic factors and non-economic factors on provincial PAD in Indonesia as follows:

$$Y = \beta 0 + \beta 1\ X1it + \beta 2\ X2it + \beta 3\ X3it + \beta 4\ X4it + \beta 5\ X5it + \beta 6\ X6it + \varepsilon it \quad (3)$$

3. Case Studies

After the classic assumption study is obtained the results as in Table 1 has proved that the model has met the classical assumptions.

Table1. Results of classic assumptions

Normality Test			Multicollinearity Test							Auto-Correlation Test	Heterosced asticity Test (White Test)
Probability	*J-B test*	α	X1	X2	X3	X4	X5	X6	C	*D-W stat.*	*Prob. Chi Square*
0.055479	5.783498	0.05	1.091492	1.030993	1.172576	1.164928	1.280193	1.214149	NA	1.539907	0.1523
Probability J-B > α			*X < 10*							-2 < dw < 2	*Prob. Chi Square > 0.05*

Source: Processed Data

To ensure the estimation produced meets the BLUE requirements, a classic assumption test has been carried out, including the normality test with a probability that is greater than df. 0.055479 > 0.05, the multicollinearity test by looking at the VIF value turned out to be smaller than 10, while the auto-correlation test was performed by looking at the D-W statistic 1.539907 which was between -2 < dw <2, heteroscedasticity test with White test which produced prob. chi square 0.1523 is greater than 0.05. This means that from the four test results, it states that the requirements for classical assumptions have been fulfilled.

Furthermore, after the fulfillment of classical assumptions, the researcher has conducted a model selection test to process panel data regression through Chow Test and Hausman Test. The right estimation model is obtained, namely Fixed Effects Model with the following results which can be seen in Table 2.

Table 2. Results of data panel regression with fixed effects model

Variable	MODEL 1		MODEL 2		MODEL 3		Coefficient	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Turning Value	%
X1	3.03E-07	0.0000			1.58E-07	0.0005	-1.45E-07	-47.85
X2	1.230767	0.1503			1.102741	0.1527	-0.128026	-10.40
X3			0.022475	0.0000	0.019367	0.0000	-0.003108	-13.83
X4			6.24E-09	0.0575	5.54E-09	0.0285	-7E-10	-11.22
X5			-0.003071	0.0000	-0.002576	0.0003	0.000495	-16.12
X6			0.214985	0.0027	0.195695	0.0097	-0.01929	-8.97
C	11.94174	0.0000	10.98392	0.0000	10.66461	0.0000	-1.27639	
F-stat	0.0000		0.0000		0.000000			
R^2	0.72614		0.791787		0.806137			

Source: Processed data

Equation Model 1: Y1 = 11.94174 + 3.03E-07 X1 + 1.230767 X2

Equation Model 2: Y2 = 10.98392 + 0.022475 X3 + 6.24E-09 X4 - 0.003071 X5 + 0.214985 X6

Equation Model 3: Y3 = 10.66461 + 1.58E-07 X1 + 1.102741 X2 + 0.019367 X3 + 5.54E-09 X4 - 0.002576 X5 + 0.195695 X6

From the regression model I, which tests the influence of investment economic factors and development inequality on PAD with Constants C of 11,94174 shows that if the value of all independent variables of economic factors is constant (0), the dependent variable PAD per capita (Y) is 11,94174%. Positive regression coefficient for independent variable Investment (X1) is 3,03E-07 with a significance value of prob < α (0,000 < 0,10) which indicates that investment has a positive relationship and has a significant effect on PAD per capita, where each increase in Rp. 1 of investment weight, then PAD per capita will increase by 3,03E-07. In this case other factors are considered permanent. Furthermore, the independent variable regression coefficient of development inequality (X2) is 1.230767 and positive with a significance value of prob > α (0.1503 > 0.10) which indicates that development inequality has a positive relationship to provincial per capita PAD in Indonesia, but has no significant effect on PAD per capita. In this case other factors are considered permanent. The F test indicated by the Prob (F-statistic) of 0,000 is smaller than 0.10, means that economic factors (X1 and X2) together influence the PAD per capita (Y). While the results of the Determination Coefficient Test (R2) by looking at R-squared (R2) of 0.726140. That is economic factors (X1 and X2) have contributed to explain Y of 72.61%, while the remainder is explained by other variables which are not examined or not included in this research model.

Furthermore, by looking at the regression model 2, namely non-economic factors (democracy, politics, corruption and governance) towards PAD shows that the constant C of 10.98392 furthermore, if the value of all non-economic factors independent variables is zero (constant), then the value of the dependent variable PAD per capita (Y2) is 10.98392%. The independent variable regression coefficient Democracy Factor - IDI (X3) is 0.022475 and positive with a significance value of prob < α (0,000 < 0.10), indicating that democratic factors have a positive relationship and have a significant effect on per capita PAD, where each increase in 1 IDI weight percent, then the PAD per capita will increase by 0.022475%. In this case other factors are considered constant. Regression coefficient of independent variable political factor (X4) is 6,24E-09 and positive with significance value prob < α (0.0575 < 0.10), which means that political factors have a positive relationship to PAD per capita, where every increase in 1% of political weight, PAD per capita will increase by 6,24E-09%. In this case other factors are considered permanent. The regression coefficient of the independent variable corruption factor (X5) is 0.003071 but negative with a significance value of prob < α (0.0000 < 0.10), indicating that the corruption factor has a negative relationship to the PAD per capita, which means that every increase in 1 unit of corruption weight, PAD per capita will decrease by 0.003071%. In this case other factors are considered permanent.

The regression coefficient of the independent variable of governance (X6) is 0.214985 and positive with a significant value prob < α (0.0027 < 0.10) indicates that governance has a positive relationship to the provincial income per capita in Indonesia where each increase in 1 unit of weight governance, the PAD per capita will increase by 0.214985 percent. In this case other factors are considered permanent. The F test indicated by the Prob (F-statistic) of 0,0000 is smaller than 0.10, which means that non-economic factors (X3, X4, X5 and X6) together influence the PAD per capita (Y). While the results of the Coefficient of Determination Test (R2) based on R-squared (R2) of 0.791787. That is the economic factors (X1 and X2) have contributed to explain Y by 79.18%, while the remainder is explained by other variables which are not examined or not included in this research model.

Furthermore, by combining model 1 and model 2 so that it becomes a model 3. It can be seen that if investment, development inequality, democracy, politics, corruption and governance are zero, then the value of the PAD per capita variable is 10.66461%. Furthermore, the direction of the effect of investment on PAD is positive with the PAD per capita increase coefficient of 1,58E-07. Development inequality has a positive but not significant direction to increase PAD. While the direction and significance of the influence of democracy on PAD is positive as evidenced by the smaller probability of df 10% (0.0000 < 0.10) with an increase in PAD per capita of 0.019367%, as well as positive direction and political significance which will increase PAD per capita by 5,54E-09 percent. Otherwise, corruption provides a negative direction of influence with an estimated regression coefficient of 0.002576, which means that if corruption increases by 1 unit then PAD per capita will decrease by 0.002576%. Whereas, the governance variables have a positive and significant direction towards PAD as evidenced by a smaller probability compared to df 10% (0.0097 < 0.10) with an increase in PAD which will occur at 0.195695% if governance increases by 1 unit, the estimate above occurs with the assumption that other factors are considered constant (ceteris paribus). By looking at the F test indicated by the Prob (F-statistic) of 0,0000 smaller than 0.10, which means that economic factors and non-economic factors jointly affect the PAD per capita (Y) with the Determination Coefficient (R2) of 0,806137, which means that together economic factors and non-economic factors have contributed to explain Y by 80.61%, while the rest is explained by other variables which are unexamined or not included in this research model.

Conclusion

Actually, the factor of democracy is in line with the political factors, corruption and governance, influences each other, where democracy and politics are obtained with good governance, good administration, which is oriented to people's participation and accountable and transparent community service will not generate corruption. From the estimation results obtained, namely by the existence of a positive and significant relationship between factors of democracy, political factors, governance of per capita PAD in provinces in Indonesia indicates that with increasing aspects of democracy such as civil liberties (freedom of association and union, freedom of expression, freedom of belief and freedom from discrimination), political rights to be able to vote and be elected, political participation in decision making and supervision, and the existence of democratic institutions will result in government recognized by the people, the situation of safe and conducive governance, the people accept and approve policies, where the policies must be based on the law stipulated by the government, one of which is the budgeting policy in terms of collecting public money approved by the people, the people are willing to pay their financial obligations and deposit them to the local government as to increase the local income. Then the income earned by the regional government is allocated to government expenditure, capital expenditure, the construction of public facilities, capital participation and investment to stimulate and encourage community economic activities. This is in accordance with the statement by Soemitro (1990) that people's representatives can incorporate the politics they want in tax regulations, because both are from the people. Lewis in Todaro (2013), Sjafri and Silalahi (2014) also mentions that the essence of democracy is "of the people, by the people, for the people", where the people participate directly in government both in terms of financing and implementation. The political goals will embody the administrative goals (Sjafri and Silalahi 2014). This is also consistent with the research conducted by Budiyanto (2009), Eterovic (2010), Ehrhart (2011), Asatryan, Baskaran and Heinemann (2014).

Furthermore, by integrating the model of 1, economic factor and the model of 2, non-economic factors into model 3 (combining economic factors and non-economic factors), based on regression estimation results there is a change in coefficient. This shows the sensitivity and elasticity of economic factors and non-economic factors towards PAD, because they must share the role with other factors, but it does not affect the direction and role of each factor towards PAD, as of the investment coefficient of 3,03E-07 to 1,58E-07 falls by 47.85%, while the development inequality coefficient falls by 10.40%, the democratic coefficient falls 13,83%, political factor coefficient is 11.22%, corruption factor coefficient is 16.12% and governance factors fall by 8,97%. Furthermore, if we viewed from the R square in model 1, economic factors explain PAD jointly by 72.61%, while in model 2, R square non-economic factors explain PAD together at 79.18%, but on merging the models together, there is an increase in R square which becomes 80.61%, it means that economic factors and non-economic factors explain PAD together at 80.61%, while the remainder is explained by other factors not included in this research model. This is showing the concistency with the opinion that PAD is not only determined by economic factors but also determined by non-economic factors as written by Sukirno (2010), Jhingan (2013), Lewis in Todaro (2013) that government actions play an important role in stimulating or encouraging economic activity. The order, stability and legal protection encourage entrepreneurship. If the political situation is conducive and supports the business world, the business will run smoothly, investment and production will increase, the government can collect taxes and increase local own-source revenues (PAD).

Based on the objectives and research data can be concluded as follows:

- There is a positive and significant influence between the non-economic factors of democracy on provincial income in Indonesia, each increase in 1 percent of democratic weight will increase PAD per capita by 0.022475%;
- There is a positive and significant influence between the non-economic political factors on provincial income in Indonesia, each increase in 1 percent of political weight will increase PAD per capita by 6,24E-09%;
- There is a negative and significant influence between non-economic factors of corruption on provincial income in Indonesia, each increase in 1 unit of corruption weight will reduce PAD per capita by 0.003071%;
- There is a positive and significant influence between non-economic factors of governance on provincial income in Indonesia, each increase in 1 unit of governance pattern will increase PAD per capita by 0.214985%;
- Based on F Test which the probability is smaller than 0.10, it can be seen that non-economic factors jointly influence PAD per capita, whereas R2 is 0.791787. It is known that non-economic factors can

explain PAD per capita by 79.17%, while the rest are explained by other variables which are not included in this research model;

- The results of the integration of economic factors and non-economic factors obtained changes in variable coefficients which indicate that each variable shares the role and influence of the provincial PAD in Indonesia. Furthermore, with the increase in the terminated coefficient R2 from 0.72614 for economic factors and 0.791787 for non-economic factors to 0.806137, It indicates that PAD is influenced jointly between economic and non-economic factors.

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Appendix A

Data panel regression of economic factors with fixed effects

Dependent Variable: LNY
Method: Panel Least Squares
Date: 02/18/19 Time: 21:13
Sample: 2010 2017
Periods included: 8
Cross-sections included: 30
Total panel (balanced) observations: 240
White period standard errors & covariance (no d.f. correction)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INVESTMENT_X1	3.03E-07	5.98E-08	5.064610	0.0000
DEVELOPMENT INEQUALITY_X2	1.230767	0.852465	1.443773	0.1503
C	11.94174	0.311907	38.28626	0.0000
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.726140	Mean dependent var		12.58941
Adjusted R-squared	0.685324	S.D. dependent var		0.547672
S.E. of regression	0.307222	Akaike info criterion		0.601071
Sum squared resid	19.63211	Schwarz criterion		1.065156
Log likelihood	-40.12856	Hannan-Quinn criter.		0.788064
F-statistic	17.79071	Durbin-Watson stat		1.244747
Prob(F-statistic)	0.000000			

Source: processed data

Y1 = 11.94174 + 3,03E-07 X1 + 1.230767 X2 (1)

Appendix B

Data panel regression of non - economic factor with fixed effects

Dependent Variable: LNY
Method: Panel Least Squares
Date: 02/18/19 Time: 21:38
Sample: 2010 2017
Periods included: 8
Cross-sections included: 30
Total panel (balanced) observations: 240
White diagonal standard errors & covariance (no d.f. correction)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEMOCRACY_X3	0.022475	0.002969	7.568863	0.0000
POLITIC_X4	6.24E-09	3.27E-09	1.910391	0.0575
CORRUPTION_X5	-0.003071	0.000547	-5.612995	0.0000
GOVERNANCE _X6	0.214985	0.070798	3.036606	0.0027
C	10.98392	0.231092	47.53041	0.0000
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.791787	Mean dependent var		12.58941
Adjusted R-squared	0.758433	S.D. dependent var		0.547672
S.E. of regression	0.269178	Akaike info criterion		0.343681
Sum squared resid	14.92607	Schwarz criterion		0.836771
Log likelihood	-7.241705	Hannan-Quinn criter.		0.542360
F-statistic	23.73858	Durbin-Watson stat		1.498862
Prob(F-statistic)	0.000000			

Source: processed data

Y2 = 10.98392 + 0.022475 X3 + 6.24E-09 X4 – 0.003071 X5 + 0.214985 X6 (2)

Appendix C

Data panel regression of economic factor and non - economic factor with fixed effects

Dependent Variable: LNY
Method: Panel Least Squares
Date: 03/14/19 Time: 09:13
Sample: 2010 2017
Periods included: 8
Cross-sections included: 30
Total panel (balanced) observations: 240
White period standard errors & covariance (no d.f. correction)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INVESMENT_X1	1.58E-07	4.47E-08	3.520653	0.0005
DEVELOPMENT IEQUALITY_X2	1.102741	0.768230	1.435430	0.1527
DEMOCRACY_X3	0.019367	0.002738	7.073238	0.0000
POLITIC_X4	5.54E-09	2.51E-09	2.206210	0.0285
CORRUPTION_X5	-0.002576	0.000694	-3.714204	0.0003
GOVERNANCE_X6	0.195695	0.074953	2.610909	0.0097
C	10.66461	0.299900	35.56054	0.0000
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.806137	Mean dependent var		12.58941
Adjusted R-squared	0.772876	S.D. dependent var		0.547672
S.E. of regression	0.261006	Akaike info criterion		0.288938
Sum squared resid	13.89737	Schwarz criterion		0.811034
Log likelihood	1.327438	Hannan-Quinn criter.		0.499305
F-statistic	24.23688	Durbin-Watson stat		1.539907
Prob(F-statistic)	0.000000			

Source: processed data

Y3 = 10.66461 + 1.58E-07 X1 + 1.102741 X2 + 0.019367 X3 + 5.54E-09 X4 – 0.002576 X5 + 0.195695 X6 (3)

Activation Mechanisms and Government Performance Efficiency: Evidence from Iraq

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Abstract

This study examines the impact of government spending (education, health, infrastructure, economic stability and justice distribution) on economic performance in Iraq. The study employs the Iraqi government expenditure data from 2005 to 2018 and conduct a regression analysis to find the significant level of each dimension under the five sectors in Iraq. The results showed that life expectancy at birth, size of health spending, percentage of population connected to sewerage networks, number of internet service providers, infant mortality rate, size of spending on education and registration in primary education have significant effect on government performance. Therefore, government should provide good education, health, infrastructure, economic stability and justice distribution to the citizens in order to achieve increase in GDP growth rate or growth rate per capital and the employment rate.

Keywords: health; education; infrastructure; economic stability; performance efficiency; Iraq.

JEL Classification: H5; H75; I25

Introduction

One of the key issues in public finance is the efficiency of government expenditure. For instance, prior literature has shown that public expenditure efficiency is lower in oil rich countries compared with other developing countries (Hauner and Kyobe 2010, Le, Devarajan and Raballand 2010). Specifically, the past few decades, the growth rate of Iraqi government performance in sectors, such as education, health, economic stability, justice distribution and infrastructure have deteriorated and these have been majorly attributed to poor government expenditures and economic performance. This has also contributed to the low output in quality of education, economic stability, justice distribution, health and infrastructure (Kadhem and Awad 2018). However, the unavailability of price data for these outputs and the difficulty faced in quantifying outputs has influenced the surrounding factors that affect the efficiency of government performance (Alkhoja and Dawani 2011, World Bank 2014). The government performance efficiency index, which is based on a set of sub-indicators (economic and social) that measure performance on different areas where the government expenditure is targeted (Alshomrani 2012).

In light of the efficiency of the large government expenditure for previous and current years, it is necessary to ensure the efficient performance of all sectors in exploiting the available financial resources and optimal usage (Le, Devarajan and Raballand 2010). Therefore, this study investigates government performance efficiency in Iraq. Specifically, the study examines the effect of education, health, infrastructure, economic stability and justice distribution on government expenditure. This became necessary considering the current stage of Iraq

health system, which has suffered severe damages and the country's expenditure is close to 9% of its Gross domestic product (GDP) on education over the past twenty years. In addition, among all the provinces in Iraq, there is no just distribution of public services and infrastructure services in a way that is in accordance with the size of the population and the level of need and deprivation.

Although, in macro-economic stabilization, significant progress has been made during in the late 2000s, where high inflation and large deficits have been adjusted (Dobbins 2003), however, the challenging task of building the fiscal institutions to incorporate the practice of good management in economy remains sluggish. For instance, a cautious reference price of oil for the budgets, a reasonable adherence to the budget law and rudimentary medium term budget strategy are the key elements. Nevertheless, there are still extensive off-budget activities, an absence of top down budget ceilings that are meaningful and tendency to ad-hoc mid-year initiative expenditure. The remainder of the paper is organized as follows: section 2 discusses the literature review, section 3 presents the research method, section 4 focuses on the analysis of results and section 5 discusses the conclusion.

1. Literature Review

The microeconomic theory of production explains how local expenditure efficiency can be evaluated. The theory considers the activities of the local sector as the production process that transform to outcomes or outputs from inputs such as capital and labor. Therefore, this section provides understanding on how government spending efficiency can be achieved through reviews on relevant literature on economic performance/government spending efficiency, education, health, infrastructure, economic stability and justice distribution.

1.1. Economic performance. Government spending efficiency

Iraq is categorized under middle-income countries and its GDP per capita is valued as 6,305USD. Iraq as a republic country is faced with the challenge of delivering public service to 34 million people and reconstructing core-physical infrastructure. The Iraqi economy, institutions, and infrastructure have been left tattered due to decades of conflict and sanctions. The economy is severely affected by the conflict post-2003: the big factories that are connected with the military were destroyed; the production laboratories, energy production plants, sanitation systems and water supply were damaged; the infrastructure for oil exports were either vandalized or damaged. Additionally, the conflicts led to a weaken public sector (Iraq National Health Account 2011). The poor governance environment, lack of security and politics all affect the progress while efforts are being made to replace and repair institutions and infrastructure. Although a lot of progress has been made in the reconstruction of transportation system, schools, sewage treatment plants, water supply systems, health clinics and hospital, schools and electricity production, but a lot still need to be done. In addition, on a daily basis, about 3 million barrels of crude oil are produced in Iraq, which accounts for virtually half of GDP and over 90% of exports in total as its economy are dominated by oil. Both in exports and GDP, there is limitation in the role played by the private sector in the economy and the contributions from the non-oil sectors are small relatively (Arauoj 2010, Khan and Estrada 2016).

In addition, many salient characteristics are associated with reviews on economy of oil-rich countries (Khan and Estrada 2016). For instance, the concept of "resource curse" suggests that countries with natural abundance of resources like oil and gas have the tendency to possess worse economic growth and less developmental results than countries with fewer natural resources. Among the factors responsible for this course are: lack of accountability and weak institutions, inefficient and wasteful public spending, corruption and embezzlement. Such countries are highly vulnerable to sudden change in the price of the international oil due to excessive dependence on oil revenue. According to Collier (2007), within a society, oil resources often and can provoke conflicts as different factions and groups fight for their shares. This could eventually undermine the economic development and political stability. Similarly, "Dutch disease", which a situation where there is rapid currency appreciation caused by oil export boom reduces the significance of other sectors in the world market, notable manufacturing and agriculture because majority of oil producing countries fail to diversify their economy.

Capital investment as public expenditure is paramount to rehabilitate and repair the economy of Iraq but the governance has faced many problems to implement and prioritize capital investment programs. Iraq as a resources-rich economy has considerable resources in term of receipt of oil to financing programs on capital investment. However, challenges such as "resources curse", "Dutch disease", and heightened fear over who the resources will be under its control have impaired the development of this country.

1.2. Health

Prior to 1990, the Iraqi government was able to provide some high level and basic service to the vast majority of the population. However, the domestic and military conflicts thereafter have caused a significant deterioration in the health system. This includes physical structures decay and turnover of health workers. In addition, larger percentage of the population is suffering from chronic diseases and ill health (Al Hilfi, Lafta and Burnham 2013; Cetorelli and Shabila 2014, Dewachi *et al.* 2014). There is also a widespread of malnutrition, insecurity and poverty. Similarly, human and economic development issues related to accountability and governance has drastically affected the health system in Iraq. In fact, various reports showed that, there is always presence of fraud and graft in both the pharmaceutical and hospital sectors. Moreover, Iraq has significant resources to invest in the sector but how to use efficiently these resources is the challenge and to provide accountability of governance with good and quality delivery of service for the purpose of investment.

In addition, the demographic changes over the coming years where it is expected that youth bulge of the early decade of the 21st century will pave ways to an increasingly older population with subsequent health care needs has become a course of concern (Alwan 2008, Cetorelli and Shabila 2014). Therefore, the key policy of the government of Iraq is to make sure that expense on public health gives purchase value with fair distribution. A program called public sector modernization (I-PSM) is being implemented by Iraq in an attempt to reform many sectors of the economy for improvement in the delivery of public service. The health sector in conjunction with the water and sanitation and education sectors has been chosen as the prime mover of the modernization reform. The I-PSM is a program conducted for four years adding up to 55 million USD with all the levels of public administration: district, governorate and central being the targets (Lederman, Daniel and Maloney 2007).

Currently, a broad-work program is being implemented with respect to the health sector with the aim to identify the major issues and challenges for effective reforms in Iraq. Also, the government is considering reform on health insurance among other reforms by aiming at the universe coverage, supporting the private sector's roles in service provision and primary healthcare expansion. In the present reform, a particular issue is the extent and nature of decentralization of public administration which includes the organization and regulation of health service. In addition, the WHO and Ministry of Health is leading the work of the health sector as they are coordinating the activities of the partnership development. Through capacity building activities and analyses, the World Bank is expected to contribute to the work with a special focus on the review of the public health expenditure, overall health insurance and finance and policy framework.

1.3. Education

Over the years, about 9% of Iraqi GDP was spent on education. This amount is higher than that of the countries with higher income under OECD which are averaged around 5.5 to 15% of the GDP, which is also higher than an average values for the countries under the North Africa and Middle East that have an average value of 5% of GDP. Similarly, other rich countries in resources, such as Saudi Arabia, Republica Bolivariana de Venezuela and Azerbaijan are averaged around 6%, 3.7% and 2 to 3% respectively (Le, Devarajan and Raballand 2010). Similarly, the Iraqi education per capita expenditure has increased in more than four fold in 2005 to 2010 from less down 50USD per capita to nearly 220USD. This is as a result of increased education sector expenditure on the salaries and wages of teachers. The trend analyses of the breakdown of the actual expenditure and education sector allocation show that the main growth in the expenditure has been in resources for leveraging public employees in the education sector. The cost of staffing salary and the average costs of a servant in public education service is almost in threefold between 2007 and 2009 which was forecasted to increase further. In education expenditure, the remuneration for staff comprises the highest share, leaving small for quality-related inputs. After the serious damages as a result of conflicts and neglect, many schools have collapsed but considerable actions are currently going on to rehabilitate and reconstruct the schools.

The increase in the salary through increment rebasing and adjustment and significant increase in the number of public sector employee affect the growth of the cost of compensating employees of education. Between 2005 and 2008, a large increase in staff number by 64% is experienced by the Ministry of Education and the cost of compensating employees increased by 156%. After one year, the cost of compensating employees almost doubled (Hamoudi 2005). The ratio of students to teachers is 20 approximately. It shows that although the primary reason may be because of the better pay for the teachers, the increase may also have been in the increase of staffing based on some extent growth in the target student-teacher ratio and student numbers. The compensation cost of the officials was due in part to re-classification of the policies related to job function (*i.e.* teachers are getting payments at large rounds of promotions and higher public service classification level). This and other increases to pay scales accounted primarily for the average cost increase of an employee's

education between 2141USD and 9071USD. Thus, this construct is measured by: the size of spending on education (ESSE), registration in primary education (ERPE), equality in primary and secondary education between males and females (EEPS), and adult literacy rate (EALR).

1.4 Infrastructure

According to the World Bank Study in 2014, key priorities being identified as the focus of government are:

- Promotion of oil, gas and petrochemical production: the ability to enhance the flow of refined oil and gas through the creation of new refineries and renovation of the existing ones. Investment contract with the international companies will be used to develop and implement them; and investment in the petrochemical industries would be encouraged;
- Increase in the storage capacity of oil and gas and development of transport networks;
- Improvement in the distribution of gas and oil to the citizens of Iraq;
- Using the international specifications to improve the petroleum products and gas quality;
- Promotion of the shipping industries and their logistics.

These key priority areas (how to the provision of electricity, production of oil and gas, transport infrastructure and capacity of the oil sector) has also been the focus of Iraqi government. In addition, the government action plans have been on how to renovate every means of transportation while focusing more on the rural areas. Improvement of the electricity without interruption is another important target by improving the power plant performance to meet the demand of electricity that is growing. The power generation and distribution plants are planned to be rehabilitated by the government. Establishing a trend in spatial development, characterized by fair distribution of public service and infrastructure among all the provinces in Iraq is another aim of the NDP in a way that is in accordance with the size of the population and the level of their need and deprivation.

Despite having good intention, the present administrative structure of Iraq shows a strong central approach to governance where the administrative decentralization has not been judiciously delivered while subnational structure of the ministry continue as out posted department of various central ministries (Knowles 2009). The absence of an efficient framework on the public investment management in Iraq is another related issue. This is needed to heighten the capacity to carry put the projects on the infrastructure. The necessity of having in place the infrastructure to deliver essential public services such as: electricity, water, education and health would show the importance of the public investment management.

1.5. Economic stability

The public expenditure review (PER) is an important instrument that the Iraqi government considered to be instrumental towards efficient delivery of public service. It is instituted in order to improve the policy and management of public expenditure. Related activities are set in place in order to enhance the public financial management, provide guidance on economic diversification and revenue management and promote transparency in the revenue through the participation in the extractive industries transparency initiative (Looney 2008).

However, the success of the instrument is unfolded within a need to diversify the economy, a residual conflict, a rural urban divide, challenging context of revenue volatility, weak accountability mechanisms and pervasive corruption. These have also contributed to the challenges of key socioeconomic development indicators. Notably, the review indicates that expenditure growth has not been matched with absorptive capacity let alone of improved results (Bilmes and Stiglitz 2006). The challenging works of constructing the fiscal institution to comprise the practice of good economic management remain a slow work in progress. At present, the key elements are a cautious reference oil price for the budget, a reasonable adherence to the budget law and a rudimentary medium term budget strategy. The extensive off-budget activities remain as a tendency to ad-hoc mid-year spending initiatives and an absence of meaningful top down budget ceilings. The PER pointed out that the fiscal institutions are not well equipped to handle the complexities of oil-dominated budgets, which indicate that the medium term budget strategy process has yet not been proven capable of giving restraints.

1.6. Justice in distribution

There is an approach by shifting to a save and invest through curbing subsidies and wages and re-directing resources to basic service and public investment in order to make the best of the impending boom in oil revenues. The question now is, how to change the aspiration on the ground into reality and make sure that the strategies and plans do not wore out when the resources constraints are relaxed (Simons 2016).

Three dimensions are involved in this:

- Connection of resource allocation to strategies;
- Creating enough connection commitment devices to make sure those medium term strategies "stick";
- The resources kept for investments are ensured to be invested in valuable financial and physical assets and the hoped-for benefit is yielded for the population in the both long and short term.

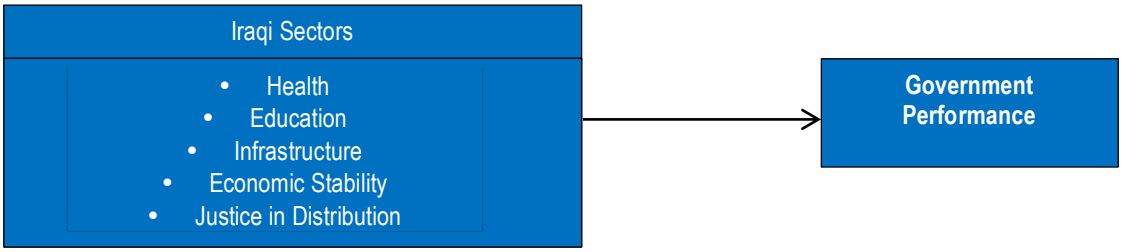
It is important to implement these three dimensions for better delivery service to the population of Iraq. At present, weakness in the link between budget and strategies execution and fiscal discipline lead to several issues. The objectives stated in the poverty reduction strategy (PRS) and in the national development plan (NDP) are not achieved and there is no alignment between the national priorities and the fiscal policy. In order to ensure that public spending can be realized as planned an effective mechanism in needed by the government. Similarly, a framework for effective management of public investment is necessary to empower the capacity for required infrastructure and project implementation in Iraq.

For the Iraqi banks, the comprehensive framework for effective management of public investment involves helping the government to achieve an institutional assessment of public investment management system in Iraq. Turning an impending boom in oil to sustainable welfare improvement will be a challenge in the years ahead for Iraqi authorities. With the presence of volatile political environment and difficult security, Iraq has shown considerable progress in terms of achieving macro-economic stability on the one hand and decline in the living standards in the other hand. Obviously, social and poverty conditions, continuous fostering prosperity of the Iraqi people cannot be addressed enough by macro-economic stability alone. Exportation of oil is set to increase to 3 mbpd approximately from 2.5 mbpd in the year to come in 2013 to 2015.

On the overall, these developments are likely to generate huge revenue for the country from the oil. Therefore, the main challenge for the authorities would be to ensure effective use of the revenue growth and to reduce the growth of current expenditure in the macro-policy perspective (particularly, the wage bill) to free up resources for investment in regional development, education, health and infrastructure while maintaining essential social support and safety nets for the disadvantaged and the poor and limiting the budget deficit size.

Therefore, the conceptual framework for the study is presented in Figure 1.

Figure 1. Conceptual framework Model linking the five sectors to government performance



2. Methodology

This study employs secondary data of government expenditure indicators in Iraq to test government expenditure efficiency. This study analyzed Iraqi government expenditure from 2005 to 2018 (14 years) using regression analysis to find the significant level of each dimension under five sectors (Health, education, infrastructure, economic stability and welfare and social security) in Iraq with the aid of STATA software. The government spending efficiency is measured as total size of public expenditure (EPSOP), unemployment rate (EPUR), GDP growth rate per capita (EPGDP), and GDP growth rate (EPGDPR). Health is measured as the size of health spending (HSHE), life expectancy at birth (HLEB), infant mortality rate (HIMR), number of beds in hospitals under Ministry of Health (HNB).

Education is measured as the size of spending on education (ESSE), registration in primary education (ERPE), equality in primary and secondary education between males and females (EEPS), and adult literacy rate (EALR). Infrastructure includes the volume of infrastructure spending (IVIS), average per capita energy consumption (IAPC), percentage of population connected to improved water sources (IPCI), percentage of population connected to sewerage networks (IPCS), number of internet service providers (INOI), number of telephone lines per 100 individuals (INOT). The economic stability as a dimension is measured as the size public spending (ESSPS), and inflation rate (ESIR). The measures for justice in distribution are the size of the public spending on social welfare (JSSS) and Gini coefficient (JGC. Table 1 presents a summary of different sectors in consideration in Iraq with their respective indicators for performance and expenditure.

Table 1. Sectorial differences in Iraq and measurements

Indicators that measure performance	Sectors	Indicators that measure spending
- Life expectancy at birth; - Infant mortality rate; - Number of beds in hospitals Ministry of Health.	Ministry of Health	- The size of public spending on the health sector;
- Registration in primary education; - Equality in primary and secondary education between males and females; - Adult literacy rate.	Ministry of Education	- The size of public spending on the education sector;
- percentage of population connected to sewerage networks; - Number of internet service providers; - Number of telephone lines per 100 individuals.	Infrastructure	- The size of public capital spending on infrastructure sector;
- Inflation rate.	Economic Stability	- Total size of public expenditure;
- The size public spending on social welfare; - Gini coefficient.	Ministry of Welfare and Social Security	- The size of public spending on support and Social Welfare;
- Unemployment Rate; - GDP growth rate; - GDP growth rate per capita.	Economic performance	- Total size of public expenditure.

3. Analysis of Results

3.1. Relationship between economic performance (total size of public expenditure) and health

Table 2 shows the regression results between economic performance and health sector for the period of 2005-2018 in Iraq. Based on the regression analysis presented in Table 2, the value for the study R-square is 0.95, which implies that the variables explain 95% of the dependent variable. The high R-square recorded also shows the fitness of our model. For example, the F value of Prob > F = 0.00.

The significance of the fit model using the F-value can be evaluated in two ways. On one hand is by comparing the F-value to the table value. On the other hand, is by using the significant value and comparing the value to the alpha value, which is set at 0.05<0.10. The F test of the overall significance shows if the model of the linear regression provides a better fit to the data than a model which comprises no independent variables. Detailed results reveal that the HSHE has significant and positive influence on economic performance. In fact, a strong significance level is found at 1%. This positive sign means that the size of health spending has increased. Similarly, a significant and positive association is found between HLEB and economic performance at 5% level of significance. This implies that the level of life expectancy at birth within different sectors is significant and thereby has good correlation with Iraqi government expenditure. In addition, the infant mortality rate (HIMR) has a negative, but insignificant influence on economic performance. With respect to HNB, the coefficient a significant negative effect is found with economic performance.

Table 2. Regression analysis of economic performance (total size of public expenditure (EPSOP)) and health

EPSOP	Coeff.	t-value	P-value	[95% Conf.	Interval]
HSHE	8.13	3.80	0.00	3.30	12.97
HLEB	328	2.83	0.02	654,600.80	5,915,191
HIMR	-337	-1.72	0.11	-7,799,149	1,059,070
HNB	-1,237.27	-2.28	0.05	-2,465.69	-8.83
_cons	-4.91	-0.41	0.69	-3.21	2.23
Number of obs	14				
Prob > F	0.00				
R-Squared	0.95				

3.2. Relationship between economic performance (unemployment rate) and health

According to the regression results in Table 3, the size of health spending (HSHE) is negative but insignificantly associated with economic performance. This may imply that the level of health spending in Iraq is low. A similar negative and insignificant association is found between life expectancy at birth (HLEB) and economic performance. However, the efficiency in governance showed a positive and weak significant influence on economic performance, which means that lack of effective governance in infant mortality rate, will lead increases

in government expenditure due to current situation in the country. With respect to number of beds in hospitals ministry of health (HNB), a significant negative association is found with government expenditure. This reflects the lack of quality regulation in the system on how money is being spent in the hospital.

Table 3. Regression analysis of economic performance (unemployment (EPUR)) and health (2005-2018)

EPUR	Coeff.	Stand. Err	t-value	P>|t|	[95% Conf. Interval]	
HSHE	-8.99	7.82	-1.15	0.28	-2.67	8.70
HLEB	-0.12	0.43	-0.29	0.78	-1.09	0.84
HIMR	1.62	0.72	2.27	0.05	0.00	3.24
HNB	-0.00	0.00	-2.37	0.04	-0.00	-0.00
_cons	-1.40	44.04	-0.03	0.98	-101.02	98.23
Number of obs	14					
Prob > F	0.0013					
R-Squared	0.8381					

3.3. Relationship between economic performance (total size of public expenditure (EPSOP)) and education

According to the regression result in Table 4, the size of spending on education is positive and significantly with economic performance. This result shows that the level of spending on education in Iraq is low, thus increased the government expenditure. Hence, spending on education if present would have reduced the amount of spending by the government. The coefficient of registration in primary education (ERPE) revealed a positive and insignificant value. This implies that the presence of primary education in the government expenditure has a significant effect on government expenditure in Iraq. The equality in primary and secondary education between males and females (EEPS) showed a negative but insignificant influence. This means that lack of equality in gender education would increase government expenditure. With respect to adult literacy rate (EALR**)**, a positive, but insignificant association is found with government expenditure. This implies the lack of literacy among the adult in the system affects how money is being spent in Iraqi government.

Table 4. Regression analysis of total size of public expenditure and education (2005-2018)

EPSOP	Coeff.	Stand. Err	t-value	P>|t|	[95% Conf. Interval]	
ESSE	7.66	2.06	3.72	0.01	3.01	12.32
ERPE	-0.00	0.00	-1.20	0.26	-0.00	0.00
EEPS	-4.92	6.25	-0.79	0.45	-1.91	9.22
EALR	475,909	1,207,225	0.39	0.70	-2,255,024	3,206,842
_cons	1.70	1.17	0.15	0.89	-2.49	2.83
Number of obs	14					
Prob > F	0.00					
R-Squared	0.93					

3.4. Relationship between economic performance (GDP Growth Rate (EPGDPR)) and education

Table 5 shows the association between education and government expenditure in Iraq in terms of GDP growth rate. The results presented in the table reveal that the size of spending on education is significant and positive at 10% level of significance. This result shows that the level of spending on education in Iraq is low. The registration of primary education (ERPE) is also found to significant and negatively associated with economic performance. This implies that the presence of primary education in the government expenditure has a significant effect on GDP growth rate in Iraq. The equality in primary and secondary education between males and females (EEPS) showed a positive but insignificant relationship. This indicates that lack of equality in gender education will lead increases in government expenditure due to current situation in the country. With respect to adult literacy rate (EALR**)**, a negative, but insignificant association is found with GDP growth rate. This implies the lack of literacy among the adult in the system affects the GDP growth rate in Iraqi government.

Table 5. Regression analysis of GDP growth rate and education (2005-2018)

EPGDPR	Coeff.	Stand. Err	t-value	P>|t|	[95% Conf. Interval]	
ESSE	-9.66	4.71	-2.05	0.07	-2.03	9.87
ERPE	-6.10	2.72	-2.24	0.05	-1.22	4.75
EEPS	1.46	1.43	1.02	0.33	-1.77	4.70
EALR	-0.03	0.03	-1.19	0.27	-0.10	0.03
_cons	2.29	2.69	0.85	0.42	-3.78	8.36
Number of obs	14					
Prob > F	0.17					
R-Squared	0.48					

3.5. Relationship between economic performance (total size of public expenditure (EPSOP)) and infrastructure

Table 6 shows that association between total size of public expenditure (EPSOP) and infrastructure in Iraq. A negative but insignificant association is found between volume of infrastructure spending (IVIS) and economic performance. This means that the level of infrastructure spending in Iraq is low. The average per capital energy consumption (IAPC) is insignificantly positively associated with economic performance, which implies that the energy consumption has no influence on government expenditure in Iraq. The percentage of population connected to improved water sources (IPCI) is positive but insignificantly associated with economic performance. With respect to percentage of population connected to sewerage networks (IPCS), a positive and significant association is found and this suggest that lack of quality sewerage networks in the system will affect Iraqi governance. The number of internet service providers (INOI) is positive and significantly associated with government expenditure at the level of 95%. The number of telephone lines per 100 individuals (INOT) showed a negative and insignificant association. The result reveals that decrease in the communication rate affect total size of public expenditure.

Table 6. Regression analysis of total size of public expenditure and infrastructure (2005-2018)

EPSOP	Coeff.	Stand. Err	t-value	P>|t|	[95% Conf. Interval]	
IVIS	-0.11	0.23	-0.49	0.64	-0.68	0.4377568
IAPC	5,103,424.00	1.20	0.42	0.68	-2.33	3.36
IPCI	9,575,784.00	6,508,252.00	1.47	0.19	-5,813,787	2.50
IPCS	1.12	2,725,487.00	4.10	0.01	4,718,223	1.76
INOI	-727,890.6	333,121.20	-2.19	0.07	-1,515,597	59,815.97
INOT	-0.07	0.01	-1.03	0.34	-0.23	0.01
_cons	-1.52	5.68	-2.68	0.03	-2.87	-1.8
Number of obs	14					
Prob > F	0.00					
R-Squared	0.95					

3.6. Relationship between economic performance (total size of public expenditure (EPSOP)) and economic stability

From the Table 7, the size of public spending (ESSPS) shows a significant and positive association with economic performance. This implies that the level of expenditure in Iraq is low, thus increased the government total size of public expenditure. With respect to inflation rate (ESIR), it is found to be positive but insignificantly associated with government expenditure, which means that the rate of inflation affects the total size of public expenditure.

Table 7. Regression analysis of total size of public expenditure and economic stability (2005-2018)

EPSOP	Coeff.	Stand. Err	t-Value	P>|t|	[95% Conf. Interval]	
ESSPS	0.99	0.02	56.68	0.00	0.95	1.03
ESIR	2,109.61	27,622.10	0.08	0.94	-58,686.23.00	62,905.45
_cons	188,091.00	1,415,511.00	0.13	0.90	-2,927,426.00	3,303,609.00
Number of obs	14					
Prob > F	0.00					
R-Squared	0.99					

3.7. Relationship between economic performance (unemployment rate (EPUR)) and economic stability

The results presented in Table 8 show that the size public spending (ESSPS) is significant and negatively associated with economic stability. This reflects that the level of employment in Iraq is low, thus decreased the economic stability. With respect to inflation rate (ESIR**)**, a negative but insignificant association is found between unemployment and economic stability.

Table 8. Regression analysis of unemployment rate and economic stability (2005-2018)

EPUR	Coeff.	Stand. Err	t-value	P>|t|	[95% Conf. Interval]	
ESSPS	-1.53	6.88	-2.22	0.05	-3.04	-1.27
ESIR	-0.02	0.11	-0.21	0.84	-0.26	0.22
_cons	25.35	5.57	4.55	0.00	13.09	37.61
Number of obs	14					
Prob > F	0.02					
R-Squared	0.49					

From the analysis of the data presented above, it can be concluded that efficiency in the expenditure is significant in the case of the size of health spending (HSHE) and economic performance measured by the total size of public expenditure (EPSOP). Similarly, the size of spending on education (ESSE), life expectancy at birth (HLEB), number of beds in hospitals present in the ministry of health (HNB), percentage of population connected to sewerage networks (IPCS), number of internet service providers (INOI) and the size of the public spending (ESSPS) have significant influence on the total size of public expenditure (EPSOP). This shows that the government expenditure is effective in those indicators. The infant mortality rate (HIMR), number of beds in hospitals present in the ministry of health (HNB), and the size of the public spending (ESSPS) have significant associations with the economic performance measured by unemployment Rate (EPUR). In addition, government expenditure is found to be effective for the size of spending on education (ESSE) and registration in primary education ERPE with economic performance respectively.

Conclusion

This study investigates factors affecting the economic performance and government spending efficiency. The government spending efficiency was measured through the total size of public expenditure, unemployment rate, GDP growth rate per capital, and GDP growth rate. The factors considered were health spending, education spending, infrastructural spending, economic stability, justice in distribution. Based on the regression results, this study argues that the government spending efficiency needs to be activated significantly to enhance the mechanisms in order to achieve fiscal discipline for effective delivery of services.

In addition, better management of oil revenue through the establishment of a fiscal stabilization fund and a sovereign “parking fund” to reduce the effect of oil revenue volatility on government expenditure. This fund can be used to house oil revenues until the improvement of expenditure efficiency but a framework for a medium-term macro fiscal policy will guide the withdrawals. Similarly, the fiscal framework and medium term planning need to be strengthen to improve the alignment of public expenditure and strategic orientation. Therefore, there is a need for reorientation of greater proportion of spending to capital investment to achieve greater fiscal consolidation through better control of wage bills and social benefits. In the oil and gas sector, the National Development Plan of Iraq (NDP) should maximize the quantity of crude oil exportation from its level of 1.894 million barrels per day to minimum of 3.1 million barrels approximately. This step will increase dry gas production and refining capacity and reduce burned gas.

Furthermore, the government should highlight the public and the private sector’s roles and create strategy on poverty reduction and planning on national development in order to help and decide resource allocation and highlight the significance of fiscal rules that lead to the discipline required for short or long term policy to be implemented. Future researches can also apply different inputs and outputs in order to check robustness of the results.

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The Influence of the Business Environment and Managerial Competence on the Decision to Choose Funding for a Small Craft Business

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Abstract:

This paper discusses the causal relationship between the internal and external environment of business with managerial competence in the effort of deciding on choosing a craft small business funding. The researcher proposes a new concept and wants to explain the role of managerial competence as an intermediate variable. Using structural equations in 384 respondents drawn proportionally from a population of 36,343 handicraft entrepreneurs in East Java. Criteria for respondents are entrepreneurs who have actively conducted business activities for at least 1 year, while the sampling method uses proportional random sampling. The findings indicate that the proposed concept is accepted, and shows that the internal environment has no bearing on the decision to choose a craft small business funding. External environment, dominantly influences the decision to choose funding. Research also proves that managerial competence is an intermediate variable, and contributes positively to the decision to choose business funding. The novelty in this research is, the use of indicators: understanding the organization, leading and managing people, managing resources, and communicating effectively as indicators of managerial competence.

Keywords: environment business; internal; external; managerial competence; decision to choose funding.

JEL Classification: O12; M21; G11.

Introduction

The handicraft, small business sector is the main driver of Indonesia's economic growth, because this sector is able to make a real contribution to the added value, and absorbs a lot of labor. So that the small business sector has a role that is not small to the various major problems of the nation, such as poverty and unemployment. The creative economy will be able to answer the problems of short and medium term economic development. This is possible because the direction of the development of the creative economy towards the pattern of small business environmentally friendly handicrafts, as well as the creation of added value products and services sourced from the intellectual property of today's millennial resources. The condition of these handicraft, small businesses in general is still weak in various aspects of the business. Craft small businesses experience weaknesses in almost all aspects, such as procurement of raw materials, production techniques, management, capital, marketing and human resources (Usman 2008, Goodfellow and March 2005). Marbun (2006), also explained that the weaknesses of handicraft, small businesses are that they rarely have business plans, are not forward-oriented, their entrepreneurs do not have the right education, without regular bookkeeping, weak capital, lack of motivation, and others. Even many who use the bookkeeping system that relies on notes in small notes. Ownership of venture capital in handicraft, small businesses is very limited, and this is a crucial constraint in developing their

business (Sharma 2001). Based on observations that the factors causing the weak ability of access to capital sources include; weak internal environment, weak external environment, weak managerial competence, which in turn affects funding decisions.

1. Literature Review and Hypotheses

1.1. Relationship of internal environment, external environment, and managerial competence

The company's internal environment is the company's resources that will determine the strengths and weaknesses of the company. The company's resources include human resources, financial resources, and physical resources. If it can optimize the use of these resources, the three resources above give the company sustained competitive advantage (Peter *et al.* 2007). Besides the internal environment, the external environment also needs to be observed, where the external environment is the environment that is outside the organization and needs to be analyzed to determine the opportunities and threats that will be faced by the company. There are two perspectives for conceptualizing the external environment. First, the perspective that views the external environment as a vehicle that provides resources (Tan and Litschert 1994). Both perspectives view the external environment as a source of information.

The second perspective links information with environmental uncertainty. Environmental uncertainty refers to changes in the external environment that are difficult to predict. This relates to the ability of members of the organization in decision making. The external environment provides opportunities and challenges for companies to realize the company's goals. The external environment above cannot be controlled by the company without the right strategy and in accordance with the changing environment situation. Therefore, the company's internal and external environment influences the managerial competence of entrepreneurs. Based on the description above, the hypothesis is as follows:

H1: Internal environment has a positive effect on managerial competence

H2: The external environment has a positive effect on managerial competence

Decision making on venture capital, both from the internal environment and the external environment is strongly influenced by entrepreneurial managerial competence, where the internal environment and external environment, needs to be analyzed to determine the strengths and weaknesses that exist in the company as a consideration in deciding on choosing business funding, should be taken from where and how much funding is needed, so that the business can move well. Zakiah (2017) states that to be able to access finance, it must pay attention to the internal and external environment, including government policies, information technology, network development, competitors and socio-cultural strengths. While Marius *et al.* (2017) proved the influence of internal factors on competence. Based on the description above, the hypothesis is as follows:

H3: Internal environment has a positive effect on the decision to choose business funding

H4: The external environment has a positive effect on the decision to choose business funding

1.2. The relationship between managerial competence and the decision to choose business funding

Financial experts often say that optimal business funding is a combination of loan debt and equity from the owner himself, where the two sources will produce the lowest average cost of funds. However, this theory is often not realistic when applied to small businesses and new businesses (Kao and Liang 2001). Despite the expensive and cheap conditions for these sources of funds, in reality the source of capital for small entrepreneurs in general is quite limited. Because basically two main problems in the financial aspects of small businesses are the mobilization of initial capital, access to working capital and long-term finance for limited investment (Tambunan 2002). But to run a business and grow long-term output, alternative capital loans cannot be avoided. For this reason, the most possible source of funds for obtaining loans is from banking institutions, given that they are evenly distributed in all regions, with sufficient funds and intermediation functions. But to get a bank loan is not easy. Craft entrepreneurs must be able to explain their ideas, and how to submit them to get a loan. In this condition employers' managerial competence is needed.

Managerial competence is a functional business skill in the successful development of a craft small business enterprise. There are four pillars of competence, namely understanding the organization, leading and managing people, managing resources, and communicating effectively (Krajcovicova *et al.* 2012, Bakanauskiene and Bartnikaite 2006, Dziekoski 2017). Managerial competence as a specific type of individual competence, namely activity, knowledge, expertise or attitude and also personal characteristics needed to improve

management performance (Martina *et al.* 2012, Wirda and Azra 2015). Managerial competence as a characteristic that is causally related to effective and / or superior performance. Performance effectiveness is the achievement of specific results required in work through specific actions that are consistent with the policies, procedures, and environmental conditions of the organization (Boyatzis 1982, Bhardwaj and Punia 2013, Abraham *et al.* 2001).

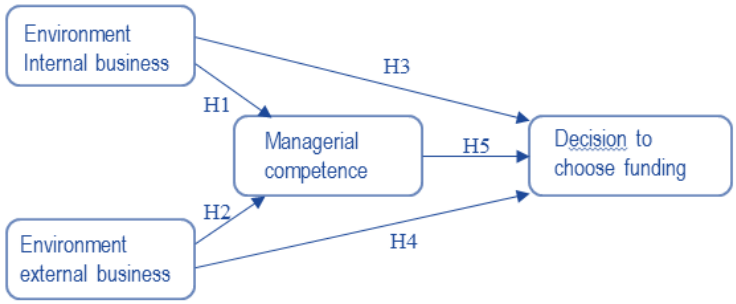
Suroso (2005), concluded that various factors that caused small industries to be unable to utilize the sources of capital of formal financial institutions were: the socio-cultural background of the craftsmen, that is, in conducting their business they tended to use their own funds and did not dare to take risks. The ability of small industries to utilize credit from formal financial institutions is constrained by difficult loan conditions, high collateral, limited bank service coverage, complicated procedures, and unclear information about the existence of credit. Rahardjo and Ali (2008) show that 37 percent of small business capital comes from inheritance, and 54 percent from personal savings. Small businesses are less able to meet the requirements set by formal financial institutions as well as the discriminatory treatment felt by some entrepreneurs, especially in terms of loan services. From some of the research results that have been explained so that small entrepreneurs do not have a good managerial attitude, this is evidenced by entrepreneurs who have not dared to take risks, still have difficulty finding information, and others. Therefore, the managerial competence of small-scale handicraft entrepreneurs, influences the decision making in choosing their business funding. Based on the description above, the hypothesis is as follows:

H5: Managerial competence has a positive effect on the decision to choose business funding

1.3. Research framework

Based on the literature review described earlier, a research framework can be developed that explains the relationship between research variables. Figure 1 illustrates the relationship of the internal environment, the external environment, managerial competence, and the decision to choose a craft small business funding in East Java.

Figure 1. Research Framework



2. Research Methods

This research is causal research. The study population was small craft entrepreneurs in 6 cities and districts of East Java Province, amounting to 36,343 (Table 1). The analysis technique uses SEM analysis with the help of Amos 22 software. Estimation uses Generalized Least Square Estimation (GLS), and the number of samples studied was 384 respondents, obtained from the Slovin formula. While the sampling method uses proportional random sampling.

Table 1. Number of Population and Proportion of Number of Research Samples

No	Regency / City	Craft Industry	Proportional Number of samples
1	Gresik	2.823	30
2	Bangkalan	4.215	45
3	Mojokerto	5.341	56
4	Surabaya	9.814	103
5	Sidoarjo	7.632	81
6	Lamongan	6.518	69
Total		36.343	384

Source: East Java Cooperative Office, 2018.

3. Data Analysis

This study uses a questionnaire instrument with a 5 level Likert scale. The internal business environment variable uses 6 indicators adopted from Laksmono (2004), namely: the socioeconomic conditions of the craftsmen, attitudes to bank credit, ability to access credit information, craftsman income, ability to generate profits and cost efficiency. The business environment variable uses 6 indicators adopted from Sudjatmiko (2001), and Gustaman (2000), namely: coaching activities, credit requirements, lending procedures, professionalism, government support and interest rates. Variable managerial competence uses 4 indicators adopted from Krajcovicova *et al.* (2012), namely: understanding the organization, leading and managing people, managing resources, and communicating effectively. Variable decision to choose funding using 4 indicators adopted from Laksmono (2004), namely: the high and low intensity of the loan of the craftsman, the amount of loan that can be obtained, the distance of the location of the bank from the place of the craftsman and the capital structure.

Table 2. Characteristics of respondents (N = 384)

Characteristics		Frequency	Percent
Gender	Men	248	64,6
	Women	136	35,4
Age (years)	17-30	092	24,0
	31-40	157	40,8
	41-60	130	35,2
Education	Junior high	116	30,2
	High school	230	60,0
	Diploma	038	09,8
Status	mate	074	19,3
	single	310	80.7
Age of the company (years)	< 1	014	03,6
	1 - 2	091	23,7
	>2 - 5	192	50,0
	> 5	115	22,7

Source: SPSS Analysis

Descriptive data analysis of 384 respondents showed that: Characteristics of respondents by sex were dominated by men, 64.6% compared to women 35.4%. Characteristics of respondents based on age at the age of 17-30 years = 24.0% of respondents, and dominant in the age range 31-40 years = 40.8%. The education level of the majority of respondents was High school, which reached 60.0%, while the rest had a diploma education by 9.8% and Junior High 30.2%. Long time respondents had a handicraft business in the range of 1-2 years, 23.7%, less than 1 year, 3.6%, 2-5 years 50.0%, and more than 5 years were 22.7%.

4. Result and Discussion

4.1. Test of research instruments

4.1.1. Validity test

From the result of Pearson product moment correlation, it is known that all questionable items in the questionnaire have a significant correlation at the error rate of 5%, so it can be said all the questionable items are valid (Table 3).

Table 3. Test the validity and reliability

Research variables	Indicator	Question Number	Pearson correlation	Coefficient Alpha (α)
Environment	Int1	01-02	0,800**	0,813
Internal business (Int)	Int2	03-04	0,650**	
	Int3	05-06	0,808**	
	Int4	07-08	0,667**	
	Int5	09-10	0,793**	
	Int6	11-12	0,744**	

Research variables	Indicator	Question Number	Pearson correlation	Coefficient Alpha (α)
Environment external business (Ext)	Ext1	13-14	0,609**	0,781
	Ext2	15-16	0,711**	
	Ext3	17-18	0,667**	
	Ext4	19-20	0,879**	
	Ext5	21-22	0,657**	
	Ext6	23-24	0,707**	
Managerial competence (Cpt)	Cpt1	25-26	0,832**	0,832
	Cpt2	27-28	0,717**	
	Cpt3	29-30	0,710**	
	Cpt4	31-32	0,812**	
Decision to choose funding (Dec)	Dec1	33-34	0,881**	0,746
	Dec2	35-36	0,772**	
	Dec3	37-38	0,730**	
	Dec4	39-40	0,832**	

Note: **. Correlation is significant at the 0.01 level (2-tailed).

4.1.2. Reliability test

With cronbach alpha test (α) in this research indicate that all research variables are reliable, because all of alpha coefficient value from each research variable is bigger than standardized (0,6), so that each question item in measurement instrument can Used. The value of correcting total correlation items of all question items is greater than 0.3 (Table 3).

4.2. Confirmatory factor analysis

Table 4 shows the overall results of the confirmatory factor analysis / construct validity of the research measurement model. The construct validity and reliability are two tests to evaluate the ability of the measured variable (manifest) in forming latent variables, in the table below all manifests has a loading factor with a probability of less than 0.05, meaning it is significant in forming latent variables. Also, it can be seen that each latent variable has a construct critical ratio of more than 0.2, which means it comes from one dimension (unidimensional).

Table 4. Confirmatory factor analysis

Research variables	Relationship	C. R.	Loading Factor (λ)	Probability
Environment Internal business (Int)	Int → Int1	-	0.618	0,000
	Int → Int2	7.134	0.925	0,000
	Int → Int3	6.226	0.739	0,000
	Int → Int4	6.100	0.735	0,000
	Int → Int5	6.213	0.738	0,000
	Int → Int6	6.957	0.867	0,000
Environment external business (Ext)	Ext → Ext1	-	0.689	0,000
	Ext → Ext2	6.454	0.806	0,000
	Ext → Ext3	5.927	0.799	0,000
	Ext → Ext4	5.615	0.677	0,000
	Ext → Ext5	5.807	0.762	0,000
	Ext → Ext6	5.825	0.769	0,000
Managerial competence (Cpt)	Cpt → Cpt1	-	0.818	0,000
	Cpt → Cpt2	6.847	0.744	0,000
	Cpt → Cpt3	6.910	0.787	0,000
	Cpt → Cpt4	7.910	0.801	0,000
Decision to choose funding (Dec)	Dec → Dec1	-	0.759	0,000
	Dec → Dec2	7.892	0.763	0,000
	Dec → Dec3	2.000	0.799	0,000
	Dec → Dec4	9.569	0.810	0,000

Source: SEM data analysis

4.3. Goodness of fit test

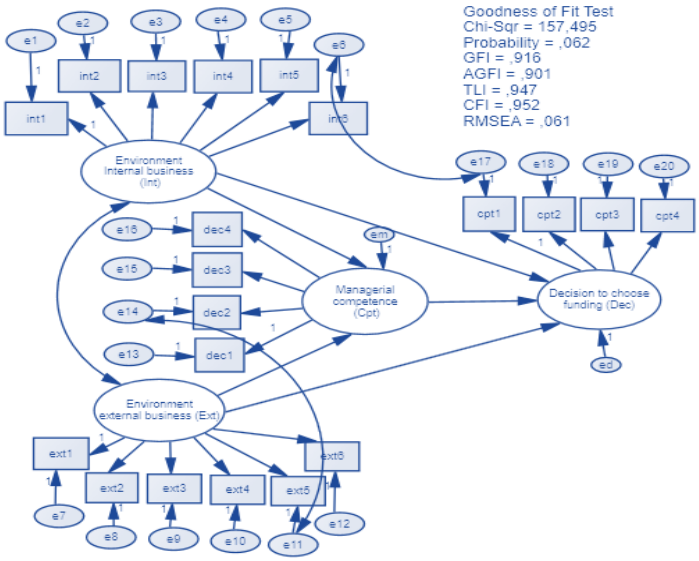
The results of data processing using a sample of 384 showed that the Chi-square was 157,495 with a probability of 0.062. Meanwhile, from GFI, AGFI, TLI, CFI, RMSEA and CMIN / DF respectively 0.916, 0.901, 0.947, 0.952, 0.061 and 1.480 all within the range of acceptable values. The results are shown in Table 5 and Figure 2.

Table 5. Evaluation the fit indices

Indices	Amounts reported
Chi Square	157.495
RMSEA (Root Mean Square Error of Approximation)	0.061
GFI (Goodness of Fit Index)	0.916
AGFI (Adjusted Goodness of Fit Index)	0.901
IFI (Incremental Fit Index)	0.944
TLI (*Tucker Lewis Index)*	0.947
CFI (Comparative Fit Index)	0.952

Source: Amos output

Figure 2. Coefficient of research model path



4.4. Hypothesis testing

Hypothesis testing is performed based on the estimated value of the significance of the parameters of the research model shown in Table 6.

Table 6. Hypothesis testing

H	Relationship	Standardized Coefficient	SE	C.R	P	Decision
H1	Int →Cpt	0,310	0,263	4,944	0,000	Accepted
H2	Ext →Cpt	0,738	0,265	8,577	0,000	Accepted
H3	Int →Dec	0,088	0, 104	1,165	0,072	Reject
H4	Ext →Dec	0,597	0, 340	7,772	0,000	Accepted
H5	Cpt →Dec	0,212	0, 065	8,577	0,000	Accepted

Source: SEM data analysis

There is an effect of Int on Cpt of 0.310, with a CR value of 4.944 and a value of P = 0.000. There is an effect of Ext on Cpt of 0.738, with a CR value of 8.577 and P = 0.000. This shows that H1 and H2 are accepted. There is an influence of Int on Dec of 0.088, with a CR value of 1.165 and P = 0.072. This shows that H3 was rejected. There is an influence of Ext on Dec of 0.597, with a CR value of 7.772 and a value of P = 0.000. There is a Cpt effect on Dec of 0.212, with a CR value of 8.577 and P = 0.000. This shows that H4 and H5 were accepted.

5. Discussion

This study found that the decision to choose a craft small business funding can be explained significantly by internal environment, external environment, and craftsmen's managerial competence. For clear discussion and discussion of research results, carried out one by one as follows:

5.1. Effect of internal environment on managerial competence of handicraft entrepreneurs

The findings of this study inform that the internal environment influences managerial competence of handicraft entrepreneurs. Thus, it can be interpreted that the internal environment provides reinforcement of managerial competence of 0.310. However, this also informs us that there are still opportunities to improve the internal business environment, through the development of 6 indicators of the internal environment, namely: socioeconomic characteristics of craftsmen, the attitude of craft entrepreneurs to bank credit, credit information clarity, and cost efficiency in the small business environment of craftsmen in Java East. Where this can be observed and applied critical to the success of small craft businesses, and also to raise the managerial competence of craft entrepreneurs.

Dominant indicators that shape the internal environment are attitudes towards bank credit (0.925), followed by cost efficiency (0.867), ability to access credit information (0.739), profitability (0.738), craftsman income (0.735), and socioeconomic conditions craftsman (0.618). This shows that the internal environment of small-scale handicraft business stems from the attitude of the handicraft entrepreneur on bank loans, namely: bank credit loans for businesses are very important, and bank credit loans are a very heavy burden. Which is then followed by cost efficiency: namely: the production capacity of the handicraft business is very small, and the business production costs are in accordance with the production capacity. The dominance of attitude indicators on bank credit, should be a trigger for more attention, because the attitude towards credit is often interpreted negatively, when connected with the belief that some craftsmen believe that debt or credit is embarrassing. Likewise, the credit information indicator, which is the second dominant indicator, therefore the craftsmen give more attention in finding information about funding sources that provide lighter credit facilities, so as to increase business capital without burdensome, thus the internal environment of craft small businesses can be further improved. The company's internal environment is the company's resources that will determine the strengths and weaknesses of the company. These company resources include human resources, company resources, and physical resources. With managerial competencies owned by entrepreneurs, will be able to optimize the use of resources, and the three available resources will provide competitive advantage for the company (Peter *et al.* 2007).

The results of this study indicate that internal environmental factors have a positive relationship with the managerial competence of small business crafts. This means that by increasing the management of the internal environment of the business, it will encourage an increase in the managerial competence of handicraft entrepreneurs. This finding is in accordance with the results of research by Mahrip (2010) also shows that there is a significant influence of internal factors on managerial competence. While Dragnić (2014) showed that there were positive and significant influences of internal factors on performance.

5.2. The influence of the external environment on the managerial competence of handicraft entrepreneurs

The findings of this study inform that, the external environment influences the competence of craft entrepreneurs. Thus, it can be interpreted that the external environment provides reinforcement of managerial competence of 0.738. To increase the influence of this external environment, it can be done by strengthening the external environmental indicators, namely indicators of development of development activities, a deeper understanding of credit requirements, lending procedures, entrepreneurial professionalism. Also, there is government support, and an appropriate interest rate in a small craft business environment.

Dominant indicators that shape the external environment are credit requirements (0.806) followed by lending procedures (0.799), interest rates (0.769), government support (0.762), fostering activities (0.689), and professionalism of entrepreneurs (0.677). The findings of this study indicate that these external environmental indicators have a positive relationship with managerial competence of small-scale handicraft businesses. The external environment is the environment that is outside the organization and needs to be analyzed to determine the opportunities and threats that will be faced by the company. While business capital is in the external environment, the company's external environment influences the managerial competence of entrepreneurs. This means that by improving the management of the external environment, it will be able to drive up the value of managerial competence in managerial crafts.

The results of this study reinforce the statement of Nuthall (2001), Acur and Engelyst (2006) that managerial competence will influence the decision to choose a business venture funding. The growth of small businesses is strongly influenced by the managerial competence of the managers (Rizal *et al.* 2017).

5.3. The influence of the internal environment on the decision to choose a craft small business funding

The findings of this study inform that the internal environment does not have a significant relationship to the decision to choose a small business funding craft. This means that until now the existence of an internal environmental management of small-scale handicraft businesses, has not been able to boost the ability of entrepreneurs to be able to choose and decide, from which financial institutions business funds will be taken. The results of the study confirmed that the factors that caused small businesses to be unable to utilize the sources of capital of formal financial institutions were due to: the socio-cultural background of the craftsmen, were in doing their business they tended to use their own funds and did not dare to take risks; the ability of small businesses to utilize credit from formal financial institutions is constrained by difficult loan conditions; also with high guarantees, and limited bank service coverage; convoluted procedures, and unclear information about the availability of credit (Tambunan 2002).

Craft small businesses are lacking information about the existence of credit funds, handicraft entrepreneurs have a reluctance and psychological barriers to deal with banking institutions mainly, because of trust factors; handicraft, small businesses are less able to meet the requirements determined by formal financial institutions and, as a result of discriminatory treatment felt by some handicraft entrepreneurs, especially in terms of loan services (Rahardjo and Ali 2008, Laksmono 2004). The results of the study also reinforce the statement of Gustaman (2000) that the limited absorption of bank credit by small traders due to lengthy credit procedures; lack of bank officer's knowledge about prospective debtors; and the notion that debt / credit is an act of inferiority and contempt.

5.4. The influence of the external environment on the decision to choose a craft small business funding

Dominant indicators that make up the decision to choose funding are capital structure indicators (0.810), followed by the distance of the bank's location from the place of the craftsman (0.799), the amount of the loan that can be obtained (0.763), and the high or low intensity of the crafters borrowers (0.759). This shows that the decision to choose a small business funding for crafts, starting from the capital structure, namely: the number of sources of funds where credit borrowers can be chosen by craft entrepreneurs, the time interval for repayment of loan capital determined by banks, and also banks provide credit loans with a long enough time. Next, the decision to choose business funding is due to the distance of the location of the bank from the place of the craftsman, the amount of the loan that can be obtained from the donor, and the high or low intensity of the crafters' borrowers, namely: the intensity of the loans made by the customers so far, often the craft entrepreneurs get loans from the bank, and the nominal value of the loan ever obtained from the donor.

The findings of this study inform that external environmental factors have a positive relationship with the decision to choose small business funding for handicrafts. Rahardjo and Ali (2008), and Laksmono (2004) show that the capital of small entrepreneurs comes from inheritance, and from personal savings; small businesses are lacking information about the existence of funds, reluctance and psychological barriers to dealing with banking institutions mainly because of trust factors; Small businesses are less able to meet the requirements set by formal financial institutions, as well as discriminatory treatment felt by some entrepreneurs, especially in terms of loan services. Yekti (2010) shows that: sources of credit that have been accessed by the public are in the form of formal financial institutions and informal financial institutions; The limited access to financial resources faced by farmers in rural areas, especially to formal financial institutions such as banking, causes farmers to depend on informal sources of funds.

5.5. The influence of managerial competence on the decision to choose a craft small business funding

From the factor analysis, it can be seen that the dominant factors that shape managerial competence are understanding the organization (0.818), followed by communicating effectively (0.801), managing resources (0.787) and leading and managing people (0.744). This shows that the managerial competence of craft entrepreneurs stems from understanding the organization, namely: entrepreneurs understand and know the overall condition of the business, and what is needed for the progress of the company. Then followed by communicating effectively, that is: being able to establish smooth communication within the company internally, including actively asking colleagues about their business and work development. Next is managing resources, namely: managing resources to analyze future competency needs through surgery on existing business

processes. Furthermore, leading and managing people is developing their men through the provision of feedback, coaching and mentoring that can affect the results of the assessment of the careers of his men. If a handicraft entrepreneur has high managerial competence, then the decision to choose a small business funding will be obtained properly. With the dominant planning indicator of the variable managerial competence, it should be a trigger to pay more attention to managerial competence, because managerial competence, is ownership of personal characteristics and skills that are suitable for overcoming problems and opportunities when and in the right way. Problem solving and the utilization of opportunities by entrepreneurs will ultimately have a positive effect on business results.

Optimal business funding is a combination of loan debt and equity from the owner himself where both sources will produce the lowest average cost of funds (Kao and Liang 2001). To run a business and grow long-term output, alternative capital loans cannot be avoided. For this reason, the most possible source of funds to obtain loans is from banking institutions, bearing in mind that their existence is evenly distributed in all regions, sufficient funds and intermediation functions are carried out. It's just getting a bank loan is not easy. Therefore, entrepreneurs need to make a good business approach and communication, to explain their ideas, and how to convey them to successfully get a loan. In this condition employers' managerial competence is needed.

In fact, several research results show that small entrepreneurs do not yet have a good managerial attitude, this is proven because entrepreneurs have not dared to take risks, also still have difficulty finding information. Therefore, the managerial competence of industrial entrepreneurs influences the decision making on the funding of small industrial businesses. The results of this study are in accordance with the findings of Mahrip (2010), Abraham *et al.* (2001), Köse, and Şencan (2016) who found a significant influence on managerial competence on business performance. The results of this study reinforce the statement of Wilson *et al.* (2002) that: making goals of maximum annual profits and environmental management decisions is the implementation of the decision making process, positively related to technical efficiency. Novianty *et al.* (2018) shows that the quality of management of accounting information systems, dynamic capabilities, user ethics, and top management support have a significant influence on the quality of decision making.

6. Theoretical and practical implications

The theoretical implications obtained or that the internal environment variable, and the external environment has a significant positive effect on the managerial competence of craft entrepreneurs in terms of understanding the organization, leading and managing people, managing resources, and communicating effectively. The managerial competency variable also influences the decision to choose small business funding in terms of the high and low intensity of the crafter's loan, the amount of the loan that can be obtained, the distance of the bank's location from the place of the craftsman, and the capital structure. Thus, this research supports the theory and empirical findings of Suroso (2005), Gustaman (2000), Wirda, and Azra (2015), Nuthall (2001).

Internal factors that need attention, to be able to improve managerial competence and the decision to choose funding, are a matter of knowledge, where small-scale handicraft businesses are less able to meet the requirements specified by formal financial institutions, as well as discriminatory treatment felt by some entrepreneurs, especially in terms of loan services. Thus, entrepreneurs need to add information and knowledge about the requirements needed, financial institutions. The results of this study indicate that the managerial competence of small business crafts is related to the decision to choose funding. Therefore, in an effort to improve decision making in funding, aspects of managerial competence must receive attention.

Conclusions and Recommendations

The new findings of this study are that the internal environment has no bearing on the decision to choose the craft of small business funding. Another finding is the direct relationship between the external environment and the decision to choose funding, the largest value of the three variables hypothesized to influence the decision to choose funding. This confirms that the external environment of the handicraft, small business is very dominant in influencing the decision to choose funding. On the other hand, of the two variables hypothesized to have an effect on the managerial competence of entrepreneurs, the greatest value is the direct relationship between the external environment and managerial competence of craft entrepreneurs. It also emphasizes the role of the external environment of craft small businesses. Therefore, the ability in decision making to choose business funding will increase with an increase in understanding of the business external environment, where this can be done by providing additional capital by making it easier to take credit, and increasing business profits. Increased understanding of the business external environment, will also increase entrepreneurial managerial competence.

To increase managerial competence can be done by providing assistance in business management, and also provides opportunities to attend training and seminars conducted by the capitalist owners.

For the next research it is necessary to increase the scope of the research, it is also advisable to further examine the influence of internal environmental factors that have not supported the decision to choose business funding by adding other variables and indicators as well as expanding the scope of the research area.

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Organizational Innovation Implementations to Achieve Development Goals: Evidence from Indonesia

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Abstract:

Regional autonomy which has been running for almost 18 years has not been able to realize inclusive economic development and there are still many districts that are underdeveloped in Indonesia. This study analyzes the effect of organizational innovation success on district government on the achievement of development goals in districts in Indonesia based on data from 2005 to 2014. This study reveals the need for a reliable management system to manage regional government organizational innovations. Analysis method using Klassen Typology and Partial Least Square. The success of regional autonomy is influenced by independent variables, the position of the district in the four quadrants in the Klassen Typology, and the bureaucratic obstacles in implementing government organization innovations. The conclusion of this study is to implement the innovations of government organizations that are needed in the achievement of regional autonomy, the requirements for quality bureaucracy and a reliable government management system are needed.

Keywords: organizational innovation; Klassen typology; social welfare.

JEL classification: D23; H75; R11.

Introduction

Government alignments are needed to develop lagging and remote areas. It is expected that these areas can grow and develop more rapidly and enable them to reduce gaps with other regions. However, the gap still exists, as evidenced by the existence of undeveloped regions – as much as 123 districts (62%) in eastern Indonesia – because the ability of each region differs in operational funding activities in their respective regions, resulting in fiscal imbalances between regions. Balance funds consist of Revenue Sharing Fund (RSF), General Allocation Fund (GAF), and Special Allocation Fund (SAF). Regional development is a form of efforts to increase the capacity of local government in running their government. The success of regional development is highly dependent on the ability of human resources in districts to innovate district government organizations, such as the New Public Management (NPM). The NPM is an approach to carry out district government administration such as business organizations in order to improve economic aspects, efficiency, and effectiveness (Jones and Kettl 2003, Tinkler 2008).

The NPM principles specifically covered the market orientation, budgeting, performance management, financial reporting, and audit systems aspects. The public sector reform in Indonesia is in line with the five principles of NPM (Prabowo *et al.* 2017). However, NPM is not in line with the philosophy of efficiency and effectiveness in public services so that public sector reform has not yet led to more efficient and effective government. This result in the capital expenditure which is used for infrastructure development cannot be expected to foster the intensity of economic activity. Long-term economic growth is not only supported by the increase in physical capital stock and the amount of labor but also the improvement of the quality of human capital (Lumbantoruan and Hidayat 2014,

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Muttaqin 2011, Rusmin *et al.* 2014, Tamimi 2015). In relation to regional gap problems, there are several problems, *i.e.,* the concentration of manufacturing industry in large cities in Java, the widening of development gap between Western and Eastern Indonesia, the increasing gap between urban and rural areas, lacking of inter-regional development activities, and negligence development of border areas, coastal areas and islands. These problems indicate that the ability of regional autonomy has not been successful. These various problems are due to the limited ability of the region to implement organizational innovation. The limitations of local governments in implementing organizational innovations depend on the quality of human resources. The limitations of the regional government in implementing organizational innovations depend on reliable systems management to manage innovation of district-level government organizations (Borins 2008, Lunenburg 2012, Walker *et al*. 2011, Westrup 2013). Most of the research in Indonesia reveals the failure of regional autonomy due to the low degree of fiscal decentralization and limited capital expenditure.

This research reveals the need for reliable management systems to manage local government organization innovation. Therefore, in this study, it is shown the importance of system management in local government through the Klassen Typology to achieve development goals in Indonesia. Because Indonesia is an emerging country with a lot of districs like other developing countries, then this research is expected to contribute to the global economy in achieving inclusive economic development goals especially for developing countries which are now in a high ratio of poor people, high numbers unemployment, and a lack of income distribution.

1. Literature Review

The agency theory analyzes the contractual arrangement between two or more individuals, groups or organizations. The agency theory within the scope of the public sector relates to inter-governmental financial relations between central and local governments, as well as local government relations with communities. Regional autonomy is the right, authority, and obligation of autonomous regions to regulate and manage their governmental affairs and public interests. Regional income is derived from various sources, *i.e.,* own-source revenue, balance fund, and other legal income. The success of regional autonomy requires reliable systems management to manage innovation of district-level government organizations (Borins 2008, Lunenburg 2012, Walker *et al*. 2011, Westrup 2013).

The economic growth is the process of increasing the production capacity of an economy that is embodied in the form of an increase in national income (Badrudin 2011). Therefore, economic growth can be used as an indicator of economic development success. Social welfare is a condition that shows the state of community life that can be seen from the standard of community life. In this study, Human Development Index (HDI) is a measure of developmental achievements based on some basic components of community life quality. Own-source revenue is one source of local revenue as stated in the regional revenue. Local governments are required to be able to develop and increase their local revenue by maximizing their resources in order to finance every activity, facility, and infrastructure through the allocation of capital expenditure (Anjani 2016, Permatasari 2016, Tuasikal 2008). Based on the descriptions, the research hypothesis:

H1: Own-source revenue has a positive effect on capital expenditure in regency/city Indonesia

Balanced funds are the consequence of the transfer of central government authority to local governments. The central government provides balance funds in order to cover the regional fiscal gap caused by the local government's inability to finance the development of its own with its revenue. The level of independence of local governments in financing regional development – particularly for facilities and infrastructure – is still highly dependent on central government transfers (Anjani 2016). Based on the description, the research hypothesis:

H2: Balanced funds have a positive effect on capital expenditure in regency/city Indonesia.

Economic growth is one of the benchmarks of successful economic development in an area. One form of economic development is the development of facilities and infrastructure that support the activities of the local government. Capital expenditures as a component of direct expenditures will be allocated to finance development activities (Nurmainah 2013 and Priambodo 2014). Based on the description, the research hypothesis:

H3: Capital expenditure has a positive effect on economic growth in regency/city Indonesia.

Economic growth as the relative value of Gross Domestic Product (GDP) change across time indicates the increase of people's income as well (Badrudin 2011). The increasing economic growth over time indicates an increase in people's income, which is, indicated by its fulfilled daily needs. In addition to this, the community is also healthier and educated. In this study, an increase in economic growth will have an impact on improving the social welfare (Muslim *et al.* 2019, Badrudin and Siregar 2015, Sasana 2009). But the other study is not support them

because economic growth negatively affects the social welfare (Hendarmin 2012). Based on the description, the research hypothesis:

H4: Economic growth has a positive effect on social welfare in regency/city Indonesia.

2. Methodology

The study population is the regencies/cities in Indonesia. Determination of sample uses purposive sampling method. The data used are secondary data. Purposive sampling method is a non-random sampling technique where the researcher determines the sampling by determining particular characteristics in accordance with the purpose of the study so that it is expected to answer the research problem. That is, the districts selected as the sample in this study are the districts in Indonesia with particular characteristics in the form of own-source revenue (OSR), balance funds (BF), capital expenditure (CE), economic growth (EG), and social welfare (SW) of 2005 to 2014 data. The source of research data and all of variables size are determined by Director General of Fiscal Balance Regional Government and Central Bureau of Statistics (BPS).

Development planning in Indonesia is carried out by the National Development Planning Agency (BAPPENAS) at the central level and the Regional Development Planning Agency (BAPPEDA) at the regional level. This planning process is regulated in Law No. 25/2004 on National Development Planning System (SPPN). This test is divided into two periods, *i.e.,* the 2005-2009 and 2010-2014. The former one relates to the achievement of development under the Medium Term Development Plan (RPJMN) 2004-2009. The latter one relates to the achievement of development based on Medium Term Development Plan (RPJMN) 2010-2014. One of the primary objectives of the RPJMN is the lessening of regional development disparities, especially rural development, and undeveloped regions so that regions can grow, develop faster, and can catch up with other regions. The evaluation in 2004-2009 identified 199 undeveloped districts in Indonesia. Meanwhile, in 2010-2014 identified the remaining 183 districts in 2010 and 2014 identified the remaining 113 districts (Badrudin and Siregar 2015).

Based on GRDP data, it can be calculated using the Klassen Typology. The Klassen Typology is presented in the form of four quadrant diagrams which describes the position of each regency/city in Indonesia (Badrudin *et al*. 2018). The position of the regency/city in the four quadrant diagram is clockwise, *i.e.* quadrant I (located in the upper left corner), quadrant II (located in the upper right corner), quadrant III (located in the lower right corner), and quadrant IV (in bottom left corner). The regencies/cities in Indonesia which are at quadrant I position indicate that these regencies/cities are in the position of developing regions because the average GRDP growth rate of regencies/cities is greater or equal to the average growth rate of provincial GRDP but the average contribution regency/city GRDP is smaller than the provincial average GRDP. The regencies/cities in Indonesia which are in quadrant II position indicate that these regencies/cities are in prime position because the average GRDP growth rate of regencies/cities is greater or equal to the average growth rate of provincial GRDP and the average contribution regency/city GRDP is greater than or equal to provincial average GRDP.

The regencies/cities in Indonesia which are in quadrant III position indicate that the regencies/cities are in the position as potential regions because the average GRDP growth rate of regencies/cities is smaller than the average growth rate of provincial GRDP but the average GDP contribution of regency/city greater than or equal to the provincial average GRDP. The regencies/cities in Indonesia which are in quadrant IV position indicate that the regency/city is in a position as a backward region because the average GRDP growth rate of regencies/cities is smaller than the average growth rate of provincial GRDP and the average GRDP contribution regency/city is smaller than the provincial average GRDP. Based on the Klassen Typology analysis technique, regencies/cities in Indonesia can be classified as prime areas if they grow fast and have large contributions, potential areas if they grow slowly but large contributions, underdeveloped regions if slow growth and small contributions, and regions develop if they grow fast but contribute small. The mapping results from the Klassen Typology analysis can be linked to development planning activities for the economic development of the regency/city and can be used as a basis for determining the direction of development policy (Badrudin *et al*. 2018). For supporting the results of the quantitative analysis, the authors distributed questionnaires to the heads of regencies/cities. The questionnaire contains information about various factors inhibiting innovation in regencies/cities government organizations.

3. Results and Discussion

Descriptive analysis results of the research variables are shown in Table 1. Based on Table 1, it can be seen that the lowest OSR was in Central Halmahera Regency in 2005 and the highest OSR was in Klungkung Regency in 2014. The lowest BF was received by Hulu Sungai Tengah Regency in 2014, and the highest BF was received by Klungkung Regency in 2014. The lowest CE is received by Surakarta in 2005. The region with the highest CE is Klungkung Regency in 2014. The average EG in this region is 5.84%. However, there were disparities between regions. Some regions have EG with a negative value, even EG reaching a score of -54.72% residing in Buton

Regency in 2014. The region with the highest EG was Sabang City at 51.25% in 2006. The average national of SW was 70.24. Puncak Jaya Regency owned the lowest value of SW in 2010. Banda Aceh City owned the highest value of SW in 2014.

Table 1. Descriptive analysis of OSR, BF, CE, EG, and SW in regency/city of Indonesia

Descriptive Statistic	N*)	OSR (million)	BF (million)	CE (million)	EG (%)	SW
Mean	2641	112,030	664,912	196,153	5.84	70.24
Minimum	2641	1,946	4,101	10,175	(54.72)	38.83
Maximum	2641	9,883,777	53,295,078	9,981,637	51.25	82.22
Standard Deviation	2641	281,194	1,108,231	276,556	3.36	4.97

Source: Obtained from data processing

Note: *) the number of observations; OSR - own-source revenue; BF - balance funds; CE - capital expenditure; EG - economic growth; SW - social welfare

The loading factor results for Human Development Index (HDI) is 1,000. The positive sign of the loading factor coefficient indicates the direction of the contribution. The loading factor value for HDI is higher than 0.7. That is, the measurement model to test the validity of this construct is valid. Variables in this study have a high degree of reliability. This can be seen from the value of composite reliability for all variables value above 0.7, and Cronbach Alpha values are all above 0.7. The relevance value of Q-Square predictors is 0.6309 or 63.09%. So the model is said to have a strong predictive value.

The hypothesis testing in this research is carried out by testing the relationship between variables. The test results are shown in Table 2. The statistical test is performed when p-value <0.05 has been obtained. Based on the analysis, regions with higher own-source revenue and higher capital expenditures have characteristics of the prima region (quadrant II). The test which is carried out throughout the Indonesian regions shows similar result. It can be said that local government expenditure in Indonesia, own-source revenue is one of the sources of revenue that also determines the amount of allocation of capital expenditure in regency/city Indonesia. The result of this hypothesis test support the hypothesis which indicated that own-source revenue has a significant effect on capital expenditure (Anjani 2016, Permatasari 2016, Tuasikal 2008).

Table 2. Hypothesis testing results each quadrant

Relationship variable	Quadrant	Path coefficient	P-value	Prediction	Findings	Hypothesis
H1 OSR —> CE	I	0,040	0,138	+	+	Rejected
	II	0,307	<0,001	+	+	Supported*)
	III	0,263	<0,001	+	+	Supported*)
	IV	0,125	<0,001	+	+	Supported*)
H2 BF —> CE	I	0,739	<0,001	+	+	Supported*)
	II	0,672	<0,001	+	+	Supported*)
	III	0,618	<0,001	+	+	Supported*)
	IV	0,630	<0,001	+	+	Supported*)
H3 CE —> EG	I	-0,104	<0,001	+	-	Rejected**)
	II	0,040	0,255	+	+	Rejected
	III	-0,104	0,019	+	-	Rejected**)
	IV	0,124	<0,001	+	+	Supported*)
H4 EG —> SW	I	-0,119	<0,001	+	-	Rejected**)
	II	0,129	0,016	+	+	Supported*)
	III	-0,031	0,272	+	-	Rejected**)
	IV	0,047	0,048	+	+	Supported*)

Note: *) Significant because the value p-value ≤ 5%; **) Significant but directional relationship between prediction and contradictory findings; OSR - own-source revenue; BF - balance funds; CE - capital expenditure; EG - economic growth; SW - social welfare. *Source*: Obtained from data processing

Test on area with the characteristic of developing region (quadrant I) shows that own-source revenue has no significant effect on capital expenditure. This shows that the region in quadrant I are still less than optimal in collecting levies, taxes, or other levies. Thus, own-source revenue cannot be used for infrastructure development

its area. The regions in quadrant I are region with high growth rates, but low contribution of Gross Regional Domestic Product (GRDP). The results show that own-source revenue has no significant effect on capital expenditure because own-source revenue is mostly used to finance other expenditures, such as personnel expenditure.

The results which are obtained throughout many regions in Indonesia along with the quadrant test indicate that balanced funds have a significant positive effect on capital expenditure. This shows that the allocation of capital expenditure of regency/city is highly dependent on the size of the allocation of balance funds or transfers from central government. The results of this hypothesis test support the result of research which showed balance funds has a significant effect on capital expenditure (Anjani 2016). The results of this hypothesis test support the result of research which showed that GAF and SAF has a significant effect on capital expenditure (Tuasikal 2008). The RSF, GAF, and SAF variables have a positive effect on capital expenditure (Permatasari 2016).

Based on the statistical results from the undeveloped regions, it can be inferred that capital expenditure has a significant positive effect on economic growth. Meaning, although the undeveloped regions possess only small proportion, it still can achieve economic growth. This results support the study which stated that capital expenditure has a positive effect on economic growth (Nurmainah 2013). However, the findings generated from many regions in national-scale show contrasting result. Coefficient of overall test among developing and potential regions has a negative value, while in prima region p-value is more than 5%. Based on the proportion of capital expenditure on total expenditure in developing region, it can be seen that developing region has an average 21.02%, prima region of 21.84%, and potential region of 20.31%. Meanwhile, the proportion of personnel expenditure to total expenditure in developing region is 55.39%, prima region 49.55%, and potential region is 53.49%. This means that large portions of Regional Government Budget for Indirect Expenditures, unproductive capital expenditures, capital expenditures are allocated for long-term investments, budgetary deviations, and the effects of private investment that are more instrumental in influencing economic growth so that all of them minimize the role of capital expenditure in Regional Government Budget (Badrudin 2011). This suggests that in local government, spending in development is still very little when compared to personnel expenditure thus; economic growth cannot be achieved. In addition, budget expenditures conducted by regions in developing, prima, and potential regions may not be accordance with the allocation. The results support the study which stated that the capital expenditure has a significant positive effect on economic growth of (Priambodo 2014).

Based on the results of the test as a whole, prima, and undeveloped regions indicates that economic growth has a significant effect on social welfare. This indicate that the economic development process in prima and undeveloped regions has been successful in improving the social welfare, and has implemented inclusive development that is oriented towards achieving certain economic growth, but still considering the absorption of labor, reduction of the ratio of the poor, reduction of gini-ratio, and orientation of development on the environment. The results of this study to support hypothesis which states that economic growth has a significant effect on social welfare (Muslim *et al.* 2019, Badrudin and Siregar 2015, Sasana 2009). However, the test results in developing and potential regions show the opposite. The economic growth has a significant negative effect on social welfare in developing region. The economic growth does not affect social welfare in potential region. Therefore, the hypothesis which states that economic growth has a positive effect on social welfare is not supported. This shows that the region with characteristic developing and potential region still apply exclusive development that focuses on economic growth accompanied by pro-job, pro-poor, pro-equity, and pro-environment. The result of this study support that economic growth has an adverse effect on social welfare (Hendarmin 2012).

Based on regencies/cities in Indonesia which is divided into four quadrants, namely quadrant I (developing region), quadrant II (prime region), quadrant III (potential region), and quadrant IV (backward region), there is a research hypothesis accepted or rejected depending on the regency/city position in the Typology Klassen. This shows that the quality of the bureaucracy in reliable management systems to manage local government organization innovation is influential in implementing regional autonomy. The results of questionnaire data calculation about bureaucratic barriers of regency/city government employees in Indonesia in carrying out organizational innovation are presented in Table 3.

Based on Table 3, it appears that the barriers to employee bureaucracy in Indonesia in carrying out innovations in governmental organizations between different regency and city governments. In the district government, the biggest obstacle to information technology limitations (35.8%), while the city administration the biggest obstacle to the bureaucratic attitudes and resistance (36.0%). The results of the questionnaire are very concerning, because the quality of human resources of regency/city government employees in Indonesia appears to have a major problem in the conditions of attitudes and resistance and responses to information technology.

Even though these two things are important keys for regency/city governments in Indonesia in realizing inclusive development goals.

In innovating in government organizations, the bureaucracy must prioritize the nature of the task approach that is directed at the community's care and services and avoids the impression of an approach to power and authority. In addition, the bureaucracy needs to improve the organization characterized by modern organizations and must be able and willing to transform itself from a rigid bureaucracy to a bureaucratic organization whose structure is more decentralized, innovative, flexible and responsive (Lumbantoruan and Hidayat 2014, Muttaqin 2011, Rusmin *et al.* 2014, Tamimi 2015). Based on this view, in realizing a good and efficient bureaucracy it is necessary to prepare a workforce that truly has the ability, interest loyalty in competency, and relevance of interests. The quality of bureaucratic service must meet the dimensions of reliability, responsiveness, assurance, empathy, and tangibles.

Table 3. Results of questionnaire data calculation

Bureaucratic barriers	Regency (%)	City (%)
Bureaucratic Attitudes and Resistance	22.2	36.0
Human Resource Limitations	20.2	15.8
Limited Bureaucratic Units in Coordination	10.8	15.5
Logistic	11.0	6.2
Information Technological Limitations	35.8	26.5
TOTAL	100.0	100.0

Note: Number of respondents as many as 1,000 bureaucracy employees in Indonesia which includes district government employees as many as 600 people and city employees as many as 400 people. *Source*: Obtained from data primer

Conclusion

Based on the result of analysis and discussion, the following conclusions are 1) own-source revenue has a positive effect on capital expenditure in regency/city Indonesia. This occurs in areas with the characteristics of prima, potential, and undeveloped regions. However, areas with characteristics of developing region, own-source revenue has a negative effect on capital expenditure; 2) balanced funds have a positive effect on capital expenditure in regency/city Indonesia. This occurs in areas with characteristic developing, prima, potential, and undeveloped regions; 3) capital expenditure has a positive effect on economic growth in regency/city Indonesia. This occurs in an area with characteristic of undeveloped region. The capital expenditure has a negative effect on economic growth for characteristic of developing, prima, and potential regions. This means that large portions of Regional Government Budget for Indirect Expenditures, unproductive capital expenditures, capital expenditures are allocated for long-term investments, budgetary deviations, and the effects of private investment that are more instrumental in influencing economic growth so that all of them minimize the role of capital expenditure in Regional Government Budget; and 4) economic growth has a positive effect on social welfare in regency/city Indonesia. This occurs in areas with the characteristic of prima and undeveloped region. However, in areas with characteristic of developing and potential region show that economic growth has a negative effect on social welfare. There is a research hypothesis accepted or rejected based on the position of regency/city in the Typology Klassen. So the quality of the bureaucracy in reliable management systems to manage local government organization innovation is influential in implementing regional autonomy.

Based on the conclusions generated in this study, the suggestion is expected to be useful*, i.e.* organizational innovation on district government is required for local governments to achieve development goals in regency/city in Indonesia, because the regional autonomy that has been running for almost 18 years has not been able to realize the inclusive economic growth and still many regencies and cities that become undeveloped areas. For further study it is expected to increase the indicators of social welfare such as ratio of the poor, open unemployment rate, and gini index, so that the achievement in the goal of development is inclusive development, namely economic development oriented to economic growth and increasing the indicators of social welfare.

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Intellectual Capital Disclosure: Empirical Evidence of Indonesian Banking Companies

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Abstract:

This study aims to reveal whether intellectual capital performance is able to mediate the effect of profitability, leverage, company size, and age of the company on intellectual capital disclosure. This study used a sample of banking companies in Indonesia. Furthermore, research data was processed by using a path analysis approach through the WarpPLS tool. Based on the data analysis, it was found that the profitability and age of the company directly and indirectly affected the intellectual capital performance and intellectual capital disclosure. This means that the intellectual capital performance can increase the effect of profitability and age of the company on intellectual capital disclosure. On the other hand, leverage and company size were not able to show an effect on intellectual capital performance and intellectual capital disclosure either directly or indirectly, therefore the intellectual capital performance was not able to be a mediating variable between leverage and company size on intellectual capital disclosure. So the results of this study suggest banking companies to optimize intellectual capital information in annual financial statements and other financial statements so that the public as a reader can make it as material in decision making.

Keywords: intellectual capital; performance; disclosure.

JEL classification: 034; P27; L25.

Introduction

Intellectual capital disclosure is disclosure made by the company and is voluntary to complete the information needed by interested parties Abeysekera (2007). Guthrie and Petty (2000) revealed that (1) more intellectual capital disclosure is presented separately and not presented in numbers or quantitative, (2) intellectual capital disclosure is mostly done by companies but there is no specific pattern in the report on intellectual capital disclosure, (3) Reporting and intellectual capital disclosure are still incomplete, and (4) The entire company emphasizes that intellectual capital is very important for success in facing competition in the future.

Most research on intellectual capital disclosure is carried out by referring to the annual report. Some researchers argue that the company's annual report is the most important means of communication used by companies to convey information to various stakeholders. The document is a mandatory document, which must be reported every year by all incorporated companies, aims to make it easier for users to make a comparative analysis.

In addition, in countries with low intellectual capital disclosure, the annual report is still the most important document used by investors to assess the company's prospects (Souissi and Khlif 2012).

In Indonesia, PSAK 19 states that intangible assets are recognized if:

- it is probable that the company will obtain future economic benefits from these assets;
- the cost of the asset can be measured reliably.

This requirement is difficult to fulfill, so that intellectual capital cannot be reported in the financial statements. This condition makes it difficult for potential investors to be able to do an analysis and assessment of the company's future prospects based on the potential intellectual capital owned (Ulum, Ghozali and Purwanto 2014).

The limited provisions of accounting standards regarding intellectual capital (IC) encourage experts to create IC measurement and reporting models Ulum *et al.* (2014). One very popular model in various countries is the Value Added Intellectual Coefficient (VAIC^{tm}) developed Pulic (1998). The assumption is that if a company has a good IC, and is well managed, then it will certainly have an impact. That impact is then measured by Pulic (1998) with VAIC^{tm}, so that VAIC^{tm} is more accurately referred to as a measure of intellectual capital performance (ICP) (Ulum *et al*. 2014).

Previous research on intellectual capital performance in banks uses the VAIC^{tm} method adopted by Pulic (1998) as a measurement of the intellectual capital performance and its (El-Bannany 2012). There is strong evidence that VAIC^{tm}, as a measure of intellectual capital performance, has certain deficiencies that limit its use and affect the validity of the results. Chang (2007) argues that VAIC^{tm} is an incomplete measure of intellectual capital performance because it ignores elements such as research and development (R&D) costs and intellectual property in its structural capital components. Chu, Chan, Wu, and WY (2011), Ståhle, Ståhle and Aho (2011) argue that if the results of the VAIC^{tm} measure are negative as a result of having a negative book value (for example) of negative equity or operating profit in the calculated measurement, then misleading analysis will happen.

Other intellectual capital measurement alternatives are limited to financial indicators and unique non-financial perspectives that only complement the individual profile of the company. Especially non financial indicators are not available other companies. As a result, the ability to apply measurements consistently with large and diversified samples is limited (Firer and Williams 2003). In line with this, Mouritsen (2004) states that traditional financial statements do not include information that is relevant for users of financial statements to understand how the resources they invest can create value for users in the future. In theory, companies that have good intellectual capital performance will certainly tend to inform the IC's 'wealth' in the annual report. In other words, in addition to size, age, profitability, and leverage, ICP is one of the drivers in the practice of voluntary disclosure of IC information through company annual reports (Ulum *et al*. 2014).

Profitability is the result of management performance in managing the company in a certain period. Profitability measures can be used in various ways such as: operating income, net income, the rate of return on asset, and the rate of return on equity. Profitability ratios indicate success in generating company profits in an accounting period. Horne and Wachowicz (2008) say that profitability ratios consist of two types, namely, ratios that show profitability in relation to sales (gross profit margins and net profit margins), and profitability in relation to investments, namely return on assets (ROA) and return on equity (ROE).

Kateb (2014) found that profitability was not a significant determinant of ICD. This contradicts the findings of García-Meca, Parra, Larrán, and Martínez (2005) and Kang and Gray (2011) because the results of the study found a positive and significant relationship between the level of ICD, return on equity and price to book in Spain. Furthermore, Kateb (2014) showed a negative and significant relationship between leverage and the ICD level. This result is justified because corporate debt can replace the role of voluntary disclosure in reducing agency costs arising from contractual relationships between managers and shareholders. Indeed, payment of debt costs at fixed intervals reduces the value of cash flow.

In the service companies, especially banks that are included in the group of large company size, efforts to find, develop, explore, maintain and disclose superior resources will be maximized. The company has the availability of capital owned by large companies in providing awards in the form of incentives or bonuses to improve the performance of company resources. Abdolmohammadi (2005) stated that there is a positive relationship between IC disclosure and market capitalization. Whereas in banking companies included in the group of medium and small companies, the utilization of the resources they have is still small. That is because the service company has limited capital in an effort to utilize and disclose intellectual capital.

Cooke (1992) stated that company size is used as an important factor in explaining the different levels of disclosure in a number of different countries. Cooke (1989) found that company size in Sweden was very significant in explaining differences in the level of company disclosure. Kateb (2014) says that several other studies have suggested a positive relationship between the size and level of voluntary ICD in different contexts Kang and Gray,

2011) and Williams (2001) found that size did not have a significant relationship with ICD levels. Haniffa and Cooke (2005) confirm that younger companies try to increase the level of communication to reduce skepticism and strengthen investor confidence. Previous research, the results showed that the effect of company age on ICD was inconsistent. The research of Li, Pike, and Haniffa (2008), Rimmel (2009), and Abdul Rashid, Kamil Ibrahim, Othman, and Fong See (2012) found a negative association relationship but research of White, Lee, and Tower (2007), apparently found a positive relationship. Nikolaj, Nielsen, Gormsen, and Mouritsen (2005) assert that company age does not have a significant relationship with the level of intellectual capital disclosure.

Zheng, Liu, and George (2010) argue that the positive impact of a company's ability to innovate increases with age. Wahab, Abdullah, Uli, and Rose (2010) argue that the age of joint ventures has a positive impact on the level of technology transfer, which in turn will have a positive influence on company performance. Gopalakrishnan and Bierly (2006) argue that company age affected the success of a company's knowledge strategy. El-Bannany (2012) argues that the performance of older companies is better than the strategy of younger companies, arguing that staff experience, goodwill, brand and economies of scale, which in turn can be transformed into competitive advantage and reflected in the strength component of intellectual capital performance which is indicated by factors of internal capital, external capital and human capital.

In Indonesia, IC research in banking for example has been conducted by (Ulum 2009, Ulum *et al.* 2014, Widarjo 2011, Santoso 2012). The last two studies examine the effect of IC on company performance, while the first only measures the intellectual capital performance based on the original VAIC^{tm} formula. Research by Ferreira, Branco, and Moreira (2012) showed that the types of intellectual information disclosed by many companies in annual reports relate to management processes, business collaboration, brands, and worker profiles. Other results indicate that auditor size and type are significant in explaining intellectual capital disclosure, whereas leverage, profitability, ownership concentration, and the level of intellectual capital are not significant for intellectual capital disclosure. While Ulum *et al*. (2014) found that age and IC performance (VAIC^{tm}) had a negative effect on intellectual capital disclosure.

Research conducted by Nikolaj *et al.* (2005), found that managerial ownership factors have a significant effect on intellectual capital disclosure but company size and firm age do not affect intellectual capital disclosure. Meanwhile, in the research of Brüggen, Vergauwen, and Dao (2009), company size and type of industry have a positive effect on intellectual capital disclosure. Abdolmohammadi (2005) provides evidence about the relationship between industry types and intellectual capital disclosure in annual reports of companies in America. White *et al.* (2005) found a positive effect on company size on intellectual capital disclosure but Nikolaj *et al.* (2005) found no effect on company size on intellectual capital disclosure. The inconsistency of some of the results of the study is thought to be a trigger for various degrees of disclosure of the company's intellectual capital. Therefore, further research needs to be done to obtain consistency findings when applied with different environmental conditions.

1. Literature review

1.1. Stakeholder theory

Stakeholder theory states that organizations are expected to carry out important activities according to stakeholders and report these activities to stakeholders. This theory states that all stakeholders have the right to obtain information about organizational activities that can influence decision making, even when stakeholders choose not to use that information, and when stakeholders cannot directly play their role in the survival of the organization Deegan (2004)This theory states that the organization will choose to voluntarily disclose more information about environmental, social and intellectual performance and at its mandatory request, to meet the actual or desired expectations of stakeholders.

Stakeholder theory can be tested in various ways, namely using content analysis of corporate financial statements (Guthrie *et al.* 2006). According to Guthrie *et al.* 2006, through financial statements is an efficient way for organizations to communicate with stakeholders related to certain strategic control of the organization. Content analysis regarding the disclosure of intellectual capital can be an important measure of stakeholder communication with the organization. Does the company respond to stakeholder expectations, both actual and stakeholder expectations, by offering IC accounts that are voluntarily disclosed? This question has received attention, but deeper studies are needed to produce conclusive opinions (Guthrie *et al.* 2006).

In the context of explaining the relationship between VAIC^{tm} and the company's financial performance, stakeholder theory must be viewed from both the ethical, moral and managerial fields. Ethically, all stakeholders should have the right to be treated fairly by the organization, so managers must manage the organization for the benefit of all stakeholders. When managers are able to manage the organization to its full potential, especially in the effort to create value for the company, it means that managers have fulfilled the ethical aspects of this theory.

Value creation in this context is to utilize all the potential of the company, both employees (human capital), physical assets (physical capital), and structural capital. Good management of all this potential will create value added for the company which can then drive the company's financial performance for the benefit of stakeholders.

The managerial field of stakeholder theory believes that the power of stakeholders to influence corporate management must be seen as a function of the level of stakeholder control over the resources needed by the organization (Watts and Zimmerman 1986). When the stakeholders try to control the organization's resources, then the orientation is to improve the welfare of stakeholders. Welfare is realized by the higher return generated by the organization.

Stakeholders have an interest in influencing management in the process of utilizing all the potential possessed by the organization because it is only by good and maximum management of all this potential that the organization will be able to create value added. This value added is then to drive the company's financial performance which is the orientation of the stakeholders in intervening in management.

1.2. Legitimacy theory

The theory of legitimacy is closely related to stakeholder theory. The legitimacy theory states that organizations continually look for ways to guarantee operations within the limits and norms that apply in society (Deegan 2004). From the perspective of legitimacy theory, the company will voluntarily report its activities if management considers that the activity is indeed expected by the community. The legitimacy theory lies in the conclusion that there is a 'social contract' between the company and the communities around which the company operates. The social contract in question is a way to explain most of the community's expectations about how the company should carry out its operations. Of course, contracts or social expectations always change over time, thus demanding companies to be more responsive to changes in the social environment in which they operate.

Lindblom (1994) states that if an organization considers that its legitimacy is being questioned, then the organization can adopt some appropriate strategies to maintain its legitimacy. Lindblom (1994) First, the organization can find ways to educate and inform stakeholders of changes in the organization's performance and activities. Second, organizations can find ways to change stakeholder perceptions, without changing the actual behavior of the organization. Third, organizations can look for ways to manipulate stakeholder perceptions by redirecting attention to certain issues to other related issues and directing interest in the emotional symbols of Guthrie *et al*. (2006).

The legitimacy theory positions that organizations must continuously show that they are operating in a manner consistent with social values (Guthrie and Parker 1989), this can often be achieved through disclosure in company reports. Organizations can use disclosure to demonstrate management's attention to social values, or redirect community attention to the existence of negative effects of organizational activity (Lindblom 1994). Previous research assessed the voluntary disclosure of annual reports and states that reporting environmental and social information is a method that organizations can use to respond to public pressure (Guthrie *et al.* 2006).

Furthermore, Guthrie *et al*. (2006) states that the best tool for measuring intellectual capital reporting is to use content analysis. Where, the legitimacy theory is closer to the reporting of intellectual capital and relates to the use of content analysis methods as a measure of the reporting. Companies seem to be more inclined to report intellectual capital, if the company has a special interest to do so, this might happen when the company finds that the company is not able to legitimize its status based on tangible assets which are generally known as symbols of company success.

1.3. Intellectual capital disclosure

Disclosure of company activities is useful for users of financial statements to obtain complete information and a picture of economic events that have a positive or negative effect on the results of the company's operations in a reporting period. Disclosures in the financial statements divided into two, namely:

- *Mandatory disclosure.* Mandatory disclosure is the disclosure of information required by applicable regulations and has been established by a regulatory agency or an authorized agency. In Indonesia, the institution that becomes the mandatory disclosure authority is Bapepam (Capital Market Supervisory Agency) is now changed to OJK (Financial Services Authority).
- *Voluntary disclosure.* Voluntary disclosure is the disclosure of information in excess of what has been required by the competent authority. Voluntary disclosure is one of the strategies undertaken by company management to attract the attention of investors to invest funds in the company, where managers will disclose information that is good news and is in great demand by investors.

Intellectual capital is generally identified as the difference between the market value of the company (the company's business) and the book value of the company's assets or from its financial capital, this is based on an observation that since the late 1980s, the market value of most businesses is knowledge-based businesses and has become greater than the value reported in the financial statements based on calculations made by accountants Roslender (2004). Researcher Edvinsson and Malone (1997) identifies intellectual capital as the hidden value of business. The term of "hidden" IC here is used for two related things. First, intellectual capital especially intellectual assets or knowledge assets are not generally visible like traditional assets and second, such assets are usually not seen in financial statements.

Bontis, Janošević, and Dženopoljac (2015) said the value of the company is obtained from the efforts that have been made to estimate the value of knowledge; it is assumed that the increase and use of better knowledge will cause a beneficial effect on company performance. In connection with these assumptions, the intangible and dynamic character of knowledge and experts' agreement gaps on the definition of knowledge cause a major obstacle (Boekestein 2006. Knowledge categories can be divided into three categories, namely employee-related knowledge (human capital), customer-related knowledge (customer or relational capital) and company-related knowledge (structural or organizational capital). These three categories form an Intellectual Capital for the company (Boekestein 2006).

Intellectual Capital is often defined as knowledge resources in the form of employees, customers, processes or technology that companies can use in the process of creating value for the company (Nikolaj *et al.* 2005). According to Guthrie and Petty (2000), they suggested that intellectual assets can be considered as IC. Opinion Abeysekera (2007) said that most definitions of IC put forward by experts view that the benefits of IC do not need to be immediately identified, but tend to be accrued through long-term periods.

In PSAK No. 19 of 2009 concerning intangible assets, it has been stated that IC is an intangible asset category. However, some intangible assets such as goodwill, that is, trademarks produced within a company may not be recognized as intangible assets. Therefore, the disclosure of information about IC is voluntary, because PSAK No. 19 has not yet regulated IC in terms of its identification or measurement. Criteria to meet the definition of intangible assets can be identified, among others, the control of resources and the existence of future economic benefits.

The definition of Intellectual Capital Disclosure itself has been debated vigorously among experts in various literatures. The financial statements are used for general purposes (General Purpose Financial Reporting) as a basis, it can be said that Intellectual Capital Disclosures can be viewed as a report intended to meet the information needs of users, it is prepared for reporting so that it can meet all the needs of stakeholders (Abeysekera 2007).

Furthermore, Guthrie and Petty (2000) did not convey the definition of Intellectual Capital Disclosure explicitly, but they alluded to the fact that currently the ICD provides greater benefits than in the past. The economic sector that has the greatest benefit, especially, has the characteristics of a dominant industry which then undergoes changes. The manufacturing sector is changing to the high technology, financial and insurance services segments.

Mouritsen, Larsen and Bukh (2001) states that the Intellectual capital disclosure in a financial statement as a way to express that the report describes the company's activities that are credible, integrated (cohesive) and "true and fair". Mouritsen *et al.* (2001) refer to the IC report which has many of the Intellectual Capital Disclosure literature based on textual analysis of financial statements. The company currently has very little reporting on Intellectual Capital separately. This is because intellectual capital disclosures are carried out in different ways, likely to lead to cohesive reports, so there is no need to provide credible disclosures about company activities. Mouritsen *et al.* (2001) states that Intellectual Capital Disclosures are communicated to internal and external stakeholders by combining numerical, visual and narrative reports that aim to create value. Nikolaj *et al.* (2005) also confirms this, that IC reports in practice contain various financial and non-financial informations such as employee turnover, job satisfaction, in-service training, customer satisfaction, accuracy of supply, *etc*.

1.4. Intellectual capital performance

Moeheriono (2012, 95) defines performance is a picture of the level of achievement of the implementation of a program of activities in realizing the goals, objectives, vision and mission of the organization as outlined through the strategic planning of an organization. Performance can be known and measured if an individual or group of employees already has criteria or standards of success that have been set by the organization. According to Armstrong (2004) performance is the result of work that has a strong relationship with the strategic objectives of the organization, customer satisfaction and contribute to the economy.

The limited provisions of accounting standards regarding Intellectual capital encourage experts to create models for measuring and reporting Intellectual capital. One of very popular model in various countries is the Value

Added Intellectual Coefficient (VAIC™) developed by Pulic (1998). The Intellectual Capital Performance Method (VAIC™) does not measure Intellectual Capital, but measures the impact of Intellectual Capital Management (Ulum *et al*. 2008). The assumption is that if a company has good Intellectual capital and is well managed, there will be an impact. That impact is then measured by Pulic with VAIC™, so this performance model is referred to as the Intellectual Capital Performance measure which Mavridis (2004), Barathi (2007) dan Ulum (2009) call the business performance indicator (BFI).

Pulic (1998) Defines the intellectual capital performance (VAIC™) is a logical continuation of the measure of company success, which provides more detailed information about a company's situation. The intellectual capital performance illustrates the company's ability to manage and maximize its IC (Ulum 2015) intellectual capital performance is a term often used in the topic of measuring intellectual capital performance. Some methods to measure the intellectual capital performance include VAIC, MVAIC, Extended VAIC Plus and iB-VAIC.

VAIC™ is designed to present information about value creation efficiency of tangible assets and intangible assets of a company that stems from the company's ability to create value added (VA). Value added is the most objective indicator to assess business success and shows the company's ability to create value. VA is calculated based on the difference between input and output (Pulic 1999).

Pew Tan *et al*. (2007) States that output (OUT) represents revenue and covers all products and services sold in the market, while input (IN) covers all expenses used in obtaining revenue. According to Pew Tan *et al*. (2007), what is most important for this model is that the employee burden is not included in the IN. Because of the active role of employees in the value creation process, intellectual potential is not counted as a cost and is not included in the IN component (Pulic 1999). Therefore, a key aspect in the Pulic model is treating labor as a value creation entity (Pew Tan *et al*. 2007).

VA is determined by the efficiency of Human Capital (HC) and Structural Capital (SC). Another relationship from VA is capital employed (CE), which in this case is labeled with VACA. VACA is an indicator for VA created by a unit of physical capital. Pulic (1998) assumes that if 1 unit of CE generates a greater return than another company, it means that the company is better at utilizing its CE. Thus, better use of CE is part of the company's IC (Pew Tan *et al*. 2007).

Futhermore, Value Added Human Capital' (VAHU) shows how much VA can be generated with funds spent on labor. The relationship between VA and HC shows HC's ability to create corporate value (Pew Tan *et al*. 2007). Consistent with the views of other IC authors, Pulic (1998) argues that total salary and wage costs are indicators of company HC.

The next relationship is "structural capital coefficient" (STVA) as a form of structural capital (SC) contribution in creating corporate value. STVA measures the amount of SC needed to produce 1 VA rupiah and is an indication of the success of SC in creating corporate value (Pew Tan *et al*. 2007). SC is not an independent measure like HC, it depends on value creation (Pulic 1999). That is, according to Pulic (1999), the greater the contribution of HC in the creation of corporate value, the smaller the contribution of SC in terms of the creation of the company's value Pulic (1999). Furthermore, Pulic (1999) stated that SC is VA minus HC, which has been verified through empirical research in the traditional industrial sector (Pulic 2000). The last ratio is to calculate the company's intellectual ability by adding up what was previously calculated. Therefore, the sum is formulated in a new, more unique indicator, the VAIC (Pew Tan *et al.* 2007).

The advantage of the VAIC method is that the data needed is relatively easy to obtain from various sources and types of companies. Data for calculating these various ratios are standard financial figures available in the company's financial statements. Other IC measurement alternatives are limited to producing unique financial and non-financial indicators that are only to complete the profile of an individual company. These indicators are non-financial indicators that are not available or not recorded in other companies (Pew Tan *et al.* 2007). Consequently, the ability to consistently implement alternative IC measurements in large and diversified samples is limited (Firer and Williams 2003).

1.5. Hypothesis development

1.5.1. Effect of profitability, leverage, company size and company age on the intellectual capital performance

The Bank's business services are always built on the basis of people's trust in securing their assets. Banks that function as financial institutions will certainly maintain their activities in accordance with the rules made by the Supervisory Bank (BI). Banks are required to maintain the trust required to carry out their activities in accordance with professional, reliable, and commercial. The results of these activities are made periodic financial statements in accordance with generally accepted standards, with the report showing the performance of a bank. Banks that perform well, of course, periodic reports show positive results.

The better the performance, the public trust in the bank will certainly increase. Moh-Saleh *et al.* (2009) examined in Malaysia in 2005-2007 also showed that profitability affected the intellectual capital performance while leverage as a control variable did not affect the intellectual capital performance. El-Bannany (2012) who examined the profitability of banks in the United Arab Emirates (UAE) showed that profitability had no effect on intellectual capital performance, while the size and age variables of the company showed a significant effect on the intellectual capital performance. Likewise, El-Bannany (2015) findings with banking research in Egypt showed a significant positive relationship between company size and intellectual capital performance.

Based on the description above, the hypothesis in this study was formulated as follows:

H1: Profitability, leverage, company size and company age significantly affect the intellectual capital performance.

1.5.2. Effect of profitability, leverage, company size and company age on intellectual capital disclosures

The main role of bank managers is to be able to provide income and prosperity for bank shareholders. The prosperity of the bank's shareholders is obtained if the bank's activities increasingly show a positive trend in profitability, which is the bank's professional performance. To convince shareholders and potential investors need an accurate strategy. One strategy in the era of globalization is to provide information that is voluntary to the public. As Haniffa and Cooke (2005) say that the higher the level of profitability the more voluntary information will be disclosed to the public. Because the greater the company's financial support, the more disclosure of information including intellectual capital disclosure. Profitability can be said to have a positive influence on intellectual capital disclosure.

Banks in running their business are very dependent on the public who entrust funds in the form of shares, bonds, current accounts, deposits and savings. These funds are for banks to represent debt (leverage) to the public, both short-term debt and long-term debt.

The size of the company and the age of the company become a barometer of the success of a bank in the face of intense competition in the era of advanced technology. The size of the bank and the age of the company are among the variables that are often used to explain the intellectual capital disclosure by banks in annual reports. The greater the company size and the company age, the higher the information disclosure. By expressing more intellectual capital, banks try to provide more value-added information (value added). With this information disclosure, it is expected that shareholders, investors, and potential bank investors have a high level of security towards the funds deposited.

The results of research conducted by several researchers found a positive effect between profitability and the extent of intellectual capital disclosure of (García-Meca and Martínez 2005), (Kang and Gray 2011). While the results of research by (Ferreira *et al.* 2012, Kateb 2014, Ulum *et al.* 2014) show the results that profitability has no effect on intellectual capital disclosure. The results of research conducted by several researchers Ferreira *et al.* (2012), Kateb (2014), Ulum *et al.* (2014) show the results that leverage has no effect on intellectual capital disclosure.

The results of research conducted by several researchers found a positive effect between company size on the intellectual capital disclosure El-Bannany (2012), Ferreira *et al.* (2012), Kateb (2014), Li *et al.* (2008). While the results of (García-Meca and Martínez 2005, Kang and Gray 2011, Ulum *et al.* 2014) show the results that company size has no effect on intellectual capital disclosure.

The results of research conducted by several researchers found a positive effect between company age on the intellectual capital disclosure as El-Bannany (2012), Ulum *et al.* (2014); while the research results of García-Meca *et al.* (2005), Nikolaj *et al.* (2005) and White *et al.* (2007) show the results that the age of the company does not affect the intellectual capital disclosure.

Based on the discussion above, the second hypothesis (H2) is:

H2: Profitability, leverage, company size and company age significantly affect intellectual capital disclosure.

1.5.3. Effect of intellectual capital performance on intellectual capital disclosure

The rapid technological change in the factors of production underlies business in the new economy, it is very important to know whether companies have also revised the practice of disclosure of reports in response to these changes. This is also in line with the demands of the users of accounting information so that companies disclose more information about IC (Williams 2001).

Mouritsen (2004) states that traditional financial statements do not include information that is relevant for users of financial statements to understand how the resources they invest can create value for the company in the future. In theory, companies that have good IC performance certainly have a tendency to inform the IC's "wealth"

in the annual report. In other words, the intellectual capital performance is one of the triggers in IC voluntary disclosure practices through company annual reports.

So far, not many studies have directly tested the effect of intellectual capital performance on intellectual capital disclosure. Williams (2001) dan Ulum (2015) shows that intellectual capital performance is negatively related to company IC disclosure. Both of these results contradict the assumption that companies will tend to give signals about the positive things they have, so that the performance of high intellectual capital should be a very good signal for the company. Based on the discussion above, the third hypothesis (H3) is:

H3: Intellectual Capital Performance significantly affects the Intellectual capital disclosure.

1.5.4. Effect of profitability, leverage, company size and company age on intellectual capital disclosure through intellectual capital performance

Intellectual capital disclosure and intellectual capital performance are closely related to the profitability of a bank. When banks in their activities obtain good intellectual capital performance, it will increase the intellectual capital disclosure as a voluntary value-added report. It means that the bank operates in accordance with the objectives, vision and mission that have been made before. A good intellectual capital performance will improve the reputation, trust and image of the bank in the public view. Banks that have good intellectual capital performance will certainly more to inform the 'wealth' through the company's intellectual capital in the annual report. In other words, profitability, leverage, company size and company age and the intellectual capital performance is one of the factors in the practice of voluntary intellectual capital disclosure information through the company's annual report.

Based on the discussion above, the fourth hypothesis (H4) is:

H4: Profitability, leverage, company size and company age significantly affect Intellectual Capital Disclosure through Intellectual Capital Performance.

2. Methodology

The population of this study was all banking companies (commercial banks) operating in Indonesia from at least 2014 to 2017 and regularly reports their financial position to the Indonesia Stock Exchange (IDX). Based on OJK data, the number of banks in Indonesia based on the Indonesia Banking Directory 2017 is 40 banks consisting of government-owned banks, national private banks (BUSN) foreign exchange, BUSN non-foreign exchange.

The sample of this research is purposive sampling where the sample is used if it meets the criteria: Reporting its activities consecutively for 4 years on the Indonesia Stock Exchange (IDX) from 2014-2017, Banking companies whose activities benefit, Available annual report data during the research period. Furthermore, with a purposive sampling technique a sample of 22 companies was obtained, with the following details. There are 40 banking companies listed on the Indonesia Stock Exchange 2014-2017, companies that do not meet the criteria: Inconsistently issued financial statements of 2 companies, did not provide complete information on 9 companies, the company suffered 7 companies' losses. The number of samples used in this study was 88 research samples. Furthermore, this research variable is as follows.

Table 1. Operational Variable

No	Variable	Measure/Proxy	Scale
1.	Profitability	ROA	Ratio
2.	Leverage	Total Debt divided by Total Equity	Ratio
3.	Company Size	Total Assets	Nominal
4.	Company Age	The age of company from its establishment until research is conducted	Nominal
5.	Intellectual Capital Performance	Value added Intellectual Coefficient (VAICtm)	Ratio
6.	Intellectual Capital Disclosure	IC Disclosure Index	Ratio

Furthermore, the data analysis technique of this study uses a descriptive analysis and path analysis approach. The analysis technique used is descriptive statistics to produce mode values and mean values of each variable. In this study, both exogenous variables of Profitability, Leverage, company size, company age, and endogenous variables of Intellectual Capital Performance and Intellectual Capital Disclosure, both are built with formative indicators with the calculation process assisted by WarpPLS software.

3. Results and discussion

3.1. Results

Descriptive analysis in this study was used to see an overview of the data used including independent variables and dependent variables. The dependent variable in this study is the intellectual capital disclosure, while the independent variables include profitability, leverage, company size and company age. Then the mediating variable is the intellectual capital performance. The following is a descriptive analysis of the independent variable, the dependent variable and the mediating variable.

Table 2. Descriptive statistic results of profitability, leverage, company size, company age, IC performance and intellectual capital disclosure for 2014 - 2017

Variable	Mean	SD	Maximum	Minimum
Profitability	1.830	1.038	4.730	0.090
Leverage	6.693	2.632	14.916	3.209
company size	2.841	0.908	4.000	1.000
Company age	48.227	21.253	111	16
IC performance	6.698	2.827	14.542	2.248
IC disclosure	0.798	0.102	1.000	0.500
TOTAL				22

Source: Output Warp-PLS 6.0, processed

Profitability was measured by using the Return on Assets (ROA) ratio. Return on Assets is a measurement of the company's overall ability to generate profits with the amount of assets in a given period. As Table 2 results of descriptive statistics it is known that banking companies in Indonesia obtained profits from the average assets of 1.83%, the data can be explained that the average banking company in Indonesia was able to generate profits from assets of 1.83%. Thus the banking company was in a very good level of profitability, because the average ROA above 1.5% referred to the standard circular issued by Bank Indonesia.

Leverage is the ratio of the amount of funds provided by the owner to the funds borrowed from the creditor. The higher the leverage rate, the higher the company's dependence on debt. Leverage was measured by the debt to equity ratio (DER). The leverage variable results that the banking company had an average value of 6.69, a minimum value of 3.20, a maximum value of 14.91 while a standard deviation was 2.63. Descriptive analysis results inform that the leverage variable of 22 commercial banks in Indonesia from 2014 to 2017 had an average value that was not fair, it means that above the maximum limit of the regulation of the finance minister of the Republic of Indonesia number 169/PMK.010/2015 states that the ratio of debt to equity a maximum of 4:1 (four to one).

The size of a banking company is a measure of the size of assets owned by a company. The size of this banking company refers to Bank Indonesia Regulations using total core capital classified in four categories. Table 6 show that the size of the company had an average value of 2.84, this shows that the average banking company in Indonesia was at the level of approaching BUKU (Commercial Banks based on Business Activities) 3. BUKU 3 can carry out all Business Operations as referred to in Article 4 PBI Number 14 years 2012, both in Rupiah and in foreign currencies and equity participation in financial institutions in Indonesia and/or abroad are limited to the Asian region.

The age of the company is a description of the length of time the company stood as a legal entity. The age of the company is calculated from the time the company was established as a legal entity until the year of research. Table 6 shows that the age of banking companies had an average value of 48 years, this illustrates that banking activities in Indonesia have an established age, resilience in advancing and developing the country.

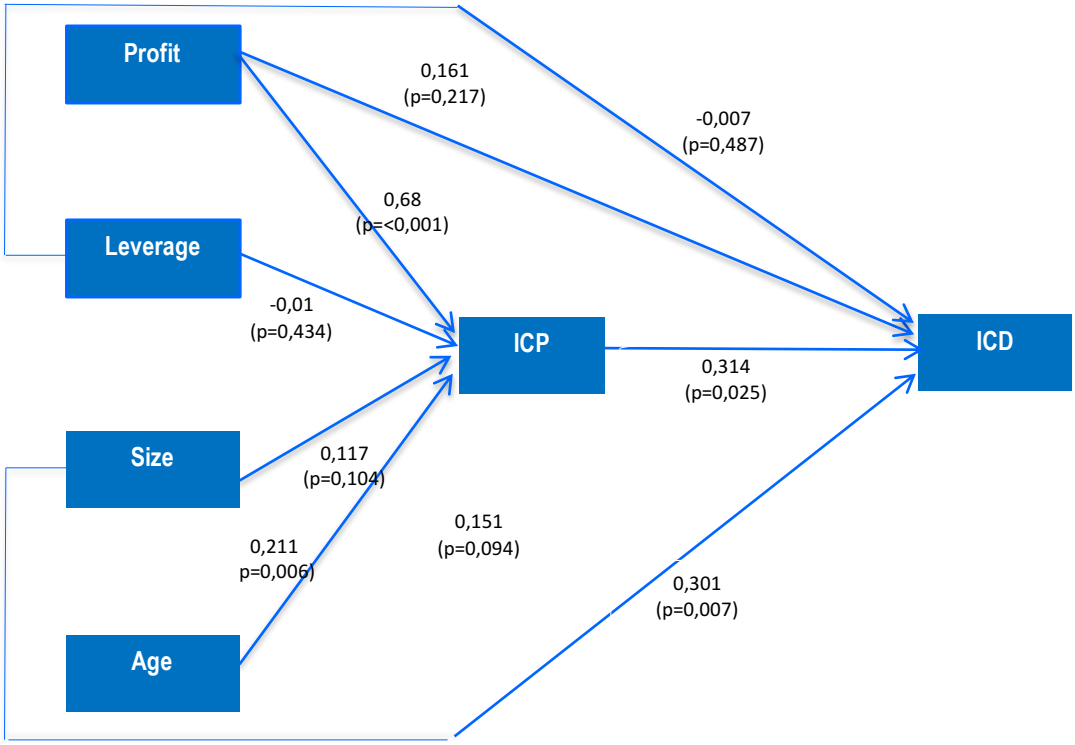
The intellectual capital performance is a banking company performance that illustrates the ability of banks to manage and maximize intellectual capital owned. Table 6 shows that the performance of banking intellectual capital had an average value of 6.69, the minimum value of 2.25 namely; the intellectual capital performance at Bank Bukopin in 2017, the maximum value of 14.54, namely; the intellectual capital performance at Bank Rakyat Indonesia in 2014, while the standard deviation was 2.83.

Intellectual capital disclosure is a report that is voluntary to meet the needs of supplementary information for stakeholders. Stakeholders here come from within the company or from outside the company. Table 6 shows that bank intellectual capital disclosures had an average value of 0.79, the minimum value of 0.50, namely; the intellectual capital disclosure at Sinarmas Bank in 2015, the maximum value of 1.00, namely the intellectual capital disclosure at BNI 46 Bank and 2017 BTPN Bank, while the standard deviation was 2.83, this provides an

explanation that the average banking company discloses each item of intellectual capital classification on good disclosure.

As the formulation of profitability, leverage, size of the company and the age of the company that affect the intellectual capital disclosure through the intellectual capital performance, based on the results of WarpPls it can be arranged with the following picture:

Figure 1. Results of path analysis of profitability, leverage, company size and company age on disclosure of intellectual capital through intellectual capital performance



Furthermore, to answer each hypothesis, it is necessary to solve the complete Path Analysis results structure into four more detailed sub-structures of Path Analysis. The results of the analysis of research data to examine the effect of profitability, leverage, company size and company age on the intellectual capital disclosure through intellectual capital performance can be seen in Table 3 below.

Table 3. Effect of profitability, leverage, company size and company age on disclosure of intellectual capital through intellectual capital performance

Variable relationship	Coefficient		
	Direct	Indirect	Total
Profit →ICD	0.161		
Leverage →ICD	-0.007		
Size →ICD	0.301*		
Age →ICD	0.151		
ICP →ICD	0.314*		
Profit → ICP →ICD	0.687*	0.2157	0.9027
Leverage → ICP →ICD	-0.010	-0.0031	-0.0131
Size → ICP →ICD	0.117	0.0367	0.1537
Age → ICP →ICD	0.211**	0.662	0.2772

Note *) Statistically significant at the level α = 5% **) α = 10%

where: Profit = Profitability; ICP = *Intellectual Capital Performance; Leverage* = *Leverage;* ICD= *Intellectual Capital Disclosure; Size* = Company Size; *Age* = Company Age.

Table 3 shows that the effect of profitability on the intellectual capital performance was significant with a regression coefficient of 0.687 with a positive effect, and the effect of intellectual capital performance on intellectual capital disclosure was significant with a coefficient of 0.314. The effect of profitability on intellectual capital disclosure through intellectual capital performance was 0.2157 and the total value was 0.9027. This means that profitability had a significant effect on the intellectual capital disclosure through the intellectual capital performance, it can be seen that the total coefficient value was greater than the value of the direct coefficient, with the positive coefficient value. This means that the profitability of intellectual capital disclosure through intellectual capital performance had a direct effect, to increase intellectual capital disclosure is to increase profits, the higher the level of ability to earn profits will cause an increase in intellectual capital performance so that it will increase intellectual capital disclosure. This gives an explanation that the intellectual capital performance has succeeded in becoming a full mediation of profitability on the intellectual capital disclosure, it means that investors in seeing the profitability of the company will be more inclined to pay attention to the company's ability to obtain intellectual capital performance, because the better performance will provide increased profits for companies so as to increase intellectual capital disclosure.

Based on Table 3 it can be seen that the effect of leverage on the intellectual capital performance was insignificant with a regression coefficient of -0.010 with a negative effect, and the effect of intellectual capital performance on intellectual capital disclosure was significant with a coefficient of 0.314. The effect of leverage on the intellectual capital disclosure through intellectual capital performance was -0.0031 and a total value of -0.0131. This means that leverage was not significant to the intellectual capital disclosure through intellectual capital performance. It can be seen that the total coefficient value was less than the value of the direct coefficient. This gives an explanation that the intellectual capital performance failed as a mediating variable between leverage and intellectual capital disclosure.

Table 3 shows that the effect of company size on the intellectual capital performance was insignificant with a regression coefficient of 0.117, and the effect of intellectual capital performance on intellectual capital disclosure was significant with a coefficient of 0.314. The effect of company size on intellectual capital disclosure through intellectual capital performance was 0.0367 and the total value was 0.1537. This means that the size of the company was not significant to the intellectual capital disclosure through the intellectual capital performance, it can be seen that the total coefficient value was less than the value of the direct coefficient (0.1537 <0.301). This explains that intellectual capital performance failed as a mediating variable between company size and intellectual capital disclosure.

Based on Table 3, it can be seen that the effect of company age on intellectual capital performance was significant with a regression coefficient of 0.211 with a positive effect, and the effect of intellectual capital performance on intellectual capital disclosure was significant with a coefficient of 0.314. The effect of company age on the intellectual capital disclosure through intellectual capital performance was 0.662 and the total value was 0.2772. This means that the age of the company significantly affected the intellectual capital disclosure through the intellectual capital performance, it can be seen that the total coefficient was greater than the value of the direct coefficient, with the positive coefficient value. This means that the age of a company towards intellectual capital disclosure through intellectual capital performance had a direct effect, along with the aging of banking companies, it will increase intellectual capital disclosure, and the higher age of a bank will cause an increase in intellectual capital performance so that it will increase intellectual capital disclosure. This gives an explanation that the intellectual capital performance had succeeded in becoming a full-age mediator of the company against the intellectual capital disclosure, it means that investors in seeing the establishment in the age of a bank will be more likely to pay attention to the company's ability to obtain intellectual capital performance, because the better intellectual capital performance based on an increasingly established age, professional and experience can increase intellectual capital disclosure.

4. Discussion

4.1. Effect of profitability, leverage, company size, and company age on intellectual capital performance

The results of the path analysis note that the profitability and age of the company significantly affected the intellectual capital performance, this illustrates that if the profits of a banking company are increasingly large and supported by the increasingly age of the company with experience, it will improve the intellectual capital performance. The results of this study are in line with the results of El-Bannany (2015) and Mohd-Saleh, Rahman, and Ridhuan (2009) which stated that the variables that affected the intellectual capital performance, namely: profitability and age of the company.

Furthermore, the profitability of banking companies in Indonesia is in a position of very good profitability levels in earnings during the observation period; this indicates the performance of banks in Indonesia supported by technology, human resources, policies and strategies that are capable of running in accordance with the expectations of the banking world. Profitability in this study proxied by Return on Assets (ROA), this situation shows that the better the profitability of a bank, the better the intellectual capital performance. This is in line with the view of legitimacy theory, that companies will be compelled to show their IC capacitance in financial statements to obtain legitimacy from the public for their intellectual property. This recognition of public legitimacy is important for banking service companies to maintain their existence in the business environment, high technology and social environment of banking companies.

The results of this study are in line with research (Mohd-Saleh *et al*. 2009). El-Bannany (2015) examining banking in Egypt during the 2007-2010 periods also showed that profitability affected the intellectual capital performance. However, the results of this study contradict the research of El-Bannany (2012), where the profitability of banks in the United Arab Emirates (UAE) shows that profitability had no effect on the intellectual capital performance.

On the other hand, this study shows that the effect of leverage on the intellectual capital performance was not statistically significant. This means that increasing the leverage ratio tends to reduce the intellectual capital performance. The banking service sector is a business that relies on high trust from the public, because the majority of banking companies in their business uses funds from the community and then are managed to be channeled back to the community. The use of debt or leverage funds can lead to burdens and risks for a bank, especially if the banking company between the services incomes obtained is not proportional to the burdens that are borne by the banking company. Management of public funds entrusted to the Bank, if implemented properly, transparently and accurately, it will certainly reduce risk. This finding is in line with Mohd-Saleh *et al.* (2009) that leverage did not affect the intellectual capital performance in companies listed on the Malaysian Stock Exchange. This is consistent with the fact that companies whose leverages are higher than average will be in a high-risk position.

Subsequent results indicate that company size had a statistically insignificant effect on intellectual capital performance. This research shows that increasing company size tends to reduce the intellectual capital performance. The size of the company shows a group of quantities based on certain criteria that are widely accepted. According to Brigham and Houston (2010, 4) the size of the company is a measure of the size of a company that is shown or valued by total assets, total sales, total profits, tax burden and others. Large companies have advantages compared to companies in small groups. Banking service companies in large groups generally have the power to obtain funds and have high trust from the public.

The size of bank companies in Indonesia is classified into four categories, referring to Bank Indonesia Regulation number 14/26 / PBI / 2012, namely: business activity group 1 (BOOK 1), which has core capital starting from IDR 100 billion to under IDR 1 trillion, including Bank Capital Indonesia, Bank BRI Agro, Bank Maspion and Bank Bumi Arta in 2014. The second group (BUKU 2) is with core capital of Rp 1 trillion to below Rp 5 trillion including Bank Woori Saudara Indonesia 1906 Tbk, Bank Sinarmas, Bank Artha Graha Internasional, Bank Mayapada Internasional, Bank Victoria Internasional. The third group (BUKU 3) will have core capital of between Rp 5 trillion to Rp 30 trillion, including Bank BTN, Bank Danamon, Bank Mega, Bank Maybank Indonesia, Bank Bukopin, Bank Panin Indonesia, Bank BTPN. Business activity group 4 (BOOK 4) with core capital of over Rp 30 trillion includes Bank BCA, Bank BRI, Bank Mandiri, Bank BNI, Bank OCBC Nisp and Bank Cimb Niaga. The bigger a bank company is, the wider the range of products and activities that banks can carry out.

These findings are in line with Joshi, Cahill, and Sidhu (2010) examined the size of banks in bank companies in Australia for the period 2005-2007 which found the results of the size of the bank did not affect the intellectual capital performance. The opposite research result is El-Bannany (2015); that company size affected intellectual capital performance. This phenomenon is interesting because in theory the larger the size of the company, of course, the intellectual capital performance will be better, this finding actually contradicts the presumption of researchers.

The effect of the company's age on the intellectual capital performance was statistically positive and significant. The statistical results of this study indicate that as a company ages, it tends to increase the intellectual capital performance. The age of the company shows the toughness of a business in maintaining the continuity of its business activities. According to Loderer and Waelchli (2010) the age of the company is calculated starting the year of its establishment as a legal entity. A long-established company will have the best strategies and solutions to keep the company alive in the future. The longer a banking company exists; of course there have been many ups and downs in doing business, especially the banking service business that relies on the trust of the public. The

ability of a bank service company to resolve various opportunities and obstacles that arise in the company's management activities will increasingly show a strong identity for the existence of the company itself.

The results of the study are in line with research by El-Bannany (2015); and Mohd-Saleh *et al*. (2009) shows that the age of the company affected the intellectual capital performance, this explains that the more age of the banking company, the company will use all kinds of expertise, experience, human capital so as to encourage the intellectual capital performance is increasing. This is also in line with the legitimacy theory that companies are very important to the public's recognition of the existence of companies that are increasingly advanced and developing in line with the fast-changing banking world competition.

4.1.1. Effect of profitability, leverage, company size, and company age on intellectual capital disclosure

The results of the regression analysis revealed that company size and company age significantly affected intellectual capital disclosure. This shows that the stakeholder assessment of banks still sees the experience of a bank that is a large and aged company. This view is the main concern of stakeholders in seeing companies that report intellectual capital disclosure as additional reports or voluntary reports. Mouritsen *et al.* (2001) state that the intellectual capital disclosure is communicated to internal and external stakeholders by combining numerical, visual and narrative reports aimed at creating corporate value.

Stakeholder theory suggests that the company's goal is to create value for all stakeholders (Freeman 1984). The company will achieve success and be sustainable as technology development; managers must maintain commitment, the interests of employees, customers, society and shareholders in harmony and step in the same direction.

Furthermore, if the effect of each variable on the intellectual capital disclosure shows that profitability is not significant to the intellectual capital disclosure, this can be interpreted that profitability cannot affect the intellectual capital disclosure. Profitability that was proxied by Return on Assets (ROA) indicates that the profits earned by banking companies cannot be an effect on intellectual capital disclosure.

The average profitability of banking companies in Indonesia is mostly in the highest standard, this condition indicates the ability of banks to obtain profits in a very good position. This excellent profitability has an impact on the process of intellectual capital disclosure which tends to decline. The results of this study are in line with the results of Kateb (2014) study, which analyzed a panel of companies registered in France for the period 2006-2010. Ferreira *et al*. (2012) and Ulum *et al.* (2014) findings of profitability did not significantly affect intellectual capital disclosure. The opposite research results are the research of García-Meca *et al.* (2005), Kang and Gray (2011) and Li *et al.* (2008) with the results of profitability which had a positive effect on intellectual capital disclosure

Leverage was not significant to the intellectual capital disclosure; this can be interpreted that leverage did not affect the intellectual capital disclosure. Leverage proxied by Debt to Equity Ratio (DER) indicates that all debts obtained by banking companies cannot affect intellectual capital disclosure, in the sense that stakeholders in assessing disclosures made by banking companies are not a factor of the amount of debt with their equity. The average leverage of banking companies in Indonesia has a fairly high burden beyond the maximum standard set by the government, which is on average six to one. This situation is certainly very unfavorable for the survival of banking companies in the long run, because it will have the effect of gaining future profits which are likely to decrease with rising debt burdens.

This finding shows that banking service companies in Indonesia already have a commitment to implement Bank Indonesia regulation number 14/14/PBI/2012 regarding transparency and publication of bank reports. The results of this study are in line with the results of research by Ferreira *et al*. (2012), Ulum *et al.* (2014). The results of this study contradict Kateb (2014) which confirms that debt is a determining factor for intellectual capital disclosure that enables managers to reduce agency conflict and resolve financial statement inability by disclosing information relevant to investors.

The size of the company against the intellectual capital disclosure was statistically positive and significant. The size of the company was positively related to the intellectual capital disclosure, the direction of relationship means the greater the size of the company, the higher the intellectual capital disclosure. The size of the company which is proxied by the amount of core capital indicates that the size of the company obtained by the banking company can affect the intellectual capital disclosure, in the sense that stakeholders assess the disclosures made by the banking company from the factor of the amount of core capital.

Large banking companies will provide breadth in exploring innovative activities, programs and achievements disclosed in annual reports, with the aim of maintaining strategic positions in the market and convincing stakeholders. The results of this study will strengthen the legitimacy theory that the importance of public recognition as the main impetus in disclosing information in annual reports, so that investors are more secure in investing funds.

The results of this study are in line with El-Bannany (2012), and Kateb (2014). El-Bannany (2012) which confirms that company size is a determining factor in the intellectual capital disclosure in banking companies in the United Arab Emirates. The company age on intellectual capital disclosure was statistically positive and significant. The age of the company was positively related to the intellectual capital disclosure, giving the intention of a direct relationship means that the older the age of the company, the higher the intellectual capital disclosure. Older banking companies have a wealth of experience, endurance, strategies to maintain the strength to win the competition in the market, so the banking company will try to provide more information to the user community so the higher level of investor confidence to get value added in the form of annual report disclosures. Researcher Nikolaj *et al.* (2005) states that the older the company, the higher the value of its reputation and social activities.

The results of this study are in line with El-Bannany (2012) examining banking in the United Arab Emirates Bank during the period 2005-2009, which confirms that the age of the company was a positive effect on the intellectual capital disclosure in banking companies, as well as the findings of Ulum *et al.* (2014) stating that the age company had a negative and significant effect on intellectual capital disclosure. Different results in the study of White *et al.* (2007) and García-Meca and Martínez (2005) show that the age of a company had no effect on intellectual capital disclosure.

4.1.2. Effect of intellectual capital performance on intellectual capital disclosure

The intellectual capital performance on the intellectual capital disclosure was statistically positive and significant. The intellectual capital performance was positively related to the intellectual capital disclosure, giving the intention of a direct relationship means that the better the intellectual capital performance of a company, the higher the intellectual capital disclosure. Improved intellectual capital performance will encourage additional company profits. Banking companies that are always service-oriented to stakeholders will quickly follow developments in the use of technology, so the higher the level of stakeholder confidence. Banks that have intellectual capital disclosure reporting can be a means of communication between company management, banking owners and other stakeholders, so they can position their respective interests.

This finding is in line with the theory of legitimacy which states that organizations must continuously demonstrate that they have operated and behaved consistently with social values (Guthrie and Parker 1989). The results are in line with the research of Ulum *et al.* (2014), Williams (2001) which shows the results that the intellectual capital affected the intellectual capital disclosure.

4.1.3. Effect of profitability, leverage, company size, and company age on intellectual capital disclosure through intellectual capital performance

The results of the analysis of research data to examine the effect of profitability, leverage, company size and company age on intellectual capital disclosure through intellectual capital performance was the effect of profitability and age of the company on intellectual capital disclosure through intellectual capital performance was a significant effect. It can be interpreted that the higher company profits are obtained, it will cause intellectual capital performance to increase so that it is responded well by stakeholders followed by increased intellectual capital disclosure, and increasing age of the company causes increasing intellectual capital performance, because the better the intellectual capital performance will produce more activities, the company programs and strategies are conveyed in the intellectual capital disclosure report.

The effect of leverage and company size was not significant with the results of the analysis of the value of the indirect effect of leverage and company size on intellectual capital disclosure through intellectual capital performance less than the direct effect of leverage and company size on intellectual capital disclosure. This gives an explanation that the high leverage and better company size if followed by ups and downs of intellectual capital performance cannot increase intellectual capital disclosure.

The results of the effect of profitability on the intellectual capital disclosure through intellectual capital performance in statistical data were significant, because it has a regression coefficient value of the indirect effect greater than the direct effect. In this case the intellectual capital performance variable has succeeded in becoming a full mediation between profitability and intellectual capital disclosure. This shows that increasing profitability in this case the bank's profit is the power to improve company performance in this case the intellectual capital performance. Companies that have the advantage of course have funds for activities that support improvements for employees (human capital), organization (organizational capital) and fostering relationships (relational capital). Improvement of banking employees is done through further study education, developing skills, training and seminars, so that employees will have the ability to innovate and adapt quickly to changes that occur. Organizational improvement can be done by banks, namely through the application of corporate culture, information systems and

the latest technological networks, obtaining patents, so that banking companies have reliable competitiveness and are able to increase operational effectiveness and efficiency. Improving relationships can be done by banking through the best services for consumers, establishing profitable partnerships and distribution networks, so that banking companies have professionalism in providing banking services to build customer trust. The increase in employees will certainly encourage the improvement of intellectual capital performance.

Solid, well-established and strong intellectual capital performance will create banking companies to make disclosures about the company's position in winning competitiveness so as to make the best banking and gain the trust of all users. In line with Bank Indonesia regulation number 14/14/PBI/2012 concerning transparency and publication of bank reports, in order to create market discipline and in line with the development of international standards, efforts are needed to improve transparency of financial conditions, bank performance through publication of bank statements to facilitate public evaluation and Market players.

The Leverage variable was not able to show its effect on intellectual capital disclosure through intellectual capital performance, because the relationship of leverage variables with intellectual capital performance and the relationship of leverage to intellectual capital disclosure is both insignificant and has a minus regression coefficient. This means that the intellectual capital performance variable has failed to mediate between leverage and intellectual capital disclosure

Likewise, for company size variable was not able to affect the intellectual capital disclosure through intellectual capital performance, because it has a regression coefficient value of the direct effect which is greater than the indirect effect. In this case the intellectual capital performance variable has failed to mediate between company size and intellectual capital disclosure. This shows that the high size of bank companies which is followed by the ups and downs in the intellectual capital performance cannot increase the intellectual capital disclosure. This illustrates that stakeholders will pay more attention to the company's ability to disclose intellectual capital, because disclosure provides more information about the bank's credibility, activities, strategies and advantages.

The same result for the company's age variable was also not able to affect the intellectual capital disclosure through intellectual capital performance, because it has a regression coefficient value of the indirect effect which is greater than the direct effect. In this case the intellectual capital performance variable has succeeded in becoming a full mediation between the age of the company with the intellectual capital disclosure. This shows that the older the banking company, there will be a tendency to improve the intellectual capital performance. Companies that have an old age certainly have experience, ability to innovate, endurance, reliable human capital, and extensive relational capital so that banking companies will continue to have high trust from stakeholders or customer loyalty in particular.

Professional, well-established and trusted intellectual capital performance will create banking companies to make disclosures about the company's position in winning competitiveness so as to make the best banking and gain the trust of all users. This is in line with the legitimacy theory that banking companies need recognition from the public about the existence of a banking company so that the name of the banking company remains known by the user community.

Conclusion

Based on the analysis of the results of research and discussion, it can be concluded that profitability and age of the company significantly affected the intellectual capital performance. This means that the greater contribution of profitability percentage and the older a bank can increase the intellectual capital performance. With an older age, experience in maintaining business competence and supported by good financial management in generating profits will certainly enhance the intellectual capital performance, this happens because the trust of the user increases because external parties assume the banking company has the ability and provide services that are very much needed. Conversely, leverage and company size did not affect the intellectual capital performance.

The effect of company size on intellectual capital disclosure was positive and significant, it can be explained that the greater the size of the company, the more activities that are disclosed in the intellectual capital disclosure report, it means that stakeholders assess the disclosures made by banking companies from the factor of the amount of core capital. While profitability, leverage and age of the company had no significant effect on intellectual capital disclosure.

Analysis of the effect of intellectual capital performance on intellectual capital disclosure had a positive and significant effect; this means that the better performance of a bank in Indonesia is responded well by the user as a barometer of banking success so as to increase intellectual capital disclosure.

The effect of profitability and age of the company on the intellectual capital disclosure through the intellectual capital performance was a significant effect, while the leverage and size of the company did not have a significant

effect on the intellectual capital disclosure through intellectual capital performance, it means the profitability and age of the company, this means that the greater contribution of the percentage of profitability and increasing age of the company can increase the level of intellectual capital disclosure in the form of reports made by the banking management. While the variable leverage and the size of the company did not affect indirectly on intellectual capital disclosure.

Furthermore, suggestions that can be given include: first, commercial banks in Indonesia should optimize the intellectual capital disclosure contained in annual reports and other reports. A complete annual report will be a reference for users or the public in making decisions. Banking companies that disclose in full will push to become a value-added company. Second, the Government as a policy / regulation maker bridges the creation of intellectual capital reporting standards as a means of intellectual capital disclosure, making it easier to identify and measure intangible assets (PSAK 19). Because since early 2000, intellectual capital statements / ICS have been known and practiced in European countries. Third, the next researcher who studies the intellectual capital disclosure should add indicators to the profitability variable, leverage variable, company size variable and company age variable. The indicators on the added profitability variable are the net profit margin indicator and the return on equity indicator. The leverage variable adds a debt ratio indicator and times interest earned. Company size variables add indicators of share capital, number of shareholders and indicators of fixed assets. While the company age variable adds an indicator of company age calculated on the date of being listed on the stock exchange. So that the addition of this indicator will produce more complete findings from several alternative indicators of research variables.

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Characteristics of Companies and Corporate Social Responsibility Disclosure of Indonesia

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Abstract:

The purpose of this study is to determine the effect of companies' characteristics on disclosure of Corporate Social Responsibility. The characteristics of the company are divided into four types, namely leverage, public ownership, the board of commissioners and profitability. The type of data used is secondary data. The samples have been obtained from both Indonesia Sustainability Report Award (129 companies) and Non-Indonesia Sustainability Report Award (130 companies) winning companies for the duration of 2012-2016. The results have shown that: (1) leverage as measured by Debt Ratio (DR) has no significant positive effect on disclosure of Corporate Social Responsibility (CSR), (2) Public ownership as measured by Public Share Ownership (KSP) has a positive effect on disclosure of Corporate Social Responsibility (CSR), (3) board of commissioners as measured by the size of the Board of Commissioners (UDK) of the company has a positive effect on disclosure of Corporate Social Responsibility (CSR), (4) profitability as measured by the value of Return On Assets (ROA) has a positive effect on disclosure of Corporate Social Responsibility (CSR).

Keywords: Indonesian Sustainability Report Award (ISRA); disclosure of social responsibility; leverage; public ownership; board of directors; profitability.

JEL classification: M40; M41.

Introduction

Companies that achieve success are influenced by internal factors and also influenced by the people who live near the company. Social and environmental responsibility is a commitment of the company or business entity to play an active role in economic development in order to improve the quality of life and the environment that is beneficial for the company itself as well as the local community, described in the Law of the Republic of Indonesia Number 40 of 2007 Article 1 paragraph 3 of Limited Companies. According to Kitzmueller and Shimshack (2012), Corporate Social Responsibility defined as corporate social or environmental behavior that goes beyond the legal or regulatory requirements that a company faces. John Elkington (2004) and Hammer and Pivo (2016) state that CSR is packed into three focusses such as 3P, short of profit, planet and people.

There are several cases related to environmental damage caused by the company. Cases of Tribun Jabar 2016 are about PT INDHOBARAT Rayon (IBR) as rayon fibre manufacturer factory guilty of environmental pollution in the District Cilangkap Babakan village KALIMATI Cikao Purwakarta, Indonesia. PT IBR commits the offences referred to in Article 104 of Law Environment (EE) and imposed criminal fines amounting to Rp.1.5 billion, or expropriation of assets to be sold auction to cover the fine. The tragedy like the above case, it is important to make the sustainability report, and it was published to provide confidence to stakeholders under the opinion of Christiawan and Puti (2014).

Some of the characteristics generally influence Corporate Social Responsibility, and one of them is leverage, leverage is a measure of how much firms use equity and debt to finance its assets (Karri and Narayana 2019). High credibility in the eyes of the public in the form of dividends to reward lies in the company that owns many of the public and are considered capable of operating continuously such an inclined disclosure of social information (Badjuri 2011). The Board of Commissioners has the authority to the company and can provide a strong enough influence to put pressure on management to disclose social responsibility in Islamic Bank (Farook 2011, Wardani and Sari 2019). In this research, other characteristics that affect CSR is profitability. Profitability is defined as return

on net operating assets, is a multiplicative function of the firm's profit margin, or operating efficiency, and asset turnover, or asset utilization (Alle *et al.* 2019). Therefore, the focus of this study is to clarify the effect of the characteristics of companies that include leverage, public ownership, board size and profitability, and these affected the disclosure of Corporate Social Responsibility in Indonesia Stock Exchange (BEI) in 2012-2016.

1. Literature review

1.1. Corporate Social Responsibility

Corporate Social Responsibility (CSR) is an idea that makes the company no longer faced with the responsibility that rests on the single bottom line of profit. Hammer and Pivo (2015) states the term triple bottom line by John Elkington to portray the state of the economic, environmental and social values which may arise from financial basis, and the concept is often referred to as 3P, short of profit, planet and people. These three concepts form the basis for the company to develop a CSR program that advances the company's achievement of organizational goals, which can be achieved through this concept.

There are three reasons the organization has to respond and develop the content of social responsibility. According to Putra (2015, 18) the organization is a part of society, and the mutual symbiotic relationship between organizations and society and CSR activities is one way to soak or avoid conflict. A copy of the Regulation of the State Minister for State-Owned Enterprises No. Per-05/MBU/2007, in Chapter II of the partnership program and the Community Development program in Article 2 No. 1 states that the general and limited liabilities of companies are required to conduct two programs, namely the partnership program and service development program. One quote that popular article is Article 74 of Law No.40

1.2. Leverage

According to Karri and Narayana (2019) leverage is a measure of how much firms use equity and debt to finance its assets. Leverage is the proportion of total debt to average shareholders' equity. The leverage ratio is used to provide an overview of the capital structure of the company so that it can be seen the level of risk of uncollectible debt. There are four ways to calculate the leverage ratio, namely:

- Debt Ratio, measuring how large a proportion of the funds coming from the debt to finance the company's assets. The higher this ratio shows the portion of the use of debt to finance investments in the greater assets;
- Times Interest Earned Ratio, measure the company's ability to pay a fixed load of interest by using the Earnings Before Interest and Taxes (EBIT). The higher this ratio means the company's ability to pay interest, the better, and the higher the additional gain loans;
- Cash Coverage Ratio, measuring the ability of companies to use EBIT plus depreciation to pay interest. The higher this ratio shows that the company can pay higher interest;
- Long- term debt to equity ratio, measuring the size of the use of long-term debt when compared to the company's capital. The higher this ratio reflects the company's financial risk increases.

1.3. Public ownership

Gunardi *et al.(*2016), Hermawan and Gunardi (2019) state that the company has a large stock required to make a complete disclosure of performance. According to Nur and Priantinah (2012), the companies public ownership go public or be listed in the Indonesia Stock Exchange (IDX), then the company has to report the activity and the state of the company to the public. According to Sudana (2015), market value ratio is the ratio of the company's stock performance assessment, which has been traded on the stock market (go public). There is a ratio associated with the ownership of shares.

1.4. The size of the board of commissioners

According to the Constitution No. 40 of 2007 (1, 6), the Board of Commissioners is in-charge of supervising the company in general and/or special accordance with the statutes and provides advice to the Board of Directors. As stated by National Committee on Governance (2006, 13), the Board of Commissioners is collectively responsible for supervising and advising the board of directors to ensure the companies to implement Good Corporate Governance (GCG), but the commissioners did not participate in the taking desperation. The principle of commissioners is to run their duties and responsibilities effectively.

1.5. Company profitability

In this study, profitability is one of the characteristics used by the authors that may affect the disclosure of CSR. Profitability ratios are very important because it can measure a company's ability to generate profits to prospective investors, and corporate investors can see this ratio to invest funds in the company. According to Sudana (2015, 24-25), Profitability ratios are used to measure a company's ability to generate profits by using the source - the source of the company, such as assets and capital.

There are several ways to measure the size of profitability, namely:

- Return on Assets (ROA), demonstrating the company's ability to use all the assets owned to generate a profit after tax. In evaluating the effectiveness and efficiency of corporate management in managing all assets of the company can use the ROA. The greater ROA means more efficient to use of assets of the company;
- Return on Equity (ROE), demonstrating the company's ability to generate profit after tax by using the company's capital. The higher this ratio means more efficient to use of capital carried out by the management company;
- Profit Margin Ratio, measuring the company's ability to generate profits by using the sales achieved by the company. The higher this ratio shows the company more efficient in carrying out its operations;
- Basic Earning Power (BEP), measures the company's ability to generate earnings before interest taxes using total assets owned. The higher this ratio, the more effective and efficient in the management of all assets is owned by the company to generate earnings before taxes.

1.6. Hypothesis development

1.6.1. Leverage influence on corporate social responsibility disclosure

Leverage is the company's dependence on debt to finance in its operating activities. The ratio used by companies to measure the debt is leverage. Management of companies with a high degree of leverage tends to reduce disclosures of social responsibility, but on the other hand, according to Badjuri (2011), the disclosure of social information is used to dispel doubts bondholders against rights -- their rights as creditors then the leverage ratio is high, the company has an obligation to disclose the social of the companies that have low leverage ratios.

Purnasiwi and Sudarsono (2011) revealed that if positive leverage effect on the disclosure of Corporate Social Responsibility for the leverage ratio is high, the company will be more disclose social information where the information is used to remove any doubt the creditors of the rights - their rights. Therefore, companies that have a high leverage level should disclose social information than companies that have low leverage levels. The results showed that the leverage effect on the disclosure of Corporate Social Responsibility, similar to Putri, Zulbahridar, and Kurnia (2017), Nur and Priantinah (2012), but other researchers who claim that leverage does not have an influence on the disclosure of CSR (Kapitan and Ikram 2019).

H_1: Leverage companies positively effect on the disclosure of Corporate Social Responsibility

1.6.2. Public ownership disclosure influence on corporate social responsibility

Companies that have a stake in the public company that has credibility in the public eye because in every period the company must report on accountability to the public, and it is considered capable of continuing (going concern). According Belkaoui (2006), the organization should act in a way that maximizes social welfare and there is a social contract between the organization and the community.

Business enterprises must provide accountability reports on all resources owned and managed by the owner of the company. Public ownership affects the CSR disclosure, which is influenced positively, and it is supported by the studies of Gunardi *et al.* (2016), Khan *et al*. (2013). Transferring company ownership to the public brought the consequences of diminishing control of the shareholders themselves against the company. The greater the percentage of shares released, the greater the public's control over company policy, so the public needs to have more voluntary disclosure of information from the company to monitor its progress (Hermawan and Gunardi 2019).

H_2: Public Ownership positively effects on the disclosure of Corporate Social Responsibility

1.6.3. Effect of size of board of commissioners on corporate social responsibility disclosure

BOC is the board and in-charge of monitoring and advising the director of Limited Liability Company. The existence of professionals who are members of the board of directors are taken into consideration in making monetary policy decisions, imaging and enterprise social action of the company's management. The more the board of directors of

a company means the more easily and effectively monitoring and controlling the company (Qa'dan and Suwaidan 2018). Through oversight role performed commissioners, the company can be run by following the applicable rules and it secures the sustainability as stated by Hafidzi (2019) and Badjuri (2011). The Board of Commissioners has the power to influence the extent of CSR (Nur and Priantinah 2012), (Hafidzi 2019).

Companies are expected to express CSR more broadly in order to minimize the information that is covered so that the oversight conducted by the board of commissioners for the better (Badjuri 2011), but that differs from the results of research conducted by Hardika *et al*. (2018) which states that the function of the board of commissioners as supervisor does not affect the disclosure of social responsibility reports because they cannot influence the decision making process on company activities and meetings conducted by the board of commissioners are considered to be less effective. A positive result that the size of the board of commissioners' influence CSR disclosure are proven by Mukhtaruddin, *et al*. (2018) and (Hafidzi 2019), but the results of other studies that show no effect of the size of the board of commissioners on disclosure social responsibility is Hardika *et al.* (2018), Krisna and Suhardianto (2016). Based on this research, the hypothesis proposed is:

H_3: The size of the BOC positively effects on the disclosure of Corporate Social Responsibility

1.6.4. Profitability influence on corporate social responsibility disclosure

Profitability is a factor that provides the flexibility and freedom to the management of the company to disclose its corporate social responsibility (Santioso and Chandra 2012). Corporate Social Responsibility (CSR) is not separated from the company that has a big profit (Putra and Raharjo 2011, Semenescu and Curmei 2015, Gunardi *et al.* 2016). The higher level of profit of a company means the greater the CSR disclosure (Nur and Priantinah 2012). Due to the disclosure of social responsibility the company turns profitable, but it is reversed in the research of Badjuri (2011), which is to perform social responsibility disclosure that there is an additional charge for disclosure.

A positive result is that the profitability effects on CSR disclosure, which is evidenced by Manurung and Rachmat (2019), Hermawan and Gunardi (2019), Kapitan and Ikram (2019), but the results of other studies show the negative effects (Ibrahim and Hanefah 2016, Javaid Lone *et al.* 2016, Alotaibi and Hussainey 2016). The other results of other studies that show no effect of the profitability on disclosure social responsibility (Majumder *et al.* 2019, Muktharudidin *et al.* 2018). Based on these studies the following hypothesis is framed:

H_4: Profitability positively effects on the disclosure of Corporate Social Responsibility

2. Methodology

2.1. Population and sample

The population of this study uses secondary data, which is obtained from all companies listed in Indonesia Stock Exchange (BEI), and the sample is an award-winning company of ISRA and Non-ISRA from 2012 to 2016. In this study, the sampling method is conducted in a non-probability side, Probability non-engineering side is based on several considerations.

The following criteria can be selected as samples:

- Sample-winning research company ISRA and Non-ISRA from the year 2012 to 2016 and listed on the Stock Exchange;
- Sample companies Non-ISRA selected from the company ISRA comparison with companies that have similar subsectors. Thus, the researchers have used secondary data from the following site www.sra.ncsr-id.org.

Figure 1. Participants ISRA years 2008 - 2016

Source: processed from SRA website (2018)

2.2. Research model

$$Log\left(\frac{P1+P2}{1-P1-P2}\right) = \mathrm{a} + \beta 1\ DR + \beta 2\ KSP + \beta 3\ UDK + \beta 4\ ROA + e \quad (1)$$

where: P1: Disclosure of CSR, dummy variable 1 = if the winning company ISRA; P2: Disclosure of CSR, dummy variables 0 = if the company is a non-ISRA; β1, β2, β3, β4: Regression Coefficients; a: Constants; DR: Debt to the asset (Total debt / Total assets); KSP: Public Shareholding percentage; UDK: Number of BOC; ROA: Return on Assets; e: Error.

3. Results and discussion

Descriptive statistics sample

The sample used in this study is a company that follows the ISRA from 2012 to 2016. Indonesian Sustainability Report Award (ISRA) is an award given to companies that have been reporting on activities related to the three aspects: economic, social and environmental. Criteria are the first sample, a company listed in Indonesia Stock Exchange (BEI) and award-winning ISRA. Second, companies that did not receive ISRA selected sub-sector with the same company ISRA receiver and did not experience any delisting. From the sampling results, 52 companies are ISRA receiver and Non-ISRA and Go-public.

Table 1. Sample research

Information	Year					TOTAL
	2012	2013	2014	2015	2016	
The total population of companies listed on the Stock Exchange	459	483	506	521	537	
The number of companies winning ISRA	12	15	17	18	15	
Number of firms Non-ISRA	12	15	17	18	15	
The number of companies under investigation from the year 2012 - 2016						52
Samples that do not have complete data						1
Number of companies						53
The total sample of companies for 5 periods						259

Source: Data processed (2019)

Descriptive statistics describes various characteristics of each of the variables such as leverage, the board size, public ownership and profitability, and CSR is seen from the minimum value, maximum value, the average value and deviation standard.

Table 2. Descriptive statistics. Logistic regression test results

	N	Minimum	maximum	Mean	Std. deviation
X1_DR	260	0.0767	0.9223	0.57848	0.228944
X2_KSP	259	0.0201	0.8458	0.302344	0.186377
X3_UDK	260	2	12	5.3115	2.108780
X4_ROA	260	-0.3617	0.4038	0.048139	0.097757
Y_CSRD	260	0	1	0.5	0.500960
Valid N (listwise)	259				

Source: Secondary data processing (2019)

Feasibility regression models are assessed using the Hosmer and Lemeshow's Goodness of Fit Test to test the null hypothesis. The empirical data fit the model means there is no difference between the models with the data so that the model can be said to fit. The value of the test statistic Hosmer and Lemeshow's Goodness of Fit Test is 9,949 with a probability of greater significance than 0.05 0269 (P-value of Hosmer and Lemeshow's Goodness of Fit Test). It can be concluded that the model can predict the value of this observations. However, Hosmer and Lemeshow test results can be obtained as by adding a variable interaction between the independent variables.

Table 3. Results Hosmer Lemeshow test

Step	Chi-square	df	Sig.
1	9.949	8	0.269

Coefficient determination test results

To find out how much variability variables, variables are able to clarify the related variability variables, the authors used the Nagelkerke R Square. Nagelkerke R Square is a modification of Cox and Snell R Square that can be interpreted as the value of R Square on multiple linear regressions. Based on the test results, the coefficient of determination is known value of Cox and Snell R Square obtained for 0502. Based on Table 4, the value Nagelkerke R Square of 0.669 or 66.90%, which means the independent variable can explain the dependent variable while the remaining 33.10% is explained by variables - other variables outside the research model.

Table 4. The result of the coefficient of determination

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	178.587	0.502	0.669

Note: a. Estimation terminated at iteration number 7 because parameter estimates changes by less than.001.

Classification matrices test results

Classification matrix shows the predictive power of the regression model to predict the likelihood of companies awarded ISRA. The total sample of companies presented on Table 5. The table provides the overall percentage score of (102 + 123) / 259 = 86.9%, which means that the strength of the proposed model is equal to 86.90%.

Table 5. The result of the classification matrix

Observed			Predicted		
			Y_CSRD		Percentage correct
	Y_CSRD	Non ISRA	Non ISRA	ISRA	
Step 1		ISRA	102	28	78.5
	Overall percentage		6	123	95.3
					86.9

Note: a. The cut value is 500.

Hypothesis test results

Variable leverage, as measured by Debt Ratio (DR) has no effect on CSR disclosure. The significance value is 0897 > 0.05, then the variable H_1 is rejected so that it can be concluded that the leverage positively effects on CSR disclosure and not significant. Public ownership variables are measured with a Public Shareholding (KSP), which effects on CSR disclosure. The significance value is 0.020 < 0.050, then H_2 is received so that it can be concluded that the public ownership positively and significantly impacts on the disclosure of CSR. Variable commissioners as measured by the size of the BOC (UDK) effect on CSR Disclosure. The significance value is 0000 < 0.050, and then H_3 is received so that it can be concluded that the commissioners positively and significantly impact on the disclosure of CSR. Variable profitability as measured by Return on Assets (ROA) effects on CSR Disclosure. The significance value is 0.003 < 0.050, then the variable H_4 is received so that it can be concluded that the profitability positively and significantly impacts on the disclosure of CSR.

Table 6. The results of the logistic regression test

		B	Sig.
Step 1	X1_DR	0.129	0.897
	X2_KSP	2.442	0.020
	X4_ROA	8.757	0.003
	ABSX3_UDK by X3_UDK	-0.252	0.000
	Constant	-15.917	0.000

4. Discussion

Partial significance test research results show significant value greater leverage of 0897 when compared with the significant level of 0050 so that the variables H1 rejected. The leverage ratio measured by Debt Ratio (DR) has no significant effect on the disclosure of CSR. It is identified that there may be differences between the interests of creditors where there are those who prefer the CSR, and there are those who do not like CSR gave that the company had to pay duty in advance to reduce costs in disclosing social information. Another thing that causes the variable leverage does not affect the disclosure of CSR is already a good relationship between the company's creditors.

KSP high ratio indicates that the company has a credibility proficiency level in the public eye because the company must give a report of accountability to the public and are considered self-sustaining. Significance test research results show the significant value of public shares amounting to 0.020 smaller when compared with the significant level of 0.050 so that H2 is accepted then the public ownership as measured by the ratio of KSP has significantly positive effect on CSR disclosure. Organizations should act to disclose the information because of a social contract with the community where the community is the owner of the company. The company is an integral part of a community within a community for their social contracts relating reciprocally between the companies or vice versa.

Therefore, the company as a form of organization must provide a form of accountability. The social welfare will maximize if the stakeholders provide disclosure report mandatory or voluntary. From the results of descriptive that public shareholders with a percentage of less than 5% in an investment prefer winning company ISRA when compared with Non-ISRA because these companies pay attention to its social responsibility to the community. Concerning public ownership, it is not just companies winning ISRA or Non-ISRA the number of shares of the large public who carry out and reveal widespread social responsibility but rather by the number of ratios KSP little must do the same to provide accountability to the stakeholders. Another study states that public ownership has an influence on CSR disclosure (Gunardi *et al.* 2016, Pramukti *et al*. 2019, Hermawan and Gunardi 2019).

Significance test research results show the significant value of the commissioners is smaller than the significance level of 0.050, so the H_3 received by the commissioners as measured by the ratio of the UDK has a significant positive effect on CSR disclosure. Organizations are expected to reveal broader CSR in control so that information can be appropriately disclosed because if the information disclose to correct the position of the board of directors to create a policy to use the company's profit it can be used as much as possible. Other studies related to this show that the board size has an influence on CSR disclosure (Husted and De Sousa-Filho 2019, Mukhtaruddin *et al*. 2018, Hafidzi 2019).

The higher profitability means the greater the company's ability to manage its asset value. Significance test research results show the significant value 0.003, which is lower profitability when compared to the significant level of 0050. So, the variable H4 acceptable profitability as measured by ROA has a significant positive effect on CSR disclosure. Organizations that have ROA high in a company, the greater disclosure of social responsibility for the company will be profitable even if there are additional costs to be used in conducting CSR, but this will not make a profit down because there is a reciprocal relationship with the company's assets.

Conclusion

Based on the analysis and discussion are written in the previous chapter it could be concluded as follows:

- leverage, public ownership, board size and profitability simultaneously significantly effect on the disclosure of CSR with the significant value, which is smaller than the significance level of 0.050;
- partially, H1 (leverage) as measured by Debt Ratio (DR) did not significantly affect CSR with a significance value of 0897 that is greater than the significance level of 0.050;
- partially, H2 (public ownership) as measured by a Public Shareholding (KSP) significantly affects CSR with a significance value of 0.020 that is smaller than the significance level of 0.050;
- partially, H3 (BOC), which is measured by the size of the BOC (UDK) positively and significantly effects on CSR with significant value, which is smaller than the significance level of 0.050;
- partially, H4 (profitability) as measured by Return on Assets (ROA) significantly affects CSR with a significance value of 0.003 that is smaller than the significance level of 0.050.

Based on the above conclusions the researchers have suggested the followings:

- the Company may undertake in addition to the disclosure of corporate social responsibility to introduce the company's image or image to the public but also sensitize companies to be more concerned about the environment;
- prospective investors and investors should pay more attention to the characteristics - another characteristic that has more influence on the disclosure of CSR as CSR is the concerned business organization to serve business organizations act itself and the external public;
- further research is expected to be able to compare the company before and after receiving the recipient ISRA that affects the characteristics of the company;
- the researchers then expected to add variable investigators about the characteristics of the company, for example, profitability as measured by ROE, the value of the company, the size of the audit committee to be more aware, and more broadly about the influence of the characteristics of the company towards CSR;

- the researchers then expected to extend the period of Indonesian Research Sustainability Report Award (ISRA)

The present research also has its limitations as:

- not all companies that receive ISRA is a company listed on the Indonesia Stock Exchange (IDX) because some companies do not go - so that the public cannot be sampled in the research;
- the company ISRA by comparison with the same variety of sub-sectors so that their sample selection of companies for free but not free from the same subsector with a comparator.

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Determinant Factors Affecting the Performance of Health Services of the Community Health Service Centre in Indonesia

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Abstract:

Recent studies advance in the public health literatures that examining determinant factors affecting the performance of the Community Health Service Centers in Indonesia have been limited. For this reason, this study aims at examining leadership commitment, health facilities, human resource quality and community participation are the significant factors determining the performance of health services of the community health center in Indonesia. The number of sample selected using probability sampling method was 350 respondents. The statistical method used was Multiple Regression Analysis.

The study found that leadership commitment, health facilities, human resource quality and community participation were significantly as determinant factors the performance of health services at the Community Health Service Center in Indonesia. Of these four variables, however, leadership commitment and health facilities were found to have greater effects on the performance of health services at the Community Health Service Centers. These suggest that serious attentions to improve these four factors are a must. If not, the performance of health services at the Community Health Services Center will not be effective. Thus, much remain to be done by the regional government as well as by the central government of Indonesia.

Keywords: leadership commitment; health facilities; human resource quality; community participation; performance of health services; community health services center.

JEL Classification: I11; I13; I15; I18.

Introduction

In the era of globalization today, any organizations or institutions are required to make adjustments in all matters. Of the many organizations, the Community Health Service Center or locally called as Puskesmas is one of the public organizations that needs to improve the performance of the quality of health services. The importance of the improvement of health services is partly to attain a higher community satisfaction index as a benchmark for assessing the quality of community health service center. This can be done in the forms of the improvement of leadership commitment, health facilities, human resource quality and community participation to name just a few factors.

The importance of leadership commitment, for instance, is to develop and empower all organizational resources to achieve goals, and to create a conducive and working atmosphere. By having leadership commitment, the organization can be well-managed and able to achieve the organizational goals. According to Davis (2010), there are four main characteristics of leadership success in organizations, namely: intelligence; social maturity and broad social relations; self motivation and encouragement of achievement; human relations attitudes. The importance of leadership commitment in improving the health service performance of the Community Health Service Centre is simply because the Community Health Center (Puskesmas) has a strategic role in improving the health of the community. This condition will further improve the productivity of the community. For this reason, the Community Health Service Center (Puskesmas) is required to provide quality services, satisfy their patients in accordance with the established standards operation procedure and can reach all levels of society (Ministry of Health 2014).

The present condition of the performance of health services given by the community health services center, however, is still far from the communities' expectations. Complaints that are often heard from the public relate to the quality of government apparatus, rigid bureaucracy, unfriendly behavior of the officials, and low performance of employees in providing better services (Ambar *et al.* 2013). Due to these reasons, this study aims at determining factors affecting the Performance of Health Services, by taking into account the Community Health Service Center in Bogor District as a case study. By taking this study, it is expected the government is able to formulate better policy solution to improve the performance of health services of the Community Health Service Center in Indonesia in general and in Bogor District in particular.

However, before the results of the study are given, section 1 will review relevant studies advanced in literatures on this subject. This is followed by the data collection method and method of analysis used the study in Section 2. Section 3 highlights and discusses the results of the study. Finally, concluding remarks are drawn.

1. Literature Review

The effect of leadership commitment on the performance of health services has been advanced in the literature. Kartono (2004) among others confirmed that leadership commitment was important factor in affecting the performance of health services. This is because leader is a person who has skills and strengths at least in one field, so as she/he is able to affect others to carry out certain activities in order to achieve one or several goals. There are three elements that become role models in leadership, namely, a group of people, power, influence, and the ability to use those three elements and recognize that abilities are related to values (Bangun 2008). Whilst commitment, according to Tjokroamidjojo (2001) is a situation where someone wants to unite in a "suitable" position, even though sometimes it is contrary to his/her conscience. When someone makes a commitment with the public, there is a tendency to be more extreme on himself and think about the design implications of the behavior that he/she wants to display. This means that commitment makes people more responsive and has messages that contain hopes of a positive reputation for themselves. In other words, there is a desire to get more confidence in the opinions of different people.

Further, Aranya and Ferris (2004) define leadership commitment is an agreement or attachment to doing something best in a particular organization or group. There are ten leadership commitments expected from each leader, namely, (1) Looking for Challenging Opportunities, (2) Daring to Try and Willing to Take the Risks, (3) Leading the Future, (4) Fostering Equality of Vision, (5) Raising Collaboration, (6) Strengthening Partners, (7) Demonstrating Exemplary, (8) Planning for Gradual Success, (9) Respecting Each Individual's Role, and (10) Appreciating every success. These suggest that leadership commitment will greatly influence health service performance.

In terms the effect of facilities and infrastructures, Hamalik (2003) defines facilities and infrastructure are all intermediary forms used by people to spread ideas, so that the idea can reach the recipient. Infrastructure in this case is related to access that is supportive and is an inseparable component of the implementation of regional autonomy in the field of infrastructure. Also, it includes access that supports efforts to improve performance and access related to policies and programs that will be pursued by the governments to meet resource needs by human beings reliably, professionally and adequately.

Some principles that must be given attention in managing facilities and infrastructure in the Community Health Service Center (Puskesmas) include: Principles of achieving goals; Principles of efficiency; Administrative principles; Principle of similarity.

While the purpose of management of health service facilities is:

- to strive for the provision of health service facilities and infrastructure through careful planning and careful procurement systems, so that health services center will have good facilities and infrastructure, in accordance with health service needs, and with efficient funds;
- to strive for the use of facilities and infrastructure services properly and efficiently;
- to keep maintaining health service facilities and infrastructures, so that they are always ready to be used.

The effect of human resources quality on the performance of health services has also been advanced in the literature. According to Lukman (2000), quality is anything that is capable of meeting customer needs or needs (meeting the needs of customers). Whilst Silalahi (2000) defined resource management includes planning to prevent excessive use of labor or below the level of labor utilization to achieve optimization of development work to ensure sufficient labor reserves that are skilled in interpersonal relations to ensure effective activities and industrial relations to realize participatory management and semi-trained utilization.

Furthermore, Hasibuan (2001) defined the development of human resources as an effort to improve the ability of technical, theoretical, conceptual and moral of individual in accordance with the needs of work / position through education and training. According to Bambang Wahyudi (2001), the steps that must be taken in carrying out the development of human resources begin with an assessment of the work performance of each individual in the organization, so that it will be known with certainty of the quality of human resources held for a certain period. By appraising the performance of individual works, the possibility of developing human resources in the education and training program can be known, as well as through career development programs. In addition to that, Moenir (2000) suggests that quality can also be interpreted as conformity with requirements, conformity with the user or free from damage/defects. Hence, by having quality of human resources, the performance of health services can be improved.

Finally, Siagian (2001) defined participation in principle has the same meaning and connotation with participation, namely taking part or role in it. Whereas, according to Mardiasmo (2002), community participation is defined as processes, methods, means for citizens, especially the poor and marginal groups to be involved and contribute to controlling resources (allocation) through various public policy making processes that directly affect their lives.

However, in terms of the benefit of community participation, Indra (2003) argues there are three benefits of community participation in policy making, namely:

- the creation of better public policies;
- increased citizen trust in the executive and legislative branches;
- resource efficiency.

The main purpose of participation, according to Muhadjir (2004), is to bring together all the same and different interests in a process of formulating and determining policies (decisions) proportionally to all parties involved and affected by the policy that will be determined in it. The involvement of the public in the process of determining policy is an effective way to accommodate various diverse interests. Public participation manifested in participatory planning can bring substantial benefits. This is because public decisions taken will provide a sense of satisfaction and strong public support for a development process. Therefore, community participation is very important factor in improving the quality of service. This is because community participation aims to bring together all the same and different interests in a process of formulating and determining policies proportionately to all parties involved and affected by the policy that will be determined in it.

2. Methodology

This study used explanatory quantitative approaches. Method used to collect the data was by undertaking field observation, interview and by distributing questionnaires to the sample respondents. In addition to the above primary data, the secondary data was collected by using web search and other relevant literature. The sample was chosen by applying a stratified proportional random sampling technique. The number of sample collected using Slovin formula was 350 respondents. These respondents included the staff of the community health service center, patient families and communities around the community health service center (Puskemas). The field survey was conducted in Bogor District, West Java Province as this region was considered representative to represent the health service centre in Indonesia. The data collected was then analyzed by using the multiple regression analysis. The variables under estimation was the performance of health services as the dependent variable (Y), while the independent variables were leadership commitment (X1), health facilities (X2), Quality of Human resources (X3) and Community participation (X4).

The model can be written statistically as:

$$Y = a + b1\ X1 + b2\ X2 + b3\ X3 + b4\ X4 + e \quad (1)$$

where Y = the performance of health services; X1 = leadership commitment; X2 = Health facilities; X3 = quality of human resources; X4 = Community participation; a = intercept; b1... b4 = coefficients; e = error terms.

3. Results

3.1. Validity and reliability tests

It should be noted that before the above model was estimated partially and jointly, both validity and reliability of the indicators of all variables were tested. The validity of indicators were tested by examining whether or not the value of r calculated is greater than r table. While the reliability of indicators of all variables were tested by examining whether or not the alpha Cronbach is greater than *r* table.

The study found that all indicators of leadership commitment, for instance, are valid because the value of r counted was greater than *r* table. Statement of indicator with the highest value of validity was the fifth statement of planning indicator (0.640), followed by the thirteenth statement of cooperation indicator (0.633) and the fourteenth statement of success indicators (0.620). This means that these indicators have a dominant influence on Health Service Performance (Y). The lowest value of validity is the sixth statement of situation indicator with a validity value of 0.252. This means that special attention is needed to the situation indicators. In terms of the reliability test, all indicators were found to be reliable since the alpha Cronbach (α) is greater than *r* table.

For indicators of the health facility, the result of the validity test of all indicators are also valid since the value of *r* counted is greater than *r* table. The statement with the highest validity value is the fifth statement of the certification indicator (0.637), followed by the fifteenth statement of treatment (0.617) and the fourteen statement of usage indicators (0.616). This means that these indicators have a dominant influence on health service performance (Y). The lowest value of validity is the sixth statement of the indicator of sanitation of space and building with a validity value of (0.216). This means that special attention is needed to these indicators of sanitation of space and buildings. The reliability test of all indicators are reliable because of the value of alpha Cronbach (α) is greater than *r* table (0.720 > 0.1044).

Further, in terms of human resources quality, the results of the validity test of all indicators were valid because the value of *r* counted was greater than *r* table. The statement with the highest value of validity is the fifth statement of the indicators of self-development (0.640), thirteenth statement of the indicators of job description (0.635), and the fourteenth statements of the indicators of participation (0.620). This means that these indicators have a dominant influence on health service performance (Y). The lowest value of validity is the sixth statements of the exemplary indicator with a validity value of (0.252). This means that special attention is needed to the exemplary indicators. However, the reliability test confirmed that all indicators are reliable as the value of alpha Cronbach (α) was greater than *r* table (0.720> 0.1044).

Also, for community participation, the results of the validity test of all indicators are valid because the value of *r* count is greater than *r* table. Statement with the highest value of validity was the fifth statement of the indicator of identifying and making priority scale (0.638), followed by the thirteenth statements of creating policy indicator (0.623), and the fifteenth statement of indicators of efficiency (0.618). Again, this means that these indicators have a dominant influence on health service performance (Y). The lowest value of validity is the sixth statements of the indicator of developing and provides a response with a validity value of (0.245). This means that special attention is needed to indicators of developing and providing responses. In terms of the reliability test, all indicators are reliable because of alpha Cronbach (α) was greater than *r* table (0.720> 0.1044).

3.2. Ordinary Least Square (OLS) assumptions tests

Like many statistical analysis, Ordinary Least Square (OLS) regression has underlying assumptions. These assumptions should not be violated to produce the best estimate. However, if some of these assumptions are violated there is a need to employ remedial measure or use other estimation methods to improve the results. These assumptions are the assumption of linearity, homoscedasticity, no auto correlation, normality of errors, and multicollinearity. Of these assumptions, there are four assumptions are examined excluding the assumption of independence (no autocorrelation) as the data collected in the study was not time series data.

The above OLS assumptions were examined. The study confirmed that there was no violation toward the assumptions. In terms of the normality errors assumption, for instance, by using Kolmogorov-Smirnov test it was found that there is a significance value of leadership commitment (X_1) to the performance of health services (Y) since the value was 0.250 greater than 0.05. Similarly, the health facility (X_2) also significantly affect the

performance of health services (Y) with the value of 0.396 > 0.05. Also, for the influence of the quality of human resources (X_3) on the performance of health services (Y) with the value of 0.246 > 0.05 and for the community participation (X_4) against the performance of health services (Y) with the value of 0.390 > 0.05. In other words, the four independent variables were found to have normal distribution (Table 1).

Table 1. Normality test of the variables

One-Sample Kolmogorov-Smirnov Test						
		X_1	X_2	X_3	X_4	X_1, X_2, X_3, X_4
N		350	350	350	350	350
Normal Parameters [a,b]	Mean	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
	Std. Deviations	1.51049495	1.35367317	1.51071156	1.34949563	1.34916148
Most Extreme Differences	Absolute	0.250	0.396	0.246	0.390	0.388
	Positive	0.250	0.396	0.246	0.390	0.388
	Negative	0.156	0.310	0.155	0.306	0.306
Test Statistic		0.250	0.396	0.246	0.390	0.388
Asymp. Sig. (2-tailed)		0.000[c]	0.000[c]	0.000[c]	0.000[c]	0.000[c]

Note: [a] Test distribution is Normal; [b] Calculated from data; leadership commitment (X_1); health facility (X_2); quality of human resources (X_3), community participation (X_4),
Source: Estimated from the data collected

3.3. Model estimation and hypotheses testing

As there were no violations toward the OLS assumptions, the results of the model were shown at Table 2. As can be seen from this Table, at least there are three independent variables that partly affected significantly the dependent variable. These three independent variables are the leadership commitment, health facilities and quality of human resources, while the community participation was found to be insignificantly affected the performance of health services. The significant effects of the variables of leadership commitment, health facilities and the quality of human resources on the health service performance were seen from both the estimated *t* values as well as from the probability Alpha value. The *t* values of these three independent variables were greater that the *t* values in the statistical table of 1.960. Also, in terms of the probability values, these three independent variables have probability values less than 5%. These indicate that the null hypothesis that said that leadership commitment, health facilities and the quality of human resources have no partly effects on the performance of health services were rejected. In other words, each of these three variables has significant effect on the performance of health services.

Unlike the three independent variables above, the independent variable of community participation has no significant effect on the performance of health services. This was shown from the estimated t value and the probability value. The t value of this variable was less than the *t* table. Similarly, the probability value of this independent variable was than 5% (Table 2). This suggests that the null hypothesis that stated the community participation has no partly effect on the health performance were accepted.

However, in terms of the jointly effects of the four independent variables, the study found that the four independent variables have significant effects on the performance of health services. This was shown from the estimated F value which is greater than *F* table. Also, in terms of the *F* probability value it was less than 5% (Table 3). This indicates that all the four independent variables jointly have significant effects on the health service performance. Thus, this indicates that the leadership commitment, health facilities, quality and human resources and the community participation have significant roles in improving the health service performance at the Community Health Services Center in Bogor Regency.

Table 2. The estimated regression results

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.956	0.865		2.262	0.024
	Leadership commitment (X_1)	0.266	0.043	0.260	6.124	0.000
	Health facilities (X_2)	0.474	0.236	0.486	2.011	0.045
	Quality of human resources (X_3)	-0.191	-0.097	0.195	-1.970	-0.044
	Community participation (X_4)	0.422	0.219	0.433	1.924	0.065

Note: a. Dependent Variable: Health services performance (Y)
Source: Output SPSS 25 from data collected.

Table 3. ANOVA Test

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6845.533	4	1711.383	1331.225	.000[b]
	Residual	443.522	345	1.286		
	Total	7289.054	349			

Note: a. Dependent Variable: The performance of health services (Y); b. Predictors: (Constant), community participation (X_4), quality of human resources (X_3), Health facility (X_2), and leadership commitment (X_1).
Source: Estimated from the survey data collected

In terms of the estimated regression model, as can be seen at Table 2 the estimated regression model is as follows:

$$\hat{Y} = 1.956 + 0.266\ X_1 + 0.474\ X_2 - 0.191\ X_3 + 0.422\ X_4 \quad (2)$$

From this regression model, it can be seen that health facilities have the largest coefficient, followed by community participation, leadership commitment and the quality of human resources. However, of these four variables, community participation as mentioned previously has no significant effect on the performance of health services. This is shown from the estimated *t* value which less than the value of *t* table. Also, it is from the probability value which is greater than 5%. The meaning of the coefficient of health facilities of 0.474 was that for every changes of 1 unit of health facilities, it will change the health services performance by 0.474. Similarly, for every changes of 1 unit of community participation and leadership commitment, there will be changes on the health services performance by 0.422 and 0.266 respectively. However, changes of 1 unit of the quality of human resources will adversely or negatively changes the health service performance by 0.191. The adverse effect of the quality of human resources on the health services performance may be due to the fact of the lack of quality of human resources in the community health center in Bogor Regency.

The coefficient determination of the estimated regression model or R adjusted square (R2) was found to be about 0.938 (Table 4). This indicates that the effect on the health service performance can be explained by 93.8% of leadership commitment, health facilities, quality of human resources and community participation. It is only about 6.2% of the effect on the health service performance can be explained by other variables that were not examined in this study.

Table 4. The Coefficient determination

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	0.969[a]	0.939	0.938	1.134

Note: a. Predictors: (Constant), Community participation (X_4), quality of human resources (X_3), Health facility (X_2), Leadership commitment (X_1); b. Dependent Variable: The performance of health services (Y).
Source: estimated from the survey data collected.

Conclusion

This study found that leadership commitment, health facilities, quality of human resources, community participation jointly have significant effects on the performance of health services in the Community Health Service Center (Puskesmas) in Indonesia in general and particularly in Bogor District. However, the partial effect of each independent variable differs between one variable and another. The leadership commitment, health facilities and quality of human resources were found to be significant in influencing the performance of health services of the community Health Service Centre, while the community participation showed insignificant effect on the performance of health services of the Community Health Service Centre.

The findings of this study suggest at least the following three implications. First, there is a need to increase the leadership commitment in promoting equitable, affordable, quality and equitable health services. Second, there is a need to improve the availability of health facilities and medical devices in the community health services center. Third, there is a need to improve quality of human resources by developing and optimizing health resources equitably. Without these improvements, the performance of health services of the Community Health Service Centers in Indonesia in general and in Bogor District in particular will still far from the expectation in increasing productivity and the social welfare of the people. Thus, much remain to be done by both the central and the regional Governments to improve the Community Health Service Centre in Indonesia.

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The Dynamic Link between Bank Competition Access to Finance and Economic Growth in Selected Asian Countries

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Abstract:

The dynamic causal relationship between bank competition, financial access, and economic growth has been widely studied in many countries both developed and developing countries. However, the results of a lot of studies demonstrate a controversial point of view and diverse conclusions. This study aims, firstly to investigate the short-run dynamic causal relationship between bank competition, access to finance and economic growth. Secondly, to examine the long-run effect and causality relationship between bank competition, financial access, and economic growth. This study applied the quantitative method approach by employing PVECM, FMOLS, and DOLS. All data was collected from the Asia Development Bank (ADB) and World Development Indicators (World Bank) in the panel data set of 25 selected Asian countries during the period 1995-2018. This empirical study found strong evidence of the long-run effect that supports the market power hypothesis, which predicts that low competition adversely affects access to finance which consequently reduces economic growth. In addition, this study revealed that there was a long-run feedback causal relationship between access to finance and economic growth. Hence the financial access is one of the long-run engines of growth, in turn, economic growth also has a long-term significant effect and positively related to financial access.

Keywords: competition; financial access, economic growth, causality, PVECM, FMOLS, DOLS.

JEL Classification: G21; E44; O43.

Introduction

In recent decades, the application of financial sector liberalization in various countries has had a wide impact on increasing bank competition and global financial flows, consistent with the significant economic growth acceleration in Asian countries that have succeeded in contributing 60% of world economic growth. However, slowing economic growth in Asian countries in recent years raises new concerns that financial liberalization marked by interbank competition tends to trigger increased financial instability in developing countries. In fact, as experienced by the countries of South and Southeast Asia during the monetary crisis in 1997/1998 showed that financial liberalization could lead to an economic, social, and political crisis simultaneously. On the other hand, financial regulation in favor of increasing broader financial access has become one of the crucial issues, especially in developing Asian countries related to poverty reduction and increasing domestic investment which is expected to accelerate long-term economic growth. Therefore, politicians, economists, academics, policymakers, and researchers have questioned and debated the relationship of bank competition, access to finance and economic growth.

The debate on bank competition, access to finance and economic growth is driven by several views and hypotheses. Firstly, the market power hypothesis predicts that low competition adversely affects access to finance which consequently reduces economic growth (Leon 2015). The higher concentration in the market increases interest rates and reduces the supply of funds. The proponents of this view also argue that competition has helped in reducing the cost of borrowing and improves the quality of the services they render to society (Beck 2012, De Guevara and Maudos 2011, Beck 2013). Furthermore, competition reduces the costs incurred in banking for various stakeholders, and improves the access to the financial services, at the same time enables the growth of an economy while increasing the efficiency (Claessens and Laeven 2005, Buchs and Mathiesen 2010). Healthy competition in a financial system promotes the productivity of the real sector and stimulate economic growth. The competition in the banking industry can be assessed through its impact on accessibility to financial services also referred to as financial inclusion. Secondly, the general perception that competition in the banking industry or any other industry is positive has been challenged. The Information hypothesis argues that in the presence of information

asymmetries, agency costs and competition reduces access by making it more difficult for banks to internalize the returns from investing in lending, in particular, with opaque clients (Leon 2015). This hypothesis is founded on the idea that lower completion makes it easier for banks to give incentives to invest in soft information, consequently, high competition levels lower money in banking relationships leading to weaker access to credit (Al-Qaisi 2018).

In the perspective of empirical studies, research that highlights the causal relationship between bank competition, access to finance and economic growth has been widely studied in many countries both developed and developing countries. However, the results of a lot of studies demonstrate a controversial point of view and diverse conclusions which may be caused by differences in methodologies, monetary policies, and banking regulation between countries. Several researchers have found that that bank competition (less concentration) has a positive effect on economic growth or there is unidirectional Granger causality from bank competition to economic growth (Ajisafe 2014, Idun and Aboagye 2014, De Guevara and Maudos 2011, Chauvet and Jacolin 2017, Banya and Biekpe 2017, Kwenda 2018). The evidence on the relationship between banking concentration (competition) and access to finance yields mixed results. Several studies support the market power hypothesis found that competition is positively related to the firm's access to finance (Love and Pería 2015, Claessens and Laeven 2005, Back *et al.* 2004). More recently, Chauvet and Jacolin (2017) found that more competitive banking systems favor firm growth only at high levels of financial inclusion while bank concentration has a positive impact on firm growth at low levels of financial inclusion. In contrast with the market power hypothesis or support the information hypothesis, the other studies found that competition increases the cost of credit and the effect is stronger for smaller firms. The bank competition worsens credit/financing constraints (Fungáčová *et al*. 2017, Ayalew and Xianzhi 2019). In the case of the linkage between access to finance and economic growth, Kim *et al.* (2018) have found that financial inclusion has positive effects on economic growth and financial inclusion and economic growth have a bi-directional causalities relationship. Furthermore, Babajide *et al*. (2015) showed that financial inclusion is a significant determinant of the total factor of production, as well as capital per worker.

This study aims, firstly to investigate the short-run dynamic causal relationship between bank competition, access to finance and economic growth. Secondly, to examine the long-run effect and causal relationship between bank competition, financial access and economic growth during the period 1995-2018. The rest of this study proceeds as follows: Section 2 presents a review of relevant literature. Section 3 describes the research method consisting of an explanation of the data and variables used, specifications of the econometric model, testing data and PVECM analysis. Section 4 explains the results and discussion. Section 5 is the final section that contains conclusions and recommendations.

1. Literature Review

The nexus between bank competition, access to finance, and economic growth are well-captured in literature and have been widely studied in many countries both developed and developing countries. However, the results of a lot of studies demonstrate a controversial point of view and diverse conclusions which may be caused by differences in methodologies, monetary policies and banking regulation between countries.

1.1 The nexus between bank competition and financial access

Demirgüç-Kunt *et al*. (2008) defined access to finance as the ability of individuals or enterprises to obtain financial services, including credit, deposit, payment, insurance, and other risk management services. In terms of the nexus between competition and access to finance. The relationship between bank competition and access to finance has been studied in the context of two main hypotheses. The market power view argues that concentrated banking markets are associated with less financial access availability and a higher price for credit. However, an alternative view, the information hypothesis that has emerged during the last decade, argues that competitive banking markets can weaken relationship-building by depriving banks of the incentive to invest in soft information. Therefore, according to the information hypothesis, higher bank market power (lower competition) will reduce firm financing constraints and increase access to finance.

Beck *et al*. (2004) investigated the effects of the banking market structure on the firms' access to bank finance in 74 countries using the ordered Probit model and concluded that competition improves access to finance. Their results provided evidence which showed that firms face more obstacles in accessing finance in a more concentrated banking industry. However, they found this relationship to be influenced by the level of economic and institutional development. Claessens and Laeven (2005) provided evidence for 16 countries that more competitive banking systems have a positive effect on firms' access to finance. Love and Pería (2015) provide further evidence that competition is positively related to the firm's access to finance. Chauvet and Jacolin (2017) found that more competitive banking systems favor firm growth only at high levels of financial inclusion while bank concentration

has a positive impact on firm growth at low levels of financial inclusion. In contrast, the Study of Kwenda (2018) examined the linkage between competition, access to finance and economic growth in Brazil, Russia, India, China and South Africa (BRICS) by using Vector Error Correction Model (VECM). This study did not find any evidence to support any long-run causality running from economic growth and competition to financial access. Neither was there any evidence demonstrating any causal relationship between economic growth and access to finance and competition. Similarly, Ayalew and Xianzhi (2019) examined considers the consequences of bank competition on credit constraints using rich enterprise-level data set from the World Bank's Enterprise Surveys. The study investigated 9632 firms from 27 African Countries. Instead of classical concentration measure, competition was measured by three non-structural measures (Boone indicator, H-statistics, and Lerner index). The results showed that bank competition worsens credit/financing constraints which supports the information hypothesis. However, further investigations showed that bank competition has a significant positive effect on firms' need for external financing, the decision to apply for a new line of credit and bank loan approval decision.

Hypothesis of these relations are:

H1: There is a short-run causality between bank competition and access to finance.

H2: Higher bank competition has a long-term significant effect and positively affects financial access.

1.2. The nexus between bank competition and economic growth

The finance-growth hypothesis and information hypothesis dominates the theories underscoring the linkage between access to finance, and economic growth. Proponents of the finance-growth model argue that financial development promotes economic growth or it is supported by the supply-leading hypothesis (Beck 2013, Ang 2008, Levine 2005). Other research highlights the role of access to financial institutions on economic development. The market power hypothesis predicts that low competition adversely affects access to finance which consequently reduces economic growth. This industrial organization theory posits that the cost of finance reduces with improved efficiency in a competitive banking environment which arguably increases access to finance given the drive to innovate and expand services in order to remain in the market. However, the information hypothesis has contested the general market power theorem that competition has a positive contribution to economic growth in the sense that market power reduces access to finance that hampers the growth of industries. According to the information hypothesis theory, competition reduces access to finance because of the existence of information asymmetry and agency costs which make it difficult for banks to internalize the returns from investing in lending (Kwenda 2018, Leon 2015, Al-Qaisi 2018). The nexus between competition and economic growth has been widely examined. Several researchers have found that that bank competition (less concentration) has a positive effect on economic growth or there is unidirectional Granger causality from bank competition to economic growth (Ajisafe 2014, Idun and Aboagye 2014, Guevara and Mudos 2011, Asante, Agyapong and Adam 2011, Chauvet and Jacolin 2017, Banya and Biekpe 2017, Kwenda 2018).

Jayakumar *et al.* (2018) examined banking competition, banking stability and economic growth in 32 European countries over the period 1996–2014. The empirical findings of this study showed that both banking competition and banking stability are significant long-term drivers of economic growth in the European countries. Finally, the study recommended important policy implications- economic policies should recognize the differences in the relationship between both banking competition and banking stability in order to maintain the sustainable economic performance of these countries.

Idun and Aboagye (2014) examined the finance-growth nexus by looking at the relationship between bank competition, financial innovations and economic growth in Ghana. The study also aimed at finding the causality among bank competition, financial innovations and economic growth in Ghana using quarterly data from 1990 to 2009. They employed the ARDL cointegration procedures to establish both short-run and long-run relationship between bank competition, financial innovations, and economic growth. The results showed that in the long run, bank competition has a positive effect on economic growth while financial innovation is negatively related to economic growth. In the short run, bank competition affects economic growth negatively. In the same token, financial innovation positively affects economic growth in the short run. In terms of causality, the results showed that there is unidirectional Granger causality running from bank competition to economic growth. However, the empirical study found a bi-directional Granger causality between financial innovation and economic growth.

The hypothesis of these relations are:

H3: There is a short-run causality between bank competition and economic growth

H4: Higher bank competition has a long-term significant effect and positively affects economic growth

1.3 The link between financial access and economic growth

From a theoretical perspective, it has been stated that financial inclusion is a driving force toward economic growth. The earlier approach by Schumpeter has been demonstrated that the finance sector boost economic growth (Bakar and Sulong 2018). In the perspective of empirical study, Bayar and Gavriletea (2018) explored the impact of financial inclusion indicators including financial institutions access and financial markets access on economic growth in transition economies of Central and Eastern European Union during the period 1996-2014. The results revealed one-way causality from financial markets access to economic growth as distinct from the bilateral causality in the related literature. In other words, a significant causal interaction has been revealed only between financial market access and economic growth. Onaolapo (2015) examined the effect of financial inclusion on the economic growth in Nigeria over the period 1982-2012 with regression analysis and revealed that financial inclusion positively affected poverty and economic growth. Babajide *et al.* (2015) also examined the effect of financial inclusion on the economic growth in Nigeria with regression analysis and discovered that financial inclusion positively affected the capital per worker and total factor of production.

Kim, Yu, and Hassan (2018) examined the relationship between financial inclusion and economic growth in the Organization of Islamic Cooperation (OIC) countries. In order to draw multilateral results. This study has specified the panel data for 55 OIC countries and estimated not only the dynamic panel estimation, but also the panel VAR, IRFs, and panel Granger causality tests. Based on the results of dynamic panel estimations, they found that financial inclusion has a positive effect on economic growth. The Impulse Response Function (IRF) results derived from the panel VAR analysis showed that financial inclusion has positive effects on the economic growth and financial inclusion and economic growth has a bi-directional causality relationship based on the panel Granger causality tests.

Inoue and Hamori (2016) investigated the effects of financial access on economic growth by employing panel data on thirty-seven countries from Sub-Saharan Africa between 2004 and 2012. The empirical results clearly indicated that financial access has a statistically significant and robust effect on increasing economic growth in Sub-Saharan Africa. Furthermore, Moreira (2016) studied the impact on the growth of SMEs in Europe when access to finance increases and the respective correlation between credit evaluation and accounting ratios. The research was supported by a sample of 1327 enterprises, and employing a multiple regression econometric model. The aim of this analysis was to identify the relationship between growth, solvency, and liquidity accounting ratios. The expected outcome of this paper that the growth of SMEs is strongly dependent on financial access.

Andrianaivo and Kpodar (2012) investigated the impact of mobile phone and financial inclusion on economic growth in a sample of African countries from 1988 to 2007 using dynamic panel data GMM. The results confirmed that mobile phone development contributes significantly to economic growth in African countries. Part of the positive effect of mobile phone penetration on growth sourced from greater financial inclusion. Ananzeh (2016) examined the relationship between financial developments (bank credit) and growth of any economy, for the period that span from 1993 to 2014 by Vector Error Correction Model (VECM) and Granger Causality Test, The results reported a long-run relationship could be inferred between Real GDP and its Explanatory variables of Total Bank Credit (TBC); Bank Credit for Agriculture sector (CFA); Bank Credit for Industry sector (CFI); Bank Credit for Construction sector (CFC); Bank Credit for Tourism sector(CFT). Moreover, the results of this study showed that the efficiency of the bank credit facilities in major economic sectors plays an important role in the Jordanian economic growth, and shows the need to expand the role of the financial sector for different economic sectors by applying more appropriate macroeconomic policies.

Sharma (2016) highlighted the nexus between the vast dimensions of financial inclusion and economic development of the emerging Indian economy. In this study, vector auto-regression (VAR) models and Granger causality test was employed to test the main research question in the Indian context for the period 2004-2013. The findings of the empirical study suggested that there was a positive association between economic growth and various dimensions of financial inclusion, especially banking penetration, availability of banking services and banking services usage in terms of deposits. Granger causality analysis revealed a bi-directional causality between geographic outreach and economic development and a unidirectional causality between the number of deposits/loan accounts and gross domestic product.

The hypothesis of these relations are:

H5: There is a short-term causality between access to finance and economic growth.

H6: Access to finance has a long-run significant effect and positively affects economic growth.

2. Methodology

2.1 Data and variable measurement

The type of data used in this study is secondary data in the set of panel data during the period 1995-2018. Panel data consist of 25 selected Asian countries and all data was collected from the Asia Development Bank (ADB) and World Development Indicators (database of the World Bank). Not all Asian countries are included in the observation due to some data are not available.

The research data in this study consists of 3 (three) variables, namely:

- Bank competition variable (IRS). Low-interest rate spread (low market concentration) is a proxy of high-bank competition. Interest rate spread (unit: percent), defined as the difference between debt rate (especially for deposit) and assets rate (especially for loan). High-interest rate spread represents low bank competition (high market concentration). Many previous studies have measured bank competition with the HH index, the Lerner index, the H-statistic and the Boone Index (Leon 2005, Al Qaisi 2018). The variety of bank competition measurement because of no consensus on how to measure it. In this study employs interest rate spread as a proxy of bank competition following the recent study (Kruglova 2017, Kwenda 2018);
- Access to finance variable (FIN), measured by domestic credit to private sector by bank (% of GDP), defined as financial resources provided to the private sector by other depository corporations (deposit-taking corporations except central banks), such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. The recent study such as Wokabi and Fatoki (2019) and Kwanda (2018) measured the financial inclusion or access to finance with domestic credit to the private sector;
- Economic growth variable (GDP) is measured by the natural logarithm of Gross Domestic Product (GDP) per capita reflecting economic performance or increasing output from year to year.

2.2 Panel Unit Root Test

The panel unit root test is applied to investigate the amount of the integration among study variables as well as the investigation of the stationarity properties of all variables used. The stationary data will tend to approach the average value and fluctuate around the average value. Panel data is a combination of times series data and cross-section, so the stationary test phase needs to be done to see whether there is a unit root contained between variables, so that, the relationship between variables becomes valid. When the panel data has a unit root, the data moves randomly (random walk). When the absolute value of statistics is greater than the critical value, the observed data shows stationary or reject the null hypothesis.

This study applies the various method of panel data unit root tests are Levin, Lin and Chu t-test, ADF (Augmented Dickey Fuller)-Fisher test and Philips-Perron (PP)-Fisher test. Levin, Lin and Chu (2002) in Baltagi (2005) used the panel data unit root test by considering the following ADF specifications:

$$DY_{it} = \alpha Y_{it-1} + \sum_{j=1}^{p} \beta_{it} DY_{it-j} + X_{it}\delta + \varepsilon_{it} \quad (1)$$

where: Yit = panel data; DYit = difference form of Yit.; α = p-1; pi = number of lags adjusted for first difference; εit = error term.

2.3 Panel Cointegration test

The presence of a cointegration relationship indicates the existence of a causal relationship but does not show the direction of causality between the variables. Cointegration is a long-term relationship between variables, although not individually stationary, but the linear combination between these variables becomes stationary. The use of Panel VECM requires that there be at least 2 cointegrated variables. The panel cointegration test is used to identify the existence of a long-run relationship among the economic variables of the study. The method that can be used to test the cointegration is Pedroni and Kao Residual Cointegration (Engle-Granger Based).

Pedroni (2004) introduced several test statistics that test the null hypothesis of no cointegration in non-stationary panels. The seven test statistics are employed for heterogeneity in the panel (Neal 2014) where the panel tests are based on "within dimension" including Panel parametric ADF-statistic, Panel non-parametric PP-Statistic, Panel rho, and Panel v-Statistic. The group tests are termed as "between dimension" (*i.e.*the group means panel co-integration test-statistics) these tests include group ADF-Statistic, group PP-Statistic, and group rho-Statistic.

$$Y_{it} = \alpha_i + \delta_{it} + \beta_{1i} x_{1it} + ... + \beta_{Mi} x_{Mit} + e_{it} \quad (2)$$

$$\Delta Y_{it} = \Delta\beta_{1i} x_{1it} + ... + \beta_{Mi} x_{Mit} + e_{it} + \eta_{it} \quad (3)$$

$$\hat{e}_{it} = \hat{\gamma}_{1i} \hat{e}_{it-1} + \hat{u}_{it} \quad (4)$$

$$\hat{e}_{it} = \hat{\gamma}_{1i} \hat{e}_{it-1} + \sum_{k=1}^{k} \gamma_{ik} \Delta\hat{e}_{it-k} + u_{it} \quad (5)$$

Kao (1999) in Baltagi (2005) proposed an Augmented Dickey-Fuller (ADF) panel cointegration test in which cointegrating vectors are assumed to be homogeneous. Let e_{it} be the estimated residual from the following regression:

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it} \quad (6)$$

The Kao test is based on a version of the ADF test on the residual (ε_{it}) of the auxiliary regression $\varepsilon_{it} = \rho\varepsilon_{it} - 1 + v_{it}$, or on the augmented version of the pooled specification:

$$\varepsilon_{it} = \rho\varepsilon_{it-1} + \sum_{j=1}^{p} \lambda_j \Delta\varepsilon_{it-j} + v_{it} \quad (7)$$

The ADF test is applied to the estimated residual: where p is chosen so that the residual v_{it} are serially uncorrelated. The ADF test statistic is the usual t-statistic in the previous equation. The null hypothesis of no cointegration, the ADF test statistics can be written as:

$$ADF = \frac{t_{ADF} + (\frac{\sqrt{6N}\hat{\sigma}v}{2\hat{\sigma}0v}}{\sqrt{(\frac{\hat{\sigma}_{0v}^2}{2\hat{\sigma}_v^2} + (10\hat{\sigma}_{0v}^2)}} \quad (8)$$

where: $\hat{\sigma}_v^2 = \Sigma_{\mu\varepsilon} - \Sigma_{\mu\varepsilon}\Sigma_{\varepsilon,}^1 \hat{\sigma}_{0v}^2 = \Omega_{\mu\varepsilon} - \Omega_{\mu\varepsilon}\Omega_{\epsilon,}^1 \Omega$ is the long-run covariance matrix; tADF is the t-statistic of the ADF regression.

Kao shows that the ADF test for cointegration converges to a standard normal distribution N. The statistical value of Kao panel data cointegration test (ADF), then compared with the t-statistic value at 5% or the Probability value. If the statistical value is greater than the critical value or the probability value is less than 0.05, there is a long-run relationship in the variables.

2.4 Panel Vector Error Correction model

The Panel Error Correction Model (PVECM) is one of the quantitative methods used in this study. It is employed to 1) Investigate the short-run and long-run causality linkage between bank competition, access to finance, and economic growth. 2) Determine the direction of the causal relationship between bank competition, financial access, and economic growth both in the short and long-run. Panel Vector Correction Model (PVECM) is a restricted PVAR (panel vector auto-regression) designed for use with non-stationary series that are known to be cointegrated. The PVECM has cointegration relations built into the specification so that it restricts the long-run behavior of the endogenous variables to converge their cointegrating relationships while allowing for short-run adjustment dynamics (Ekananda 2019).

The cointegration term is known as the error correction term because a series of partial short-run adjustments make corrections to deviations to achieve long-run equilibrium gradually. When the variables are cointegrated of the same order, then the valid error correction model exists between the three variables. The determination of a cointegration relationship (cointegrated vector) shows the presence of a long-term relationship between variables causality (Rachev *et al.* 2007, Gujarati and Porter 2009). PVECM treats the three observed variables GDP, IRS, and FIN as endogenous variables include the lag value of each variable on the right-hand side of the equation. In the panel VECM model is written as follows:

$$\Delta GDP_{it} = \alpha_1 + \sum_{i=1}^{p} \beta_{11} \Delta GDP_{it-1} + \sum_{i=1}^{q} \beta_{12} \Delta FIN_{it-1} + \sum_{i=1}^{r} \beta_{13} \Delta IRS_{it-1} + \lambda_1 ECT_{it-1} + \mu_{1it} \quad (9)$$

$$\Delta FIN_{it} = \alpha_2 + \sum_{i=1}^{p} \beta_{21} \Delta FIN_{it-1} + \sum_{i=1}^{q} \beta_{22} \Delta GDP_{it-1} + \sum_{i=1}^{r} \beta_{23} \Delta IRS_{it-1} + \lambda_2 ECT_{it-1} + \mu_{21it} \quad (10)$$

$$\Delta IRS_{it} = \alpha_3 + \sum_{i=1}^{p} \beta_{31} \Delta IRS_{it-1} + \sum_{i=1}^{q} \beta_{32} \Delta GDP_{it-1} + \sum_{i=1}^{r} \beta_{33} FIN_{it-1} + \lambda_3 ECT_{it-1} + \mu_{3_{it}} \quad (11)$$

where: IRS is the bank competition variable, measured by interest rate spread (%); FIN is the access to finance variable, measured by domestic credit to private investment (% of GDP); GDP is an economic growth variable, measured by the natural logarithm of Gross Domestic Product per capita (USD); IRS is the bank competition variable, proxied by interest rate spread (%); ECT_{it-1} is the estimated lagged error correction term derived from the long-run cointegrating relationship of Equation (1); *t* is time (the year 1995-2018); *i* is cross-section data (25 selected Asian countries).

The ECT coefficient also measures the speed of adjustment of the i*th* endogenous variable towards the long-run equilibrium and contains information about the long-term relationship (Asteriou and Hall 2011, Ekananda 2019). The coefficient of ECT (λ1, λ2, λ3) are expected to -1 < ECT ≤ 0 or expected to 0 ≤ ECT < 1 (Asteriou and Hall 2011). ECT in equation (9) is expressed as $ECT_{it} = GDP_{it} - \beta_0 - \beta_1 FIN_{it} - \beta_2 IRS_{it}$.

2.5 Vector Error Correction Granger Causality/Wald Test

The short-run causality is also tested using the Vector error correction (VEC) Granger causality/Wald test. The Wald test estimates a test statistic based on the unrestricted regression. The Wald statistic estimates how close the unrestricted estimates come to satisfy the restrictions under the null hypothesis. The Granger non-causality is characterized by zero restriction on the panel VECM coefficient.

2.6 Fully Modified Ordinary Least Squares and Dynamic Ordinary Least Squares

Kao and Chiang (2000) proposed the Fully Modified OLS (FMOLS) and Dynamic OLS (DOLS) methodologies to estimate the long-run cointegration vector, for non-stationary panels. In the cointegrated panel data set, the use of the OLS method for estimating the long-run equation leads to a biased estimator of the parameters unless the repressors are strictly exogenous. Thus, the OLS estimation technique is unable to produce valid inference. For this reason, Pedroni suggested a fully modified OLS estimator, the FMOLS which becomes a dynamic DOLS and gives for the between-dimension "group mean" of the estimators of DOLS and FMOLS methods. In order to estimate DOLS and FMOLS let us take the following fixed effect panel regression:

$$z_{it} = \alpha_i + g_{it}\beta + \mu_{it} \quad i = 1,..., N\ t = 1,.....,T \quad (12)$$

where: β is a vector of slope (k,1) dimension; z_{it} represents the matrix (1,1); μ_{it} denotes the stationary disturbance term; α_i represents the individual fixed effect.

It is presumed that g_{it} (k,1) vector is the integrated schemes of order one for all *i*, where:

$$g_{it} = g_{it-1} + \varepsilon_{it} \quad (13)$$

The specification of Eq 4 demonstrates a structure of cointegration regression, *i.e.* z_{it} is co-integrated with g_{it}. By investigating the limited distribution of DOLS and FMOLS estimators of cointegrated regressions. The study of Kao and Chiang (2000) found that they are asymptotically normal. The estimator of FMOLS is structured by making corrections for autocorrelation and endogeneity to OLS estimator and is written as:

$$\lambda FMOLS = \left[\sum_{i=1}^{N}\sum_{t=1}^{T}(\mu_{it} - \bar{\mu}_i)\right]\left[\sum_{i=1}^{N}\{\sum_{t=1}^{T}(\mu_{it} - \bar{\mu})z_{it} + T\Delta_{\varepsilon\mu}\}\right] \quad (14)$$

where: z_{it} is the transformed variable of z_{it} for achieving endogeneity correction; $\Delta_{\varepsilon it}$ is an autocorrelation correction term.

On the other hand, DOLS estimator is quite useful and powerful for correcting the endogeneity and autocorrelation. The DOLS model uses parametric correction to the errors including future and past values of first differenced regressors for obtaining an impartial estimator of long-run parameters. Following equation can be used for obtaining the DOLS estimators:

$$\lambda DOLS = \sum_{i=1}^{N}(\sum_{t=1}^{T} P_{it}P_{it})^{-}(\sum_{t-1}^{T} P_{it}y_{\cdot it}) \quad (15)$$

where: $P_{it} = [x_{it} - \Delta x_{i,t} - q....., \Delta x_{i,t} + q]$ is 2 (q + 1) * 1 regressor's vector.

In this study employs the pooled (weighted) estimation accounts for heterogeneity by using cross-section specific estimates of the conditional long-run residual variances to reweight the moments for each cross-section when computing the pooled FMOLS and DOLS estimator.

3. Result and Discussion

3.1 Data description

Table 1 demonstrates a description of the panel data containing the average, median, maximum value, lowest value (minimum), and observations number of three data/variables. The mean of interest rate spread as proxy of bank competition (IRS), domestic credit to private sector as a proxy of access to finance (FIN) and GDP per capita (economic growth) in 25 selected Asian countries during the period 2010-2018 is 5.83%, 65.77% and US$ 13271, respectively. In terms of normality tests, three variables mirror leptokurtic (with a kurtosis of more than three).

The Jarque-Bera statistic measures the difference of the skewness and kurtosis of the series with those from the normal distribution. Table 1 also shows that three variables are not normally distributed which indicated by the Jarque-Bera indicator is statistically significant at alpha of 1%, suggests the possibility of outliers in the data. The number of cross-section units is 25 selected Asian countries and the total time-series data is 24 years (1995-2018) so that a total of 600-panel data observations are obtained.

Table 1. Description of data

Statistic	IRS	FIN	GDP
Mean	5.826633	65.76980	8.620448
Median	4.395000	56.54500	8.270366
Maximum	59.75000	223.1300	11.18431
Minimum	-6.920000	3.120000	5.490342
Std. Dev.	6.221365	46.03230	1.424129
Skewness	4.137072	0.782297	0.074321
Kurtosis	25.69153	3.130104	1.772394
Jarque-Bera	14,584.18	61.62204	38.22777
Probability	0.000000	0.000000	0.000000
Sum	3,495.980	39,461.88	5,172.269
Observations	600	600	600

Source: data processed (2019).
Note: GDP is transformed into a natural logarithm.

Table 2 shows the Pearson correlation matrix for the three variables used in this study. As expected, the correlation GDP (economic growth) and FIN (financial access) towards IRS (bank competition) present negative correlation coefficients of −0.264 and −0.439, respectively. The correlation coefficient between the FIN and the GDP per capita is positive (0.462). This suggests that FIN (financial access) and the GDP (economic growth) in this observation move in the same direction or are positively correlated.

Table 2. Correlation matrix

Variable	IRS	FIN	GDP
IRS	1.000	-0.426	-0.264
FIN	-0.439	1.000	0.462
GDP	-0.264	0.462	1.000

Source: data processed (2019)

3.2 The Result of Panel Unit Root Test and Panel Cointegration Test

The Panel VECM used to investigate the causal linkage between bank competition, financial access, and economic growth both in the short-run and long-run. The first requirement in using PVECM analysis is that the data used should be integrated in the same order and has a long-run relationship (cointegration). Therefore, in this section, the first step is testing data stationarity by employing the methods of Levin, Lin and Chu (LLC), Im, Pesaran and Shin (IPS), Augmented Dickey-Fuller (ADF)-Fisher, and Philip-Perron (PP)-Fisher.

Table 3. Panel Unit root test

Panel unit root test types	Variables in level			Variables in first difference		
	IRS	FIN	GDP	IRS	FIN	GDP
LLC	-5.70343 (0.001)*	2.22778 (0.987)	-2.96205 (0.0015)*	-18.2377 (0.000)*	-10.9262 (0.000)*	-19.3794 (0.000)*
IPS	-6.55027 (0.001)*	3.41062 (0.9997)	4.13661 (1.000)	-19.8404 (0.000)*	-11.8484 (0.000)*	-13.4184 (0.001)*
ADF-Fisher	136.000 (0.000)*	32.1000 0.977)	51.7582 (0.4050)	394.960 (0.000)*	227.282 (0.000)*	462.172 (0.000)*
PP-Fisher	183.935 (0.000)*	22.8149 (0.9997)	32.2541 (0.9758)	816.944 (0.000)*	231.164 (0.000)*	234.423 (0.000)*

Source: data processed (2019).
Note: Value in parentheses () is p-value. *,**,*** = Significant at alpha 1 %, 5 %, 10 %.

Table 3 provides important information on unit root test for examining stationarity of panel data by employing several methods namely Levin, Lin and Chu-Fisher, Im, Pesaran, Shin (IPS), Augmented Dickey Fuller-Fisher and Philips Perron-Fisher. Testing data in level shows that three variables tested (IRS, FIN and GDP) are not stationary or fail to reject the null hypothesis (there is unit root) so that the differencing process is one of the solutions to make data stationer. In the first difference, all variables tested are significant at alpha 1 % (p-value < 0.01) or reject the null hypothesis indicate that all first difference variables are stationary or have no unit root. In other words, all variables are integrated in the same order, I(1).

The second step in PVECM analysis is the application of cointegration test with the aim of identifying the existence of a long-term relationship between variables in the model by employing the Pesaran and Kao residual cointegration test presented in Table 4. Lag 3 is selected as an optimal lag by considering the Akaike information criterion and Schwarz criterion.

Tabel 4. Panel cointegration test

Pedroni residual cointegration test (IRS as dependent variable)		
Indicator	T-statistic	Probability
Within-dimension:		
Panel v-statistic	2.370	0.009
Panel rho-statistic	-5.121	0.000
Panel PP-statistic	-15.878	0.000
Panel ADF-statistic	-12.380	0.000
Between-dimension:		
Group rho-statistic	-1.249	0.106
Group PP-statistic	-7.910	0.000
Group ADF-statistic	-8.421	0.000
Kao residual cointegration test (IRS as dependent variable)		
Indicator	T-statistic	Probability
ADF	-6.091	0.000

Source: Data processed (2019)

3.3 Panel Vector Error Correction Model and Wald test

The third step is estimating Panel Vector Error Correction Model (PVECM) to obtain important information regarding the dynamic pattern of the causal relationship between bank competitions, access to finance, and economic growth both in the short and long term. Based on the PVECM estimation results summarized in Table 5, demonstrates several important information that the ECT (error correction term) coefficients are negative and show significant statistically at alpha 1% for two dependent variables (IRS, GDP) or there would be speed of adjustment toward the long-run equilibrium indicating there is a long-term causality running from independent variables (FIN and GDP) to bank competition (IRS), and also giving a strong evidence of the existence of a long-run causality running from independent variables (IRS and FIN) to economic growth variable (GDP).

Table 5 shows that the existence of a two-way relationship (bi-directional causality) between bank competition and economic growth in the long-term is represented by the ECT coefficient, which is significant at alpha 1%. The ECT coefficient shows the speed of adjustment or the process of correction from the short-run to lead to equilibrium in the long-run. The speed of adjustment from financial access (FIN) and economic growth (EG)

to bank competition variable (IRS) is 5.7%, meanwhile the speed of adjustment from bank competition (IRS) and access to finance (FIN) to economic growth (GDP) variable is 0.1%. The result of PVECM shows that coefficient ECT for financial access (FIN) is not significant or fail to reject the null hypothesis, indicating there is no long-term causality, however, these results require further confirmation with the results of the FMOLS and DOLS methods so that a valid and more accurate estimation result can be obtained.

Table 5. Panel VECM estimation results

Independent Variables	Dependent variables		
	ΔIRS	ΔFIN	ΔGDP
Long-run coefficient			
ECT(-1)	-0.057492*	0.074856	-0.000950*
Short-Run coefficient			
ΔIRS (-1)		0.001805	0.000132
ΔIRS(-2)		-0.017712	0.000512
ΔIRS(-3)		-0.008751	-0.000107
ΔFIN(-1)	-0.011028		-0.000156
ΔFIN(-2)	-0.004650		-0.000120
ΔFIN(-3)	-0.001579		0.000148
ΔGDP(-1)	-5.068034*	22.79977*	
ΔGDP(-2)	0.965026	2.116020	
ΔGDP(-3)	0.052411	5.902992	

Source: Data processed.
Note: *, **, *** = Significant at alpha 1 %, 5 %, 10 %.

The next procedure is to test for a short-run causality using the Wald test/VEC Granger causality test as set out in Table 6. The result of Wald test in Table 6 shows that there is no evidence to support the short-run causality running from bank competition (IRS) to access to finance (FIN) and running from access to finance (FIN) to economic growth (GDP) or fail to reject the null hypothesis of the Wald test. However, the Wald test demonstrates strong evidence for a short-run causality running from economic growth (GDP) to access to finance (FIN).

Table 6. Wald test/VEC Granger causality test

Dependent variable	Independent variable	Chi-Sq	Df	p-value
FIN	IRS	0.146533	3	0.9857
	GDP	15.55186	3	0.0014*
GDP	IRS	1.067779	3	0.7849
	FIN	1.126736	3	0.7706

Source: data processed.
Note: *, **, *** = Significant at alpha 1 %, 5 %, 10 %.

3.4 Panel long-run coefficient

In terms of cointegrated panel data set, the use of the OLS method for estimating the long-run equation leads to a biased estimator of the parameters unless the repressors are strictly exogenous. Thus, the OLS estimation technique is unable to produce valid inference. For this reason, Pedroni suggested a fully modified OLS estimator, FMOLS which becomes a dynamic DOLS. In this study employs the Pooled (weighted) estimation accounts for heterogeneity when computing the pooled FMOLS and DOLS estimator. Table 7 displays the FM-OLS and DOLS estimation.

Table 7 provides important information about the long-run coefficient of FMOLS and DOLS. The estimation of FMOLS and DOLS for two equations have the expected sign and consistent with several previous studies. In detail these empirical result explain that lower bank competition (higher bank concentration) has a significant long-term effect and negatively affects access to finance (FIN) at the significance level (alpha) of 1% with the coefficient regression of -0.4113 (FMOLS) and -0.7462 (DOLS) , interpreted that a 1% increase in bank concentration will reduce access to finance by 0.41% and 0.73% respectively. In other words, an increase in bank competition of 1% will increase access to finance by 0.41% and 0.73% respectively. As expected, economic growth has a significant long-term effect and positively affects access to finance at the significance level (alpha) of 1%. With the coefficient regression of 26.5963 (FMOLS) and 26.2047 (DOLS), interpreted that a 1% increase in economic growth will lead 26.6 % and 26.2 % in financial access respectively.

Table 7. FMOLS and DOLS estimation

Dependent variable	Independent variable	FMOLS		DOLS		Expected sign
		Coefficient	t-stat	Coefficient	t-stat	
FIN	IRS	-0.4113	-16.8479*	-0.7462	-4.1916*	-
	GDP	26.5963	7212.755*	26.2047	12.3547	+
GDP	IRS	-0.0446	-1.8377*	-0.0283	-6.0159*	-
	FIN	0.0528	4.2606*	0.0066	10.2751*	+

Source: data processed.
Note: *, **, *** = Significant at alpha 1 %, 5 %, 10 %.

In addition, Table 6 also shows that lower bank competition (higher bank concentration) has a significant long-term effect and negatively related to economic growth (GDP) at the significance level (alpha) of 1%, with the coefficient regression of -0.0446 (FMOLS) and -0.0283 (DOLS), interpreted that a 1% increase in bank concentration will reduce economic growth by 0.04% and 0.03% respectively. In other words, an increase in bank competition of 1% will increase economic growth by 0.04% and 0.03% respectively. As expected, access to finance has a significant long-term effect and positively related to economic growth at the significance level (alpha) of 1%. With the coefficient regression of 0.0528 (FMOLS) and 0.0066 (DOLS), interpreted that a 1% increase in financial access will boost economic growth by 0.05 % and 0.006 % respectively.

4. Discussion

In the case of empirical studies in selected Asian countries using PVECM, FOMLS and DOLS did not find a short-run causality between bank competition and access to finance and there was no evidence to support the theory or previous empirical findings. In other words, this study fails to reject the null hypothesis of H1 and H3. However, in the short-run, the results of this study could not reject the alternative hypothesis of H5 state that there is a short-term causality between financial access and economic growth.

In terms of long-run causality, this study cannot reject the hypothesis of H2, H4, and H6 which found strong evidence to support the market power hypothesis. The market power hypothesis predicts that low competition adversely affects access to finance which consequently reduces economic growth. This industrial organization theory posits that the cost of finance reduces with improved efficiency in a competitive banking environment which arguably increases access to finance given the drive to innovate and expand services in order to remain in the market. These results provided evidence which showed that firms face more obstacles in accessing finance in a more concentrated banking industry. Thus, the results of this study were not in line with the view of the information hypothesis which argues that competitive banking markets can weaken relationship-building by depriving banks of the incentive to invest in soft information. Therefore, according to the information hypothesis, higher bank market power (lower competition) will reduce firm financing constraints and increase access to finance.

The result of this empirical study is consistent with the study of Claessens and Laeven (2005), Love and Pería (2015), Beck (2013). In the case of the nexus between financial access and economic growth, this study found a long-term feedback/bi-directional causality relationship which states that financial inclusion is one of the long-run engines of growth simultaneously financial inclusion also play an important role to boost economic growth. The result of this empirical study corroborates the study was conducted by Kim, Yu, and Hassan (2018). However, in the short-term did not find any evidence in accordance with the empirical finding of Kwenda (2018).

Conclusions and Recommendations

Finally, this empirical study can conclude several important findings related to the dynamic relationships between bank competition, financial access, and economic growth both in the long and short-run by using the Panel VECM, FMOLS, and DOLS. This empirical study found strong evidence that supports the market power hypothesis, which predicts that low competition adversely affects access to finance which consequently reduces economic growth. In addition, this study also found that there was a long-run feedback (bi-directional) causality relationship between access to finance and economic growth. Hence, financial access is one of the long-run's engines of growth, in turn, economic growth has a long-term significant effect and positively affects financial access while in the short-term only showed a one-way causality linkage running from economic growth to access to finance and did not find any evidence to support the competing hypothesis both market power hypothesis and information hypothesis as well as previous studies.

This study recommends greater attention to increasing and improving access to finance, healthy bank competition, and increasing sustainable economic growth. Increasing and improving financial access can be implemented by strategic policies including removing barriers and obstacles through the various banking financial

regulations in Asian countries and increasing financial literacy in the community. This research has limitations because it only focuses on macro analysis. Further research should be highlighted on data and analysis at the micro level.

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Investigating the Effects of Trade Facilities on Exports: A Case Study of Mongolian Economy

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Abstract:

This study examines relationship between trade facilitations and exports in Mongolian economy with its 45 trading partner's countries from Asian regions. To evaluate relationship, we construct trade facilitation indicators from different primary variables by employing the econometrics techniques principal component (PCA) and factor analysis (FA) namely cost, custom efficiency, shipment and time as well as period from 2001 to 2017. Findings show most trade facilitations have higher impact on Mongolian's exports such as cost, custom efficiency, shipment and time. Cost and time indicators have negative relation with exports level and the probability of the exports. Similarly, custom efficiency and shipment have also impact on exports level and probability. According to findings, cost and time indicators in US$ and days should be reduced by implementing the state policies respectively. Furthermore, custom efficiency and shipment should have higher values to improve the custom clearance and other border agencies at border of Mongolia. Domestic trade facilitations may enhance the exports level and probability to enter the other firms into markets with other trading partners that including in this model. Traditional gravity variable distance has negative impact on export level and probability. Results show that higher distance in kilometer cause higher cost and reduce the exports volume, while geographical factor common border with Russia and China has larger impact on Mongolian's exports level and probability.

Keywords: trade facilitation; exports, gravity model; Mongolian economy.

JEL classification: F10; F13; F14.

Introduction

By the advancement of world trade, the problems of incremental trade costs and inconvenient commodity movement caused by complex customs processes and, lack of transparency of trade policies and information, and imperfect related infrastructure are becoming increasingly prominent. Therefore, countries and regions around the world and relevant organizations are paying more and more attention to trade facilitation for promoting trade liberalization. For instance, the Doha Ministerial Declaration adopted by the Fourth WTO Ministerial Conference listed trade facilitation as the agenda of the new round of multilateral trade negotiations; the Osaka Action Agenda of APEC clearly defined the status of trade facilitation and trade liberalization as equally important and indivisible, and further formulated the APEC trade facilitation practice.

Dynamic planning with the further development of economic globalization, more and more economies have joined the relevant provisions of trade facilitation in their regional trade agreements. At the Ninth Ministerial Conference of the World Trade Organization on December 7, 2013, the Agreement on Trade Facilitation was adopted, which the first multilateral agreement is reached since the establishment of the WTO. The process of trade facilitation has made a new breakthrough. The development of trade facilitation is in line with Mongolia's national interests, so its struggles are very positive and geographic located with Russia and China.

At present, China is also actively developing trade facilitation, and has made great progress. However, as a developing country, China's development level in this field is still lagging behind Japan and other developed countries, but ahead Mongolia. At the time of the adoption and entry into force of the Agreement on Trade Facilitation, it is the research background of this thesis to study the relevant measures taken by Mongolia to develop trade facilitation, and then to provide reference for China and Russia to implement trade facilitation. We discuss some previous research on trade facilitations.

For the purpose of keeping eye on trade facilitation's background and its effects on trade and economic factors, researchers explain several empirical research that examine the impact of trade facilitation. The statement regarding the trade facilitations have been issued like defining and measuring the trade facilitations indicators, selecting the econometric methodology for estimating the impact of trade facilitation on trade flows and planning the situation of estimate the effect of improvement in trade facilitations on trade flows. Wilson, Mann, and Otsuki (henceforth WMO) (2003) have proposed some methodologies that was the first for measuring the impact of trade facilitation on trade performance by using gravity model.

They constructed four trade facilitations measurement such as port infrastructure, custom environment, regulatory environment and e-business infrastructure. There are four indicators that have been constructed by researchers for Asia Pacific Economic Cooperation (APEC) countries for single year by adopting the single averages to thirteen primary variables that were collected from international organization like WEF. Gravity model has been applied that included the four indicators and also other classic controls variables like individual countries income level, tariffs and geography. WMO's research concluded that intra-APEC members could enhance the trade by$254 billion or 21% trade flows by estimating the model. If APEC members that below-average indictors improved the capacity central to average for all members. The improvement in port efficiency could derive the capacity about half in increasing trend.

Afterwards, Wilson, Mann, and Otsuki (2005) extended their four indicators to a larger set of countries by using simulations based on gravity model. Results show that total gain has been calculated in trade flows in manufacturing the goods from trade facilitation of the below average countries central to global average levels produce an increase in global trade by $US377 billion.

Jesus Felipe Utsav Kumar (2011) implied the standard gravity model for bilateral trade flows; augmented to include a measure of trade facilitations. Results show that trade facilitations have a positive relation and statistically significant impact on bilateral trade flows. They also focus on several components of trade facilitation. On exporter side, results exhibit that infrastructure has larger effect on trade flows, on the other side importer; custom efficiency has greatest impact on trade flows.

This paper focuses on the gains in trade for the case of Central Asian countries. World Bank's cross country LPI reports shows that counties are ranked the lowest in terms of trade facilitations. Trade has been increased by 44% due to improvements in LPI and intra-Central Asia trade doubles and Central Asian countries. But exports exceeded the imports. Moreover, share of imports in total trade is greater than the imports that contribute a larger share of the increase in total trade. If we see different components terms, infrastructure is very important to effect on trade and can be gained in trade, followed by logistics and custom. By the way, gains must be considered beside the ease of implementing. For instance, in short term view improvements in custom efficiency are relatively easy and cheap to implement as compare to infrastructure. Even though, improvements in custom efficiency might be provide quicker results but infrastructure is very important for Central Asian countries especially landlocked nature. Consequences of findings show that developing the regional infrastructure would be providing the transport corridors for international trade within and outside the regions that help to reduce trading time and integrate the countries in regions as well the rest of the world.

Furthermore, in manufacturing sector, gains in trade occur due to improvement in trade facilitations are different. The improvement in exporting country's LPI increased the bilateral trade. Comparatively, higher differentiated and high technology products are higher in more sophisticated rather than increase in trade in less sophisticated and lower technology product. This is special case for Central Asian countries as their efforts on reduction the dependence on natural resources diversification manufacturing and higher value added. These countries have access international markets and found that trade facilitation has important role to play.

This study contributes the effects of trade facilitations on trade flows in Mongolian economy. Trade facilitations are measured in different dimensions by several national, regional and international organizations as well as trade economists. Usually trade facilitations are defining that the facilities to provide the exporter and importer during movement of the goods from origin to destination point. For instance, custom clearance provides the facilities to exporter and importer to move their product and reach in time specific market. Many economists Silva *et al.* (2010), Jesus Felipe Utsav Kumar (2011) Chaney (2008), Soloaga (2006), Djankov (2006), Lee and Park (2007) etc use logistics, custom, time and administration management at border and cross border variables.

This study focuses on the impact of logistics performance index and border efficiency in Mongolia economy. To estimate the impact of trade facilitations, we construct the trade facilitations indicators through LPI and border transport efficiency main indicators including panel data set period from 2001 to 2017. We compare with neighboring countries China and Russia because it's major part of land link to these countries and may effect on its export and import level including trade facilitations at border and cross the border. Due to landlocked country, Mongolia has to face several challenges to provide qualitative and quantitative facilities to exporter and importer for reaching at highest target level. This study would be beneficial to formulating the trade policies and improve the quality and quantity of trade facilities for Mongolian economy.

To investigate the association between trade related facilities, trade and economic growth in the Mongolian economy, we able to find the most important significant factors, how to improve the quality and quantity of facilities and how to make policies based on this sector. This study will support to identify the result oriented investment in trade facilitations towards exports market. And also would be helpful in economic policies making at country level. This study will represent the features and function of trade related facilitations indicators that create economic channel for country. Trade facilitations are significant important to run its own system to obtain trade objectives. So, it will be fruitful for economies to quantify importance of existing indicators to achieve trade and economic growth targets.

1. Research Background

This part of study covers previous work on trade facilitations done by several trade experts and economists in multiple time periods and regions of the world. The literature gives us direction to incorporate the relationship between trade facilitations and trade as well as economic GDP; effect of trade facilitations occur not only trade but economic gross domestic product and other economic development indicators and economic field. So, we will discuss the effects of trade facilitations in several fields of economic.

For example, Mann, and Otsuki (henceforth WMO) (2003) proposed that empirical research assess the impact of trade facilitation has to take into account three problems such as defining and measuring trade facilitation indicators, authors choose an econometric approach to estimation the influence of trade facilitation on trade flows and planning a situation to assessment the effect of better-quality trade facilitation on trade flows. The method suggested by Wilson, Mann, and Otsuki (2005) was the first to amount the effect of trade facilitation on trade routine using a gravity model.

Authors choose some areas such as e-business infrastructure, custom environment, port infrastructure and regulatory environment. For Asia Pacific Economic Cooperation (APEC) countries, they constructed four indicators for only one year by applying single means to 13 main variables, these variable had been collected from WEF. To estimate desirable results, they implied important techniques such as Gravity Model to incorporate the effect of main variables and controls namely income level of individual countries, geographical factors and trade policies on trade flows.

Results exhibits that trade could be increased by $254 billion in APEC countries or 21% intra APEC trade flows. APEC members improve capacity with below average indicators that is center for all countries. Improvement in port efficiency could be increased about half. Afterwards, Wilson, Mann, and Otsuki (2005) extended their four indicators to a more set of countries. By using the simulations based on their gravity model, they find that the total advantage in trade flows in industrial goods from trade facilitation of the "below-average" countries "central" to worldwide regular stages produces an increase in total trade of $US377 billion.

Engman's (2005) study shows that the effect of trade facilitations on trade flows, government revenue and foreign direct investment. He implied a gravity model computable general equilibrium model in his research model to incorporate the effect of trade facilitations on trade flows and increase the efficiency of customs procedure and ports. So, we discuss on trade flow and trade facilitations. In the region of APEC, even though this region covers only 21 countries, the effect of trade facilitations still exists around the half of world trade and included developed and developing economies. In this study, Wilson *et al.* (2003) calculated that countries that are at below average

in border infrastructure especially customs and ports could be enhancing their efficiency half way to the APEC countries at average.

Several studies assume a fixed across the board that reduction in TTCs or increment in customs efficiency. These studies could not suggest the cost benefit analysis (CBA) while some represent that custom reform often costly and hardly to applicable, but may be less costly than the investment in port infrastructure. Furthermore, results show that there are positive associations between trade and trade facilitations. This significantly increased the trade and reduced the trade transaction costs. And also show that both rich and poor countries could gain from trade facilitations in term of trading system.

But trade would be higher in developing countries than developing countries, while the efficiency of customs and ports administration are relatively less. Both the counters improve custom procedure and can export to partners by measuring the efficiency. The improvement in border procedures benefits most and emphasizes the value of one-sided actions. Countries can earn more potential gain from improvement in port efficiency rather than increments in customs efficiency. Still improve the custom efficiency would be significantly effect on trade. Some quantitative exercise concludes that the effect of trade facilitations on trade can be changed in several products categories.

For instance, the characteristics of each sector constraint related to season, perishability of the product, and also more sensitivity of the product make inefficient of custom procedure. Textiles and clothes sectors needed to quick delivery to destinations due to seasonality, quick delivery make efficient of custom procedure and access to transport network. For agriculture product, it is uttermost important to deliver on time and successful export procedure. Experience in Kenya and Mali about flowers and mangoes, illustrate that improve the border procedure and logistics system may open new business opportunity for developing economies (World Bank 2003, 2004b).

To estimate the effect of trade facilitations on trade flows in 75 countries, conclude that improvements in customs administration and port efficiency for below average efficiency countries half way up to the world average enhance the trade flows at $US 107 billion and $US 33 billion. For developing country importers, customs administration improvement would be beneficial all regions, improvement in port efficiency would also gainful for developing economies. Another study has been done on 8560 companies in 80 countries to estimate the effect of trade facilitations such as customs or foreign trade regulations. These indicators were identified as most serous tax and regulatory constraint on operations and business growth in several regions such as Africa, Latin America Middle East and Developing East Asia. Finding show that there are 44% non-OECD and half or more than half companies reported, customs or foreign trade regulations had been identified as a moderate or major problem for operations and business growth/trade. SMEs were particularly affected.

Martínez-Zarzoso and Nowak-Lehmann (2003) estimate the GTAP-model. Study shows that elimination of resistances in border crossings regarding delays between Mexico and United States would increase $US 7 billion trade, $US6 billion and $US1 billion trade increased in southbound and northbound respectively. In Mexico and USA welfare would be increased by USD 1.8 billion and USD 1.4 billion respectively. Wilson *et al.* (2003) studied on APEC countries by using gravity model. The authors conclude that enhancement in port efficiency has a larger and strongly effect on trade flows. Expansion in trade would be increased by improvement in customs than effects of port improvements. If port efficiency and customs environment in below-APEC-average members were brought half-way to the initial APEC-average, intra-APEC trade is estimated to increase by 11.5%. A 9.7% gain (USD 117 billion) is expected from increased port efficiency and 1.8% (USD22 billion) from an improved customs environment.

Hummels (2001) incorporates that every day that spent in transport reduce the probability. United States would be foundation by a country around the value from 1 to 1.5% for manufactured goods, while there is no effect has been found for the commodities. Findings explain that every day is protected in the shipping time with the value of ad valorem (0.8%) for manufacture goods. Based on CGE analysis, APEC (1999) proposed that import prices reduction by 1% from TTCs for newly industrializing and industrial countries such as Korea, Chinese Taipei and Singapore; and also two percent declined for other developing countries produce merchandise trade by 3.3% in APEC.

Nordas *et al.* (2006) estimate the relationship between time for imports, exports, logistic services and trade. Authors draw a picture of distinguish between the effect of trading time on the probability of the entering the market and trade volume once entry made. Time to market depends on the transport and logistics services and time, transparent and predictable administration procedure regarding the trade but these indicators should be adequate, if there is any likeness in these factors, can be adversely affected. For instance, exporters in remote countries have tend to move their goods by air channel to much larger extent rather than exporter in closer to market. Exporters in remote countries have less quality air transport infrastructure and services; don't have to tend time sensitivity during exports. Time for administration procedure for exporters and importers single check local manufacturers from

exporting time sensitivity product in developing countries. In these countries, time for exporters and importers is a constitute disincentive to invest in quality and upgrade of product. But there is no surety about arrival of product on time to reap price premium and differentiated product.

In addition, Nordas *et al.* (2006) discussed some cases especially in Bulgaria and Dominican Republic on exports and product specialization in fashion that command a price premium in the market. In this market they are competitive rather higher production costs. During this stay in the market improvements in logistics are very important for both countries. Next case for Kyrgyzstan, is relatively stagnant region due to landlocked, where transit facilities are critical with neighbor's countries for trade especially export performance. At this region, trade is hampered due to corruption in administration, state capture, quality of infrastructure and related services, poor performance of institutional arrangements and trade barriers. Generally speaking, the objective of trade facilitations programs is that this weakness would be improved in efficiency and institutional arrangement to achieve higher level of trade volume.

In Kenya case regarding cut flowers, how trade in transport services. Kenya air transport allows exploiting the cut flower comparative advantage in the sector of floriculture. First flight carries cut flower goods to Kenya through passenger flights, to association between floriculture and tourism. Commercial cargo is important to trade volume; in this situation export volume grew. Nevertheless, south-bound flights are found to carry nothing due to time sensitivity imports demand in Kenya. So, it could be play a role as constraint function for expansion in floriculture in the competitive markets. Finding show that time is very significant and robustness factor on probability of exports and trade volume in merchandise, intermediate inputs, clothing, fashion and electronics. Time is strongly impact on trade electronics sector and also effect on trade volume. But for fashion and clothing sector, time effect on the probability of export, not trade volume. Study exhibits that developing and developing economies would be gain from the time reforms and shorter time for exports and imports namely Vietnam, Ukraine, Romania, Kenya, Tanzania and Albania. Unnecessary barriers should be removed that are very important for developing economies. Trade facilitations programs required liberalization of logistics services and non-core freight services to sustainable results.

The effect of trade facilitations on trade flows, another researcher such as, Freund *et al.* (2002) studies' results show that in 1998 and 1999, the relative number of websites hosted by a country increased by 10%, and the volume of trade increased by 1%. Moenius (2000), applied the gravity model to estimate the bilateral trade in goods under the joint standards and different values. The results show that the two countries 'unified standards can promote bilateral trade. Otsuki, Wilson and Sewadeh (2001a, 2001b) used gravity models to study the impact of food safety standards on trade. Their studies showed that when the European Union's aflatoxin standard for food increased by 10%, African exports of grains, nuts and dried fruits declined, with grain exports falling by 4.3%, and nuts and dried fruits declining. Down 11%. Limao *et al.* (2001). Studies have shown that when the level of trade-related infrastructure quality rises from the median to the top 25%, trade volume increases by 68%, which is equivalent to the distance between trading partners close to 2005 km. When the level of infrastructure quality falls from the median to 75%, trade cost increases by 12%, trade volume decreases by 28%, and phase. When increasing the distance of trading partners by 1627 km.

2. Methodology

Several econometric methodologies are used to incorporate the relationship between dependent and explanatory variables namely Principal Component Analysis (PCA), Factor Analysis (FA), Gravity Model (GM), Possion-psydue Maximum likelihood (PPML) etc. in social science like economics, trade, sociology, finance etc. Each approach has specific objectives and limitation, can be applied based on the nature of study. So, our study required implying several techniques to incorporate the relationship between dependent variable trade and explanatory variables trade facilitation indicators for Mongolian economy. First of all, we constructed the trade facilitation indicators through using the primary variables by implying the PCA and FA. Secondly, estimated GM to examine the influence of remoteness on trade, thirdly, check the robustness many econometric techniques applied.

2.1. Factor analysis

We constructed five groups for trade facilitation variables by using 14 primary variables, collected from several international organizations. Results show that there is positive and strong correlation of variables with factor 1. The higher values are estimated for cost to export documentary compliance, cost to import border compliance and cost to import documentary compliance while lower value for cost to export border documentary compliance with lower values of their uniqueness. The value close to 1 or -1 indicates that strong influence of variable on factor. Cost to import documentary compliance is found higher correlated with factor while lower correlation of cost to export border

compliance. With less loading factors produced higher value of uniqueness, whereas lower loading factor produced higher value of uniqueness.

Table 2 exhibits that factor loadings of custom efficiency variables. Factor presents the loading factor values of sub-variables. Results show that less correlation of factor with two variables like custom efficiency and track shipment. There is same correlation of both variables with factor. The value of both variables with factor less than one and greater than minus one means that less correlation but same with factor. Similarly, Table 3 also shows that the loading factors of quality. We found that there is positive correlation of variables with factor. The quality of logistic and quality of transport is less correlated with factor but produced same amount. Table 4 reports the results of loading factors of shipment. Finding show that loading factor of prices of shipment is associated with negative values (-0.7667). This makes sense that there is strong influence of prices of shipment on factor and the value of loading factor of shipment frequency is found positive. There are same values but different signs estimate the relationship among the variables such as shipment prices and shipment frequency. With increasing the value of shipment frequency inversely effect on the value of shipment prices to correlation with factor.

Table 5 reports the loading factor of time indicators to construct the trade facilitation. All time indicators are found positive sign and equal to one. This makes sense that there is strong correlation among the variables with factor. Factor analysis reduces the dimensionality among the data. These variables produce zero uniqueness with highest value of loading factor. Each variable is required same change with other variable. For instance, if exporter country Mongolia increases the value of variable 'time to export border compliance', it has to enhance the value of all other related variables that incorporated in time indicator such as time to import border compliance, time to export documentary compliance and time to import documentary compliance. All variable was found with same value of loading factor.

Table 1. Factor loadings (pattern matrix) and unique variances of *cost*

Variable	Factor	Uniqueness
xcebc	0.7948	0.3683
xcedc	0.9881	0.0237
xcibc	0.9541	0.0897
Xcidc	0.9990	0.0020

Source: Author 'calculations

Note: xcebc = Exporter cost to export border documentary; xedc = Exporter cost to export documentary compliance; xcibc = Exporter cost to import border documentary; xcidc = Exporter cost to import documentary compliance.

Table 2. Factor loadings (pattern matrix) and unique variances of *custom efficiency*

Variable	Factor	Uniqueness
xlpicustom~f	0.4081	0.8335
xlpitrackc~n	0.4081	0.8335

Source: Author 'calculations

Note: xlpicustom = Exporter LPI Custom Efficiency; xlpitrack = Exporter LPI Track Shipment

Table 3. Factor loadings (pattern matrix) and unique variances of *quality*

Variable	Factor	Uniqueness
xlpiqualit~s	0.4708	0.7784
xlpiqualtr~t	0.4708	0.7784

Source: Author 'calculations

Note: xlpiqualit = Exporter LPI quality of logistic; xlpiqualtr = Exporter LPI quality of transport

Table 4. Factor loadings (pattern matrix) and unique variances of *shipment*

Variable	Factor	Uniqueness
xlpiprices~p	-0.7667	0.4122
xlpishipfr~y	0.7667	0.4122

Source: Author 'calculations

Note: xlpipirces = Exporter LPI prices of shipment; xlpishipfr = Exporter LPI shipment frequency

Table 5. Factor loadings (pattern matrix) and unique variances of *time*

Variable	Factor	Uniqueness
Xtebc	1.0000	0.0000
Xtedc	1.0000	0.0000
xtibc	1.0000	0.0000
xtidc	1.0000	0.0000

Source: Author 'calculations

Note: xtebc = Exporter time to border compliance; tedc = time to export documentary compliance; tibc = time to import border compliance; tidc = time to documentary compliance

2.2. Model estimation strategies

To investigate the relationship between trade facilities and trade in Mongolian economy. We propose to estimate the specific equation in term of regression model. The baseline model is following:

$$tradet_{ij} = + \beta_1 cost_{it} + \beta_2 customeff_{it} + \beta_3 shipment_{it} + \beta_4 time_{it} + \delta_1 gdp_{ijt} + \delta_2 Pop_{it} + \delta_3 Pop_{jt} + \delta_4 tariff_{it} + \delta_5 tariff_{jt} + \delta_6 Indistance_{ijt} + \delta_7 AS_{it} + \varepsilon_{ij} \quad \text{Eq(1)}$$

where: $\beta_1, \beta_2 \ldots \beta_4$, = slopes, $\delta_1, \delta_2, \ldots \delta_6$ = Delta, $trade_{ij}$ = exports and imports are in US current dollars of country *i* in time year; $cost_{it}$ = cost in US dollars of country i in time year; $customeff_{it}$ = custom efficiency of a country *i* in time year; $shipment_{it}$ = shipment value of a country *i* in time year; $time_{it}$ = time to export and import of *country i* in time year; gdp_{ijt} = Gross domestic product of country *i* and *j* in time year; Pop_{it} = Population of country *i* exporter in time year; Pop_{jt} = Population of country *j* importer in time year; $tariff_{it}$ = tariff of country *i* exporter in time year; $tariff_{jt}$ = tariff of country *j* importer in time year; Indistanceijt = log of distance in kilometer from origin country *i* to destination country *j* in time year; AS_{it} = Access to Indian or Pacific Sea of country *i* exporter as dummy variable;

2.3. Data

This study focuses on the influence of trade facilitation on exports of Mongolia. To do this, we choose a sample of Mongolia economy and also to check examine the role of trade facilitations of its Asian trading partners' countries whether how their TF indicators also effect or its own on exports and imports. Some countries such as Hong Kong, Macau and Taiwan are considered into one country People Republic of China. Similarly, Palestine and North Korea were not taking in this model due to unavailability of the data on international organizations. China and Russia are neighboring countries of Mongolia and major trade partners too. We included 45 Asian countries including them but discussed separately in different section. So, our empirical analysis based on 45 Asian countries including China and Russia.

The secondary data has been collected from different international organizations period from year 2001 to 2017 at country level. World Development Indicators (World Bank), United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), World Trade Organization (WTO); Research and Expertise on the World Economy (CEPII). Data collected on 17 variables that is included in model. We constructed four main groups of the variables by collecting the data and after implying the econometric techniques. Other variables like gravity and country characteristic are also collected. For Gravity model, each variable is included as a bilateral.

3. Empirical Results

Table 6 reports the results of regression analysis for trade facilitation for exporter country Mongolia with its trading partners. This table produces three columns for estimation of influence of variables. Column 1 shows that the ordinary least square (OLS) estimation results of explanatory variables. This cost is bear by Mongolian government at its border during the trade system. At border of Mongolia, exports with its trading partners are declined due to increment of cost in US dollar for documentary and border compliance in both sense for exports and imports. The coefficient of custom efficiency variable has not expected sign and statistically insignificant at OLS scale that is also constructed by using factor analysis (reference Table 2) with two sub-variables.

The coefficient of custom efficiency is estimated negative with exports of Mongolia. Mongolian bilateral exports are declined by 0.217% due to one unit change in explanatory variable custom efficiency calculating by OLS approach. Custom efficiency of Mongolia produces lower value of its coefficient to estimate the influence on exports with compound other two variables. This makes sense that the lower impact of custom efficiency than cost on exports. In addition, the coefficient of shipment variable has positive sign but statistically insignificant. It has little

impact on exports with the value of coefficient 0.95. Comparatively, shipment indicator has larger impact on Mongolian exports with cost and custom efficiency indicators.

So, the variable time is found negative and statistically insignificant. There is negative association between time indicator and exports that is expected because higher time discourage the trade and make market inefficient due to delay delivery of product in the market. Concluded that all trade facilitations variables have different signs and statistically insignificant. Traditional gravity variable distance has expected sign with statistically significant at the level of 10%. Geographical variable common border with Mongolia has positive sign and statistically significant. Only two country China and Russia have common border with Mongolia appeared positive sign for exports relationship between trade facilitation.

Trade policy variables exporter country Mongolia tariff has negative sign with statistically insignificant. Other country characteristics such as economic size gross domestic product and population have unexpected sings but statistically insignificant. Column 2 shows that estimates of random effect. All trade facilitations variable has expected signs except of custom efficiency but statistically insignificant. Overall there is no change in random effect estimate than OLS but standard errors are little bit different values. Similarly, there is no change in gravity variables such as distance and common border as well as trade policy variable exporter country Mongolia tariff in both OLS and RE exception of standard errors. Column 3 illustrates the results of fixed effect. The coefficients of custom efficiency and shipment have negative signs. This makes sense that they have larger impact on exports negatively. The custom efficiency sign is unexpected appeared while time is expected in relation to Mongolian exports. Remaining factors cost and time have unexpected values in fixed random. Comparatively, there is no change in both OLS and RE while RE has different meaning in relation to exports with trade facilitation.

Table 6. Regression analysis of trade facilitations for exporter (Mongolia)

Estimation	OLS	RE	FE
	(1)	(2)	(3)
VARIABLES	lnexports	lnexports	lnexports
Cost	-0.167	-0.167	
	(0.388)	(0.377)	
Customeff	-0.00217	-0.00217	-43.16
	(0.442)	(0.393)	(142.8)
Shipment	0.0955	0.0955	-379.7
	(0.289)	(0.276)	(7,223)
Time	-0.194	-0.194	
	(0.481)	(0.473)	
Lndistance	-2.201***	-2.201***	-2.202***
	(0.324)	(0.327)	(0.329)
Common Border	6.850***	6.850***	6.849***
	(0.238)	(0.566)	(0.569)
Lnxtariff	-0.108	-0.108	
	(0.981)	(1.046)	
Lngdpexporter	0.712	0.712	
	(1.077)	(1.032)	
Lnpopexporter	-2.551	-2.551	
	(12.69)	(12.10)	
Constant	44.83	44.83	22.70***
	(165.5)	(157.8)	(2.749)
Observations	765	765	765
R-squared	0.280		0.274
Number of years		17	17

Source: author's calculations

Note: Robust standard errors in parentheses, level of significant ***, **, * 1%, 5% and 10% respectively

Table 7 reports estimate of regression analysis of trade facilitations with GDP interaction terms. First three columns show that interaction terms with GDP while second three columns interaction terms trade facilitations. Results show that interaction terms of trade facilitation with GDP have positive signs except of shipment. The higher impact of GDP interaction term with custom efficiency produces the value is 335% while cost, time and shipment

have lower interaction terms values, means that GDP and custom efficiency positively affect with one unit change. Only shipment with GDP interaction term is found negative meaning that affect simultaneously on exports due to its lower coefficients.

Table 7. Regression Analysis of Trade Facilitation and GDP Interaction Terms

Estimation	GDP Interaction Terms			Trade Facilitations Interaction Terms		
	OLS	RE	FE	OLS	RE	FE
Variables	Lnexports	Lnexports	Lnexports	Lnexports	Lnexports	lnexports
Cost	-10.29	-10.29		-0.178	-0.178	
	(39.28)	(38.60)		(0.387)	(0.389)	
Customeff	-77.80	-77.80	-8,957	-0.0780	-0.0780	-36.78
	(69.24)	(69.38)	(8,897)	(0.502)	(0.481)	(143.5)
Shipment	36.34	36.34	2.6626	-0.0243	-0.0243	11,170
	(43.42)	(42.91)	(4.3066)	(0.239)	(0.231)	(21,457)
Time	-53.40	-53.40		-0.324	-0.324	
	(163.9)	(163.0)		(0.539)	(0.537)	
Lndistance	-2.201***	-2.201***	-2.226***	-2.201***	-2.201***	-2.219***
	(0.325)	(0.327)	(0.329)	(0.325)	(0.327)	(0.329)
Common border	6.850***	6.850***	6.821***	6.850***	6.850***	6.829***
	(0.239)	(0.567)	(0.569)	(0.238)	(0.566)	(0.569)
Lnxtariff	0.554	0.554		-0.222	-0.222	
	(1.206)	(1.314)		(0.936)	(1.003)	
Lnpopexporter	15.89	15.89		7.342	7.342	
	(37.91)	(38.38)		(4.971)	(5.046)	
Lngdpexporter	1.351	1.351				
	(2.285)	(2.209)				
Lngdpexporter*cost	0.425	0.425				
	(1.721)	(1.692)				
Lngdpexporter*customeff	3.357	3.357	389.1			
	(2.991)	(2.996)	(389.9)			
Lngdpexporter*shipment	-1.573	-1.573	-114,614			
	(1.908)	(1.884)	(185,290)			
Lngdpexporter*time	2.258	2.258				
	(7.058)	(7.022)				
Cost*customeff				-0.0959	-0.0959	-99.07
				(0.349)	(0.341)	(106.5)
Shipment*time				-0.176	-0.176	-8,040
				(0.236)	(0.227)	(12,303)
Constant	-245.0	-245.0	4,954	-85.65	-85.65	1,890
	(570.0)	(577.1)	(8,025)	(74.31)	(75.44)	(2,895)
Observations	765	765	765	765	765	765
R-squared	0.282		0.276	0.280		0.276
Number of years		17	17		17	17

Note: Robust standard errors in parentheses; level of significant ***, **, * 1%, 5% & 10% respectively.
Source: author's calculations

All trade facilitations with GDP interaction terms are statistically insignificant. Interaction terms have same coefficients values and sings with little bit change in standard errors at both OLS and RF (columns 2 and 3). Column 3 shows that estimate FE, the coefficients of GDP interaction terms have larger impact on Mongolian exports, for instance custom efficiency and shipment with GDP interaction have larger impact with higher positive and negative values. Column 4, 5 and 6 illustrates that interaction terms of trade facilitations cost and custom efficiency; and time and shipment.

All interaction terms have negative signs but statistically insignificant. To substitutability or complementarity custom efficiency and cost have lower impact on exports than the time and shipment at all three econometric scales such as OLS, RE and FE. By comparing with Table 7 (regression analysis without interaction terms) individual trade facilitation indicators (without interaction) cost, custom efficiency, shipment and time have different coefficients values but same expected signs. In addition, individual indicator coefficient is different from by estimating the GPD

interaction and trade facilitation interaction terms (Table 7). Traditional gravity and trade policy variables do not change expected sings by estimating with and without interaction terms.

Table 8 reports the estimate augmented gravity model and multilateral resistance term correction for Mongolia exports and its trade facilitations indicators. Column 1 shows that augmented gravity estimate, most important gravity variable economic size gross domestic product of exporter country (Mongolia) has positive impact with 71% value on its exports. GDP increases the exports level for Mongolian economy. Another variable population that represent the country characteristic has negative sign and statistically insignificant. This makes sense that Mongolian population effect on its exports due to higher domestic product demand.

Table 8. Augmented gravity model and multilateral resistance term

ESTIMATION	Gravity Model	MRT	GM-RE	GM-FE
VARIABLES	lnexports	lnexports	lnexports	lnexports
lngdpexporter	0.712	0.712	2.318***	
	(0.574)	(0.574)	(0.148)	
lnpopexporter	-2.552	-2.552	16.01***	
	(6.701)	(6.701)	(0.691)	
lndistance	-2.494***	-2.494***	-3.012***	-3.013***
	(0.156)	(0.156)	(0.293)	(0.289)
Common border	8.480***	3.154***	7.887***	7.886***
	(0.203)	(0.187)	(0.753)	(0.746)
lnxtariff	-0.108	-0.108	-163.2***	
	(0.535)	(0.535)	(7.637)	
cost	-0.167	-0.167	-0.435***	
	(0.211)	(0.211)	(0.0673)	
customeff	-0.00196	-0.00196	0.104***	-12.81
	(0.246)	(0.246)	(0.0331)	(17.28)
shipment	0.0955	0.0955	-0.845***	-330.2
	(0.157)	(0.157)	(0.0239)	(643.9)
time	-0.194	-0.194	-1.346***	
	(0.259)	(0.259)	(0.0997)	
Constant	45.48	50.81		29.71***
	(87.27)	(87.27)		(2.421)
Observations	765	765	765	765
R-squared	0.802	0.802		0.734
Number of years			17	17

Note: Robust standard errors in parentheses, level of significant ***, **, * 1%, 5% & 10% respectively.
Source: author's calculations

Traditional gravity variables distance and tariff are also produced negative value but statistically significant at 10% level of significant except of tariff. The coefficient of common border with Mongolia is found positive and statistically significant at 10% level of significant. Exports are increase with common border through establishment of land routs as well as cost channel. All trade facilitation indicators have negative signs except of shipment. Cost and time variables have expected signs rather than custom efficiency and shipment. Exports declined by one unit change in explanatory variable time, custom efficiency and cost. Comparison with column 3, all trade facilitation indicators have different signs but statistically significant.

Cost and time variables have same expected signs while custom efficiency and shipment changed their signs by estimating RE. Column 3 shows that economic size and population increased their coefficient values from 0.712 to 2.318, -2.552 to 16.01 respectively. GDP, common border and custom efficiency have positive impact on Mongolian bilateral exports by using its trade facilitations estimated by RE. Most variables are found statistical significant rather than change their coefficients values by comparing with augmented gravity model and gravity-random effect. Column 4 illustrates that gravity model with control fixed effect. Custom efficiency and shipment indicators have negative signs but insignificantly.

Geographical variables have same expected signs and statistical significant. Column 2 exhibits that multilateral resistance correction terms. Findings show that gravity, country characteristics and trade policy variables such as economic size, population and distance have same coefficient values and signs. Geographical factor common border has different coefficient value but same expected sign, decreased from 84% to 31%, exports

affected by one unit change. All trade facilitations indicators did not change their signs and coefficient values. Custom efficiency, cost and time indicators adversely affected exports by 0.196%, 16.7% and 19.4% respectively.

Mongolian exports increased by 9.55% with one unit add in explanatory variable shipment. Mongolia only has access to sea through Chinese sea. The higher impact of common border is seeming in column 2 estimating the MRT correction. Mongolia is linked with Russia and China by land routes. So, trade cost might be decreased rather than using maritime or air infrastructure. The most statistical significant approach is GM-RE rather than GM, MRT and GM-FE seems by estimating the influence of trade facilitation on exports for Mongolian economy. Remaining approaches could not change signs and coefficients values especially statistically significant.

4. Robustness Checks

Table 9 reports the estimate of robustness and zero trade issues for exporter country Mongolia. We performed two techniques to estimate the robustness check namely Iterative Reweight Least Square (IRLS) and Quartile regression. Both approaches proposed that weight to outlier in the data. Usually mostly variables do not change greatly year to year. Consequently, higher variation exists in the data set. To estimate the impact of variation effect in the data, we performed different econometric techniques. Column 1 shows that Iterative Reweights Least Square (IRLS), meaning that minimum the value sum of absolute residual rather than square (OLS). Dependent variable exports are in US dollars of Mongolian economy.

By comparing OLS and IRLS, all trade facilitation indicators have expected signs. The coefficient of custom efficiency has unexpected sign with lower value but statistically insignificant. Results show that more extreme an outlier in the less heavily it gets weighted in the regression calculation. Dropping extreme cases altogether do not change sign of trade facilitation by affecting the exports level in the Mongolian economy. Similarly, we performed another econometric technique to estimate the robustness check that is quantile regression also called least absolute value, mentioned in the column 2. Quantile regression estimates the coefficients of trade facilitation that have same expected signs with little bit change coefficients values. The value of trade facilitation indicators does not change greatly but exports change in US dollars, as a result variation occurs between the variables.

All trade facilitation indicators have little impact on export by implement the QR rather than replacement of dependent variable in different measurement. Consequently, there is no change in effect on exports by estimating other econometric techniques based on mean and median. The coefficient of custom efficiency is found negatively but statistically insignificant. Based on median approach, only two variables distance and common border are found statistical significant at 10% level. Column 3 illustrates that the estimate zero trade issues. To control the zero trade issue and heterogeneity, Helpman, Melitz and Rubinstein (HMR 2008) proposed the zero trade issues in the trade model.

They assume that firms are identical and their behavior can be described by firms. In bilateral trade between the countries might be exist zero trade flows due to heterogeneous firms because firms have different fixed trade costs and productivity level. Variable cost reduces the amount that exporting firm export whereas probability of firm that decided to export is reduce by fixed entry cost. So, zero trade costs are associated with high bilateral fixed costs of trade. So, results show that trade facilitations indicators namely cost and shipment are found statistically significant at 10% level, while cost, time and shipment have unexpected signs. The coefficient of custom efficiency is found positive and expected sign without statistical significant. All trade facilitation measurements can be seen lower impacting on exports by estimating the PPML approach.

Endogeneity problem often arises in gravity models during estimating the influence of several trade policies. In our model, world GDP is an exogenous variable that consists of both exporter and importer country GDP. World GDP on the right hand side of the gravity equation that is correlated with the error term, unobserved characteristics of the countries discuss why they trade with partners' countries and the same time make it more likely that they would form a world GDP. Omitted variables bias cause arises endogeneity issues, the characteristics omitted in the regression (economic size, GDP growth, GDP per capita) that facilitate exports.

To remove this issue, the best strategy is instrumental variable (IV) Hausman and Taylor (1981) approach by estimating the two instrumental variables exports GDP and importer GDP while total GDP as exogenous variable. In addition, through two stages least square (2SLS) has been implied and show that total GDP is found positive but statistical insignificant. Finding illustrates that exports increased by 104% due to one unit change in total GDP. Furthermore, all trade facilitations have changed their expected signs exception of shipment indicator relatively. Custom efficiency indicator does largely effect on Mongolia exports. Traditional gravity variables remained same with expected signs. Only coefficient value of common border is seem appeared as a statistical significant at 1% level.

Table 9. Robustness check, endogeneity and zero trade issues

Estimation	Robustness Check			
	IRLS	QR	PPML	2SLS
VARIABLES	lnexports	lnexports	exports	lnexports
Lngdpexporter	0.447	1.252	0.0122	-334.9
	(0.414)	(1.416)	(0.288)	(515.0)
Lnpopexporter	-0.735	-8.833	10.11**	2,004
	(4.851)	(16.61)	(4.046)	(3,080)
Lndistance	1.550**	-2.087***	-5.632***	-2.201
	(0.621)	(0.448)	(0.452)	(2.377)
Common border	7.323***	6.755***	4.890***	6.850*
	(0.360)	(0.776)	(0.233)	(4.116)
Lnxtariff	-0.662	-0.401	-1.631***	-131.2
	(0.419)	(1.435)	(0.428)	(201.3)
Cost	-0.133	-0.345	0.323**	-18.74
	(0.151)	(0.518)	(0.163)	(28.62)
Customeff	-0.255	-0.581	0.0199	13.18
	(0.157)	(0.539)	(0.105)	(20.42)
Shipment	0.135	0.367	-0.228**	-49.62
	(0.111)	(0.379)	(0.0888)	(76.29)
Time	-0.0290	-0.176	0.220	-93.02
	(0.190)	(0.650)	(0.275)	(142.5)
Gdptotal				1.0409
				(1.6009)
Constant	-7.607	125.5	-94.17*	-22,295
	(63.44)	(216.5)	(55.40)	(34,294)
Observations	765	765	765	765
R-squared	0.885			

Note: Robust standard errors in parentheses, level of significant ***, **, * 1%, 5% and 10% respectively.
Source: author's calculations

Conclusions

This study examines the relationship between trade facilitations and exports in Mongolian economy with its 45 trading partner's countries from Asian regions. For this purpose, we choose Mongolian economy as a sample with its partners, during the period of time 2001 to 2017 and secondary panel data. To evaluate the analysis of relationship, we construct trade facilitations indicators from different primary variables by employing the econometrics techniques principal component (PCA) and factor analysis (FA) namely cost, custom efficiency, shipment and time included other variables like access to sea, common border, tariff, economic size and population.

Findings shows that all trade facilitations indicators have impact on Mongolian exports. For instance, the costs indicator that constructed by using primary variables namely cost to exports compliance, cost to export document border in US dollars, cost to import compliance border, cost to import document at border with the help of factor analysis technique has little impact on Mongolian exports but this is measured for Mongolian border. This makes sense that costs at Mongolian border have impact on its own exports during trading with its partners. Similarly, custom efficiency indicator is also constructed as costs with similar procedure that has lower impact on Mongolian exports. Custom efficiency is seemed with negative relation to exports at different econometric scales. There are might extreme values in data set because Mongolia does trade with all Asian countries. Custom efficiency should be improved with enhancing the facilities during the trading system.

These results are generated based on different estimations like OLS, FE and RE. Usually estimating several regression techniques, we could not find major differences in relationship of the variables. Because each estimation has different statistical approach that cause to make distinguish, shipment and time indicators are also constructed at same pattern. Shipment contains track consignment and frequency that effect on Mongolian exports. Mongolia is landlocked country, use Chinese port via Tianjin access to Pacific Sea. So, Mongolian shipment has also impact on its own exports. Furthermore, time indicator is also constructed by using primary variables and contains time to exports border compliance, time to export document, time to import border compliance and time to import document has impact on Mongolian exports.

In addition, we estimate the probability of exports occur in Mongolia by using two-stage Heckman selection model. Findings show that the higher probability of exports in Mongolia is seemed due to one unit change in explanatory variables such as costs, custom efficiency, shipment and time indicators that constructed by FA and PCA. Most of the trade facilitations indicators do impact on the probability of the exports. To substitutability or complementarity, used interaction terms of trade facilitation like cost*custom efficiency and shipment*time as well as GDP interaction terms such as cost*exporter GDP, custom efficiency*exporter GDP, shipment*exporter GDP and time*exporter GDP to find the simultaneously relationship between variables. Interaction terms show have negative relations with exports with lower impact.

We implied gravity model and multilateral resistance correction terms. Findings indicate that traditional gravity variables economic size (GDP) and distance have higher impact on Mongolian exports on both aspects like Mongolian trade facilitations and exports as well as destination trade facilitation and Mongolian exports. We can see that distance has negative trend with Mongolian exports, if distance is higher exports less through cost channel. Similarly, common border variable is also found with positive relation to Mongolian exports. Mongolia is linked with Russia and China only by land routes.

So, only two countries have impact on Mongolian exports as a common border. In addition, we examined the effects of trade facilitations of Mongolian importer countries (destinations), meaning that all Mongolian trading partners from Asian regions have impact by using the trade facilitations on Mongolia's exports. So, we can see that there is little bit change in effect of importer countries trade facilitations and Mongolian trade facilitations on exports level. Generally speaking, the trade facilitations of importer countries are not desirable effect on Mongolian exports. There is might be occurring due to different characterizes, geographical factors, trade and foreign policies. So, Mongolian government should improve its own custom clearance and trade facilities at border or across the border as well as domestic trade facilitations system to enhance the trade volume in the country.

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Analysis Effect of Macroeconomic Surprises to Stock Return via Market Liquidity and Earnings Surprises

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Abstract:

The major objective of this research is to examine the effect of macroeconomic surprises factors on stock return intervening by market liquidity and earnings surprises; this research focused in the financial sector firms in Indonesia Stock Exchange, the study's period from 2012 to 2016 and using purposive sampling for 59 company. The data was analyzed using software AMOS 24 and SPSS 24 with technique Path Analysis. The study's found out that surprises money supplies significant effect to earnings surprises and market liquidity effect to stock return. The findings can help the decision makers or financial managers to consider implement money supply, earnings surprises and market liquidity to increase stock return.

Keywords: macroeconomic factors, market liquidity, earnings surprises; stock return.

JEL Classification: E4; E5; G11; P31; G1; G14.

Introduction

Changes in the global economic constellation since 2008 crisis continued to decline in line with the impact of the crisis in developed countries which slowed to 3.2%, lower than 2011 at 3.9% and still continued until 2016 at 3.1%, deteriorating growth The economy in developed countries is mainly due to the economic performance of European countries which are still faced with debt problems, fiscal contraction, limited monetary policy space, sharply increasing unemployment rate, fragile financial sector, and declining market confidence. All these problems form a circle of problems (vicious circle) which causes the recovery of the European crisis to run slowly. The sluggish economy in developed countries began to impact slowing economic growth at emerging market countries (Indonesian economy report: 2012-2016).

High uncertainty and risk perceptions also encourage global investors to transfer investments to financial instruments that are considered to be safer and more liquid (flight to quality). This condition is caused by market-wide volatility (Acharya and Pedersen (2005), Ericsson and Renault (2006), such as government bonds and US dollars the crisis in developed countries has resulted in tight liquidity and falling prices of global financial assets due to the liquidity effects of reducing short-term interbank deposit rates such as the Federal Funds Rate in US and short-term government bond yields, Cochrane (1989), Gordon and Leeper (2006), Christiano and Eichenbaum (1995), Christiano and Eichenbaum (1992a), Bernanke and Mihov (1998), or Judson and Klee (2010).

1. Literature review

Efficient hypothesis market (EHM)

A fundamental principle of efficient markets is that any new information ought to be reflected in stock prices very rapidly. The father of the efficient market hypothesis, Eugene F. Fama, of the University of Chicago, has earned on 14th October 2013 the Nobel Prize in economics assumes that stock prices are influenced by both fundamental and non-fundamental information. A liquid stock market is considered by Fama (1997, 1981) as efficient when it absorbs very quickly and accurately all important unexpected information. The market price of stocks on the liquid market is of the correct value, stocks are usually correctly priced and it is practically impossible to find undervalued or overvalued stock titles on the market. The term efficient is used in the sense of ability to handle the unexpected information. Musílek (2013). Beaver (1986, 130) a security market is said to be efficient with respect to an information system if and only if the prices act as if everyone observes the signals from that information system".

Arbitrage pricing theory (APT)

Stephen Ross (1976) developed the arbitrage pricing theory (APT). Like the CAPM, the APT predicts a security market line linking expected returns to risk, but the path it takes to the SML is quite different. Ross's APT relies on three key propositions:

- security returns can be described by a factor model;
- there are sufficient securities to diversify away idiosyncratic risk;
- well-functioning security markets do not allow for the persistence of arbitrage opportunities.

We begin with a simple version of Ross's model, which assumes that only one systematic factor affects security returns. Once we understand how the model works, it will be much easier to see how it can be generalized to accommodate more than one factor.

Macroeconomics

Macroeconomics is the branch of economics that is concerned with overall ups and downs in the economy Krugman and Wells (2015, 67). Macroeconomics developed from the writings of the British economist John Maynard Keynes on the Great Depression of the 1920s and 1930s. Keynesians argued that state intervention on a macro-scale was necessary if capitalism was to be saved from self-destruction. They showed how the amplitude of business fluctuations could be reduced by macroeconomic policy and that higher long-term growth could be achieved as a result. Third, macroeconomics is a more controversial subject than microeconomics. There are disagreements about the role of monetary variables, the causes and cures of unemployment, and the effectiveness of fiscal policy. The reader must not expect to find a single 'right' answer to current macroeconomic problems. There are numerous schools of macroeconomic because macroeconomics is closely involved with government policy, political, social and economic objectives intermingle and can sometimes conflict. Controversy also arises because of the intrinsic complexity of the subject.

Ball and Brown (1968) find that the systematic earnings factors are correlated with four macroeconomic variables (real growth in industrial production, real GDP growth, the unemployment rate, and inflation). Surprises in the macroeconomic series that signal positive (negative) changes in economic activity should therefore lead to positive (negative) earnings revisions. Still, the results in Campbell (1991), Vuolteenaho (2002) and Kothari, Lewellen and Warner (2006) suggest that aggregate stock returns are primarily driven by discount rate shocks. This implies that the common earnings component, which is presumably driven by macroeconomic shocks, is rather small. Due to this mixed evidence regarding the influence of the macroeconomic on corporate earnings, it is an open question whether macroeconomic news in fact have a significant impact on market participants' earnings expectations.

Surprises

Chen *et al.* (1986), suggested that securities returns are significantly affected by unanticipated macroeconomic factors, in his research put forward four economic factors that significantly influence securities returns namely:

1) Unaticipated changes in the rate of inflation;

- unaticipated changes in the index of industrial production;
- unaticipated changes in the yield spread between high-grade and low-grade corporate bonds;
- unaticipated changes in the slope of the term structure of interest rate.

Surprises is actual value minus estimated or expected value as (Ehrmann and Fratzscher 2011) or Bodie *et al.* (2014, 457). Thus, if surprises macroeconomic factors are defined as actual macroeconomic factors minus

estimated macroeconomic factors, then there are three possibilities that can occur, namely the macroeconomic zero surplus factors, the negative value and the positive value. Surprises can be positive, but can also be negative. In general, surprises measurement is:

$$S_{k1} = A_{k1} - E_{k1} \quad (1)$$

where: S_{k1} - components of surprises; A_{k1} - actual data that was announced; E_{k1} - market estimates.

Using the surprise component of macroeconomic variables reduces concerns about endogeneity in the study (Gürkaynack, Levin and Swanson 2010). This is because feedback from the stock market to the macro economy (as reflected in the macroeconomic variables) is likely to be captured in the anticipated component of the macroeconomic data releases.

Market liquidity

Market liquidity as a market in which a large volume of trades can be immediately executed with minimum effect on price. In other words, the liquidity of the market can be recognized by how low the uncertainties of the execution prices Miller and Grossman (1988). The market for a stock is liquid if the following conditions hold:

- there are always bid and asked prices for the investor who wants to buy or sell small amounts of stock immediately;
- the difference between the bid and asked prices (the spread) is always small;
- an investor who is buying or selling a large amount of stock, in the absence of special information, can expect to do so over a long period of time at a price not very different, on average, from the current market price;
- an investor can buy or sell a large block of stock immediately, but at a premium or discount that depends on the size of the block.

The degree of information asymmetry between suppliers and demanders of liquidity determine market liquidity. Massimb and Phelps (1994) focus on the importance of immediacy. Liquidity can be defined as the "market ability to provide immediate execution for an incoming market order (often called "immediacy") and the ability to execute small market orders without large changes in the market price (often called "market depth" of "resiliency")."

Liquidity, a fundamental concept in finance the vast majority of equilibrium asset pricing models do not consider trading and thus ignore the time and cost of transforming cash into financial assets or vice versa. Recent financial crises, however, suggest that, at times, market conditions can be severe and liquidity can decline or even disappear. Such liquidity shocks are a potential channel through which asset prices are influenced by liquidity. Amihud and Mendelson (1986) and Jacoby, Fowler, and Gottesman (2000) provide theoretical arguments to show how liquidity impacts financial market prices.

Jones (2001) and Amihud (2002) show that liquidity predicts expected returns in the time-series. Pastor and Stambaugh (2001) find that expected stock returns are cross sectionally related to liquidity risk. Brunnermeier and Pedersen (2009). Through theoretical models, they also argue that the dynamics of market liquidity are related to market volatility. Liquidity also fluctuates significantly over time. During the financial crisis, the average bid/ask spread for stocks listed on the world's major exchanges increased dramatically, from around 3% in the first half of 2008 to 6 % in six months after the failure of Lehman Brothers in September 2008. Average spread peaked at more than 6.5 % in a period of great uncertainty ahead of the November 2008 Citibank rescue announcement, Beber and Pagano (2013)

Prior empirical research and motivation

Chen, Roll, and Ross (1986) examine the extent to which surprises in economic news pose systematic risk to the market. They find that certain macroeconomic announcement surprises influence expected stock returns. Pearce and Roley (1985) is one of the first studies to focus directly on the effects of unanticipated economic news. They find that changes in money supply only affect stock prices when their magnitude or direction is unanticipated. They also find that these market adjustments are complete by the morning of the trading day after the announcement. Fujimoto (2004) who also discovered that monetary variables are significant drivers of securities market liquidity.

Kothari *et al*. (2006) conjecture that the surprising finding of a negative relation between aggregate earnings and stock returns might be because aggregate earnings growth contains news about changes in discount rates. Consistent with this conjecture, Hennessy, Levy and Whited (2007), Lewellen and Lewellen (2012). McQueen and Roley (1993), Funke and Matsuda (2006) also reexamine the relationship between macroeconomic news announcements and the prices of stock. This incorporates news about several variables and business conditions,

such as inflation and unemployment rate. The moment that the news is announced affects the volatilities and the return on the assets. Albuquerque and Vega (2009) conducted the same research for the Portuguese market and found similar results.

Castanias (1979) offers support for the hypothesis that economic news affects stock prices. This hypothesis originates from the theory that stock prices incorporate all relevant information. Assuming macroeconomic news is relevant information and that it often differs from expectations, macroeconomic releases should then affect stocks.

The use of earnings news first examined by Ball and Brown (1968) on the capital market shows that stock prices react to the shock of earnings news content. The other hand earnings surprises also have an impact on the future of cash flows, changes in company value and also leverage ratios. Shows that post-announcement drift earnings differ from price momentum. Based on the description of the background problem in this study is whether The primary objective of this research is to develop and test of the significance direct and indirect effect macroeconomic surprises on stock returns via market liquidity and earnings surprises

2. Methodology

Research methods

This study uses an explanatory design because it tests or confirms the relationship or influence between variables or constructs. Population the Indonesia Stock Exchange at companies registered in financial sector January 2012 to December 2016, as many as 59 companies were eligible to be sampled according to the purposive sampling technique. an analysis of structural equation model (SEM) with path analysis design

Concept and measurement variables

This study consists of exogenous variables (inflation surprises, exchange rate rupiah surprises, M2 surprises), endogenous (stock return), and intervening (market liquidity (Liq) dan surprises earnings (Eps)). Operational definition of variables from each of these variables as follows:

Stock return

Brigham *et al.* (2011, 219), return is the concept of return provides investors with a convenient way to express the financial performance of an investment. Jones (2000, 124) “return is yield and capital gain (loss). Corrado dan Jordan (2000, 5) said that ”Return from investment security is cash flow and capital gain/loss”. Or Income received on an investment plus any change in market price, usually expressed as a percent of the beginning market price of the investment. This definition of the Holding-Period Returns (HPR) treats the dividend as paid at the end of the holding period. When dividends are received earlier, the HPR should account for reinvestment income between the receipt of the payment and the end of the holding period. The percent return from dividends is called the dividend yield, and so dividend yield plus the rate of capital gains equals HPR. (Bodie *et al.* 2018, 126).

$$HPR = Ending\ price\ of\ a\ share - Beginning\ price + Cash\ dividend + Beginning\ price \quad (2)$$

The realized return, called the holding-period return.

Inflation

Inflation is defined as the tendency of prices to rise in general and continuously (Boediono 1982). The price increase of just one or two kinds of goods cannot be said as inflation unless the increase has an impact on price increases. Inflation Surprises (Surin) is the actual value of inflation In_{t1} minus the estimated inflation value (expected) InY_t. In_{t1} inflation actual is the end of the current month, estimated inflation value (expected) model is using *autoregressive distributed lag* (ARDL) and logarithm, Mashilana and Hlalefang (2018):

$$InY_t = \gamma_0 + \gamma_1 logY_{t-1} + \varepsilon_t \quad (3)$$

$$SurIn = In_{t1} - InY_t \quad (4)$$

where: Y_t = estimated inflation value, γ_0 = *Constanta,* $\gamma_1 logY_{t-1}$ = *coefficient inflation.* ε_t=*error*

Exchange rate

Aghion *et al.* (2009) argue that the volatility of the real exchange rate can have a significant impact on the level of long-term productivity growth, but the effect is very dependent on the level of financial development of a country. The exchange rate of a real currency is 'the price' of a country's currency against another foreign country, for example 'price' of one current US dollar (June 2, 2017, Rp. 13,371) or the current price of one Hong Kong Dollar

(HKD) June 2, 2017 is Rp. 1,719 and so on, which is clear if we talk about 'price' so that it is generally related to money, and currency exchange rate this money is stable and can be labile or too moving up or down. Surprises Exchange rate (Surnt) is the actual exchange rate nt_{t1} minus by the estimated exchange rate (expected) $ntYt$. *Surnt* is Surprises exchange rate Rupiah/ US Dollar end period. Estimated of exchange rate value (expected) model is using *autoregressive distributed lag* (ARDL) and logarithm, Mashilana and Hlalefang (2018):

$$ntY_t = \beta_0 + \beta_1 logn t_{t-1} + \varepsilon_t \quad (5)$$

$$Surnt = nt_{t1} - ntY_t \quad (6)$$

where: ntY_t = estimated of exchange rate value (expected); β_0 = *Constanta;* $\beta_1 logY_{t-1}$ = *coefficient logarithm exchange rate*; ε_t =*error*

Money supply

Money supply is the amount of money in circulation and the money supply consists of M1 and M2 Miller (2012). (M2) is used as a proxy for the money supply. The increase in the money supply causes an increase in liquidity which ultimately results in an upward movement of the nominal price of the stock. Mukherjee and Naka (1995), Maysami and Koh (2000) found a positive sign. Therefore, a positive relationship is expected between money supply and stock returns. Surprises money supply (Surm2) is the actual value of M2 $m2_{t1}$ minus by the estimated M2 (expected) $M2Y_t$. The M2 at the end of month estimate value (expected) model is using *autoregressive distributed lag (ARDL)* and logarithm, Mashilana and Hlalefang (2018).

$$M2Yt = \alpha 0 + \alpha 1 logYt\text{-}1 + \varepsilon t \quad (7)$$

$$Surm2 = m2\ t1 - M2Yt \quad (8)$$

where: $M2Y_t$ = estimate value (expected) *M2;* α_0 = *Constanta;* $\alpha_1 logY_{t-1}$ = *coefficient logarithm M2*.

Earnings surprises

Surprises Earnings is a surprise profit, or unexpected income, in accounting is the difference between reported earnings and expected profits from an entity business. (Pinto, Jerald E.; Elaine Henry; Thomas R. Robinson; John D. Stowe (2010). formulation of Surprises Earnings by Pinto *et al.* (2010).

$$SUE = \frac{EPS_1 - EPS\ Forecast}{\sigma\ (EPS_1 - EPS\ Forecast)} \quad (9)$$

where: SUE - Surprises earning; EPS - Earning actual; *Forecast* - Earning projections; σ - Standard deviation

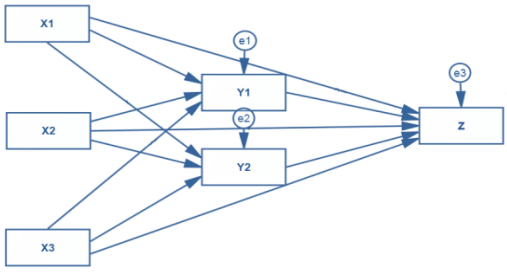
Market liquidity

Market Liquidity (Liq) The ability to trade assets in a short time, at a low cost and with a small impact on prices or prices approaching consensus values Foucault, *et al.* (2013). Tobek (2016) argues that the arithmetic mean is more robust and that, therefore, his estimator will be less affected by variations in volatility, Ln = loq price H= high price L = low price

$$\frac{1}{2}\left[\ln\frac{Ht}{Lt} + \ln\frac{Ht+1}{Lt+1}\right] \quad (10)$$

Research path model

Figure 1. Research model



Research hypotheses

To develop solutions, the problem of research and achieve its objectives, the research was based on the formulation of the following hypotheses:

H_1 : Surprises Inflation significant effect to market liquidity?

H_2 : Surprises Inflation significant effect to earnings surprises?

H_3 : Surprises money supply significant effect to market liquidity?

H_4 : Surprises money supply significant effect to earnings surprises?

H_5 : Surprises exchange rate significant effect to market liquidity?

H_6 : Surprises exchange rate significant effect to earnings surprises?

H_7 : Surprises Inflation significant effect to stock return?

H_8 : Surprises money supply significant effect to stock return?

H_9 : Surprises exchange rate significant effect to stock return?

H_{10} : Market liquidity significant effect to stock returns?

H_{11} : Earnings surprises significant effect to stock returns?

Analysis techniques

The data obtained were analyzed by Path Analysis using software (AMOS-Structure Equation Model) to explaining the direct and indirect consequences of a set of variables, as a causal variable, against a set of other variables which are consequent variables. Hair *et al.* (2010). The steps are as follows:

3. Results and Discussion

3.1. Descriptive analysis

Table 1. Descriptive of macroeconomic surprises factors

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
SurINF	60	-.2381			
SurM2	60	-.0304	.0216	.000003	.0116464
SurNT	60	-.1849	.2186	-.000003	.0440375
Valid N (listwise)	60				

Source: SPSS 24, 2019

From Table 1 above illustrates the average value of the three surprise variables is the same that is equal to - 000003, with the highest value is the inflation surprise variable of 4.4949 and the lowest of -.2381, with a level of deviation of .5955. While the second highest variable value is surprises exchange rate of .2186 and the lowest value of -.1849. And the third is the highest M2 surprise variable value of .0216, and the lowest value of -.0304.

Table 2. Descriptive of stock return

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
BFIN	60	-.9050	9.9717	.55267	2.333500
PADI	60	-.8252	4.8170	.14189	.762102
KREN	60	-.7963	4.2711	.10689	.582338
BBNI	60	-.2291	.1779	.01089	.080852
ADMF	60	-.3056	.2148	-.00520	.091669
CFIN	60	-.2062	.1739	-.00837	.058821
Valid N (listwise)	60				

Source: SPSS 24, 2019

The Table 2 above, illustrates the highest average stock returns found in 3 companies with the issuer code BFIN (.552669), PADI (.141891) and KREN (.106887) and the lowest average stock returns were in 3 ADFM companies (-.005199), CFIN (-.008371) and TRUS (-.019027), from 59 companies during the 60-month research period.

Table 3. Descriptive of market liquidity

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
BFIN	60	-.4373	.7920	.02001	.210682
KREN	60	-.3558	.6064	.01417	.104568
PADI	60	-.3888	.7111	.01324	.130954
BMRI	60	-.0823	.0780	.00148	.023070
INPC	60	-.2527	.1260	-.00181	.052230
BNLI	60	-.0807	.1599	-.00218	.030990
TRUS	60	-.3454	.1157	-.00865	.053306
Valid N (listwise)	60				

Source: SPSS 24, 2019

From Table 3. above illustrates the highest average market liquidity found in 3 companies with the issuer code BFIN (.020009), KREN (.014167) and PADI (.013237) and the lowest average market liquidity found in 3 companies with the issuer code INPC (-. 001813), BNLI (-.002182) and TRUS (-.008648), from 59 companies during the 60-month research period.

Table 4. Descriptive of earnings surprises

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
RELI	60	-.0312	3.2659	1.11209	1.000000
AHAP	60	-.2418	4.9969	.59156	1.008439
BACA	60	-5.4346	2.0273	.00000	1.008439
MAYA	60	-1.6293	4.3607	.00000	1.008439
YULE	60	-4.1773	2.4707	.00000	1.008439
BDMN	60	-2.9950	4.7392	.00000	1.008439
LPGI	60	-4.8070	5.1145	-.00244	1.008439
Valid N (listwise)	60				

Source: SPSS 24, 2019

3.2. Results of coefficient regression weights

Hypothesis testing is applied to determine which variables are significantly influential. Testing Criteria: t-value statistics. The decision is to reject H_0 when the value of *t* is greater than t-table (1.96) and P>0.05. Accept H_0 and Reject H_a means that there is no significant effect, on the other hand reject H_0 and accept H_a means that there is a significant effect.

Table 5. Result of hypothesis testing

H	Hypothesis	C.R.	P	Decision	Effect
H_1:	Surprises Inflation significant effect to market liquidity	-.094	.925	Rejected	Not Significant
H_2:	Surprises Inflation significant effect to earnings surprises	1.122	.262	Rejected	Not Significant
H_3:	Surprises money supply significant effect to market liquidity	-.992	.321	Rejected	Not Significant
H_4:	Surprises money supply significant effect to earnings surprises	2.794	.005	*Accepted*	*Significant*
H_5:	Surprises exchange rate significant effect to market liquidity	.772	.440	Rejected	Not Significant
H_6:	Surprises exchange rate significant effect to earnings surprises	1.076	.282	Rejected	Not Significant
H_7:	Surprises Inflation significant effect to stock return?	-.239	.811	Rejected	Not Significant
H_8:	Surprises money supply significant effect to stock return?	-1.053	.292	Rejected	Not Significant
H_9:	Surprises exchange rate significant effect to stock return?	-1.475	.140	Rejected	Not Significant
H_{10}:	Market liquidity significant effect to stock returns	-28.325	***	*Accepted*	*Significant*
H_{11}:	Earnings surprises significant effect to stock returns	1.327	.185	Rejected	Not Significant

3.3. Results of path model analysis

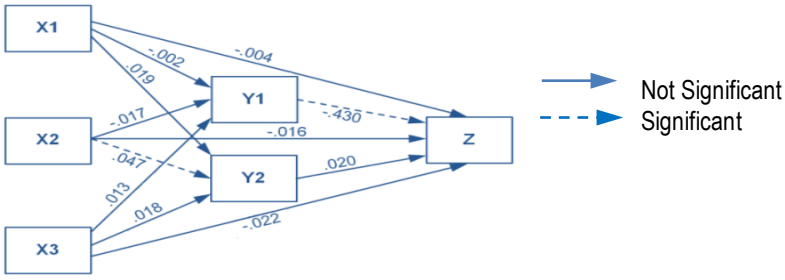
The results of the path analysis on the effects of exogenous variables partially on the endogenous variable for structural equation model are reported in below:

$$Y1 = .003 + -.002*SurIn - .017*SurM2 + .013*SurNT + .003 \quad (11)$$

$$Y2 = .029 + .019*SurIn + .047*SurM2 + .018*SurNT + 1.023 \quad (12)$$

$$Z = .034 - .004*SurIn - .016*SurM2 - .022*SurNT - .430*Marliq + .020*Eps + .105 \quad (13)$$

Figure 2. Coefficient path. Standardized regression estimate



The effects of exogenous variables partially on the endogenous variable which is presented in the Figure 2, in this study:

1. The first line (H1) states, that the Inflation surprises (X1) affect stock returns (Z) through market liquidity (Y_1) and through earnings surprises (Y_2)

1.1. Path $X_1 \rightarrow Y_1 \rightarrow Z$

Effect	Variable	Coefficient	Result
Direct Effect	$X_1 \rightarrow Z$	-0.004	
Direct Effect	$X_1 \rightarrow Y_1$	0.002	
Direct Effect	$Y_1 \rightarrow Z$	-0.430	
Indirect Effect	$X_1 \rightarrow Y_1 \rightarrow Z$	(0.002)*(-0.430) = 0.001	
Total Effect =DE+IE		0.001 + -0.004 = -0.003	IE > DE

1.2. Path $X_1 \rightarrow Y_2 \rightarrow Z$

Effect	Variable	Coefficient	Result
Direct Effect	$X_1 \rightarrow Z$	-0.004	
Direct Effect	$X_1 \rightarrow Y_2$	0.019	
Direct Effect	$Y_2 \rightarrow Z$	0.020	
Indirect Effect	$X_1 \rightarrow Y_2 \rightarrow Z$	(0.019)*(0.020) = 0.000	
Total Effect =DE+IE		0.000+ -0.004= -0.004	IE > DE

Because DE surprises inflation for stock returns -.0004 are smaller than IE surprises inflation for stock returns through market liquidity 0.001 and IE surprises inflation for stock returns through earning surprises, it can be concluded that market liquidity (Y_1) and earnings surprises (Y_2) in this study are intervening variables because both of these pathways have added influence through the indirect influence path. The dominant path is ($X_1 \rightarrow Y_1 \rightarrow Z$) because have a larger Total Effect (-0.003>0.004)

2. The second path (H2) states, that the Surprises M2 (X_2) affect stock returns (Z) through market liquidity (Y_1) and through earnings surprises (Y_2).

2.1. Path $X_2 \rightarrow Y_1 \rightarrow Z$

Effect	Variable	Coefficient	Result
Direct Effect	$X_2 \rightarrow Z$	-0.016	
Direct Effect	$X_2 \rightarrow Y1$	-0.017	
Direct Effect	$Y_1 \rightarrow Z$	-0.430	
Indirect Effect	$X_2 \rightarrow Y_1 \rightarrow Z$	(-0.017)*(-0.430) = 0.007	
Total Effect =DE+IE		0.007+ -0.016 = -0.009	IE > DE

2.2. Path $X_2 \rightarrow Y_2 \rightarrow Z$

Effect	Variable	Coefficient	Result
Direct Effect	$X_2 \rightarrow Z$	-0.016	
Direct Effect	$X_2 \rightarrow Y_2$	0.047	
Direct Effect	$Y_2 \rightarrow Z$	0.020	
Indirect Effect	$X_2 \rightarrow Y_2 \rightarrow Z$	(0.047)*(0.020) = 0.001	
Total Effect =DE+IE		0.001 + -0.016= -0.015	IE > DE

Because DE surprises M2 to stock returns (by -0.016) is smaller than IE, M2 surprises against stock returns through market liquidity (by 0.007), and IE, M2 surprises on stock returns through earnings surprises (amounting to 0.001), it can be concluded that market liquidity and earnings surprises in this study are intervening variables because both of these pathways have additional influence through indirect influence paths. The dominant pathway is ($X_2 \rightarrow Y_1 \rightarrow Z$) because it has a larger Total Effect (-0.009>-0.015).

3. The third path (H3) states, that the exchange rate (X_3) affects stock returns (Z) through market liquidity (Y_1) and through earnings surprises (Y_2),

3.1. Path $X_3 \rightarrow Y_1 \rightarrow Z$

Effect	Variable	Coefficient	Result
Direct Effect	$X_3 \rightarrow Z$	-0.022	
Direct Effect	$X_3 \rightarrow Y_1$	0.013	
Direct Effect	$Y_1 \rightarrow Z$	-0.430	
Indirect Effect	$X_3 \rightarrow Y_1 \rightarrow Z$	(0.013)*(-0.430) = -0.006	
Total Effect =DE+IE		-0.006+ -0.022= -0.028	IE > DE

3.2. Path $X_3 \rightarrow Y_1 \rightarrow Z$

Effect	Variable	Coefficient	Result
Direct Effect	$X_3 \rightarrow Z$	-0.022	
Direct Effect	$X_3 \rightarrow Y_2$	0.018	
Direct Effect	$Y_2 \rightarrow Z$	0.020	
Indirect Effect	$X_3 \rightarrow Y_2 \rightarrow Z$	(0.018)*(0.020) = 0.000	
Total Effect =DE+IE		0.000+ -0.022= -0.022	IE > DE

Because the DE exchange rate on stock returns (by -0.022) is smaller than IE surprises exchange rate on stock returns through market liquidity (of -0.006), and IE exchange rate surprises to stock returns through earnings surprises (equal to 0.000), it can be concluded that market liquidity and profit surprises in this path are intervening variables because both of these pathways have additional influence through indirect influence paths. The dominant pathway is ($X_3 \rightarrow Y_2 \rightarrow Z$) because it has a larger Total Effect (-0.022>-0.028)

4. Discussion

That inflation surprises affect stock returns through market liquidity and profit surprises are not proven. this shows that information about economic fundamentals, is not a reference for the market / investor because there is still a lot of information that has not been captured by investors, Jepkemei (2017) that the relationship between inflation and stock market performance is negative and in line with Sorensen (1982) who concluded that the stock market did not overly react to a large percentage of anticipated monetary activity, in line with the findings of Munene (2007) in his study establishing a negative relationship between stock returns and expected inflation and contrary to the hypothesis by Fisher (1930), because the motivation of investors in investing or in making transactions in the capital market is return or capital gain. Partially market liquidity has a significant effect on stock returns Rauterkus (2004) and Brennan *et al.* (1998) that large companies have more trade volume than small companies, so the more the number of shares circulating in the capital market the easier it will be for investors to get the shares or the easier access to trade transactions so that they will motivate investors to transact more actively. So the easier and more volume of stock trading the more liquid the stock in the capital market. Liquidity is one of the important factors as attractiveness of investors in emerging markets due to high stock liquidity which makes trading costs cheaper. The researchers suggest that liquidity promotes the economy for developing countries and also the contribution of stock market liquidity has a significant positive effect on economic growth (GDP) Levine and Zervos (1998).

That M2 surprises affect stock returns through market liquidity and earnings surprises. The results showed that M2 surprises significantly affected market liquidity not proven, but surprise M2 has a significant effect on earnings surprises received or proven, from the observed research model and market liquidity and earnings surprises have no proven effect on stock returns. The effect of M2 on current company profits and expected earnings is mainly the effect of expectations of the money supply for dividends. Although current common stock prices will be affected by current changes in dividends, the main effect of the money supply is on the expected growth rate of dividends that occur from permanent changes in company earnings from positive project NPVs chosen with lower capital costs when interest rates fall causing the money supply to increase. Empirical evidence supports the notion that shocks to monetary contraction decrease corporate profits and that this change affects the

household sector in the form of lower dividend payments only by delay Consistent with the findings of Christiano, Eichenbaum, Evans (1996) and Deepke (2004).

Changes in the availability of money will affect expected earnings and their consequences for stock returns. Mukherjee and Naka (1995) argued that if an increase in the money supply would lead to economic expansion through increased cash flow and stock prices would benefit from the economic growth undertaken by this expansionary monetary policy. Farka (2009) argues that monetary policy in surprises the money supply has a significant effect on stock returns. In terms of money demand, a decrease in the money supply will raise interest rates and reduce interest-sensitive spending on capital investment in Flannery and Protopapadakis (2002).

Kiyotaki and Moore (2001) state that liquid assets held are mainly hedging against real illiquid assets. An increase in money held for financial liquidity can reduce the money available for transactions. In this study in line with the research of Campbell, Grossman, and Wang's model (1993) where if the value of large shares traded results in a reversal of returns on illiquid markets it means that the money supply has no effect on market liquidity. (Gordon and Leeper, 2006). Using reserve money seems to be the right choice because, if the banking system has more money in the central bank, then liquidity decreases, and if reserves continue to decrease, liquidity will rise. Therefore, liquidity is inversely proportional to money reserves. Copeland and Galai (1983) state that liquidity decreases with the magnitude of price volatility in traded assets, with high levels of asset prices and low volumes.

That exchange rate surprises significantly influence stock returns through market liquidity and profit surprises are not proven. This is in line with Kurihara (2017) that policy makers influence the market with their policies; however, they usually intend to move the market as smoothly as possible without major turmoil or disruption. Therefore, the communication of the central bank with financial markets is very important to develop and maintain a sound financial market, and When monetary policy decisions by central banks and markets, liquidity is expected to be high due to a decrease in information asymmetry between informed and uninformed market participants.

Theory and empirical findings

Based on the results of the analysis and discussion, there are 3 findings on this study as follows:

- *Efficient market hypothesis theory* (Fama 1970), The findings show that this theory cannot explain macroeconomic surprises or shock to changes in stock returns, because the market does not respond to changes in macroeconomic conditions in the financial sector, On the other hand this theory is only able to explain the changes in earnings surprises;
- *APT theory* (Ross 1976) is not relevant and contradicts this condition, the results of the study show that systematic risk does not affect stock returns because the market ignores macroeconomic fundamentals and pays more attention to corporate fundamentals which are unsystematic risk;
- *Market liquidity theory* (Hui and Heubel (1984), shows that this theory is accepted and can explain changes in stock returns. Because market liquidity is an unsystematic risk part, which means that unsystematic risk can be diversified, and also as a determinant of the company's stock value. Empirical findings indicate that the higher the market liquidity, the greater stock returns will be and indicated low risk, meaning that market liquidity is proportional to stock returns this is illustrated in 3 companies (BFIN, KREN and PADI) seen in the variable market liquidity and stock returns

Conclusions

Return of an asset is also influenced by the liquidity of shares held by investors, illiquid assets will be difficult to trade when companies need funds. This will have an impact on shares of companies that are not liquid will tend to reduce the price of assets so that the return will be reduced. Market liquidity provides a stimulus to market participants for the quality of shares and stock liquidity to intensify the existence of "flight to liquidity".

Earnings of a company are key in valuing its shares so that earnings estimates, as well as earnings announcements will always be scrutinized by market participants. Earnings announcements can produce important perceptions about how the market uses information from figures published by the company, Earnings are used by investors for valuation purposes and also as a benchmark for internal and external pressures.

Corporate needs to increase reputation to prevent negative interpretations from market participants or speculators. Uncertainty in macroeconomic and monetary conditions shows that there is a high volatility in profits which leads to investor expectations.

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The Impact of Monetary and Fiscal Policy on Poverty in Indonesia

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Abstract:

The aim of this research is to analyze monetary and fiscal policy impacts on poverty in Indonesia. The data used are secondary data from World Bank, BPS, and Indonesia Bank from 1980 to 2017. The estimation method used is the two-step Error Correction Model. The research results in showing that the economic growth has a significant negative impact on poverty; monetary policy proxied with interest rate has a significant negative impact on poverty; fiscal policy proxied with government expenditure has insignificantly impacted on poverty. Exchange depreciation positively and significantly impacts on poverty; inflation has a positive and significant impact on poverty; the economic crisis has a positive and significant impact on poverty. Indonesian poverty decrease is dominated by the monetary policy while fiscal policy insignificantly drops poverty number compared to the impact of monetary policy.

Keywords: monetary policy; fiscal policy; inflation; poverty.

JEL Classification: E31; E52; E62; I32.

Introduction

The main objective of Indonesian development is to provide wealth for all Indonesian people (Tanjung *et al.* 2017). It needs a policy which is able to decrease people's life rate, especially poor people. Poverty is the main problem for all countries. The high and unresolved poverty number has a negative impact on the country's government. High poverty is the reflection is of the high unemployment rate. If let it be it brings social fluctuation that impacts the security, economy, even politic aspect. Therefore, it really needs a comprehensive solution to poverty issues. It can include monetary and fiscal policy and other macroeconomy policies.

Some experts view that only a few kinds of literature study on the monetary impact on poverty unlike other studies on inequity and poverty causes and trends (Goshit and Longdut 2016). Monetary policy only focuses on the analysis of macroeconomy data aggregately and ignores the intervention on poverty decrease (Fielding 2004).

Many researchers only study on poverty from the government's fiscal policy. Fiscal policy is one of government expenditure that also plays an important role in decreasing poverty (Mehmood and Sadiq 2010). Meanwhile, poverty problem solving needs all of the stakeholder's synergy. So, to see deeply about the monetary policy impact, fiscal and other macroeconomy variables on poverty in Indonesia, it needs a deeper study on monetary and fiscal policy impact on poverty in Indonesia.

1. Research Background

Poverty is a condition in which people are below the poverty line. Poverty can be seen as structural violence out of the public policy that considers poverty only as a side product that can be solved by one country's development strategy. Most analyses follow the conventional view of poverty as a result of insufficient income for securing basic goods and services (Ajakaiye and Adeyeye 2001). Some literature that has studied poverty showed that there are many impacting factors on poverty decrease.

Fielding (2004) tests whether monetary policy has an impact on poverty in East Timur from 1994,4 to 2002,7. His analysis uses the estimation technique of Full Information Maximum Likelihood (FIML). This study empirically observes that the impact of one monetary instrument, which is the number of spread money or interest rate, will bring about possible poverty.

Mehmood and Sadiq (2010) test the connection between government expenses for poor people from 1976 to 2010. The analysis uses the estimation technique of the ECM model and Johnson Cointegration Test. This study empirically observes that government expenses have a negative significant connection with poverty.

Chani *et al.* (2011) tests the connection between poverty, inflation and economy growth in Pakistan from 1972 to 2008. The analysis uses an estimation technique ARDL. The study empirically observes that economic growth and investigation have a negative impact on poverty, while inflation has a positive impact on poverty and trade has no significant impact on poverty.

Dahmardeh and Tabar (2013) test the impact of government expenses on poverty decrease in Sistan Province and Baluchestan, Iran from 1978 to 2008. The analysis uses an estimation technique ARDL. The study shows that government expenses have a positive impact on poverty decrease.

Kashi and Tash (2014) test the impact of macroeconomy on poverty in Iran from 1985 to 2007. The analysis uses the Bootstrap estimation technique. The study recommended that economic growth has a negative and significant impact on poverty, unemployment and inflation have a positive impact on poverty while expenses of social guarantee related to government expense have no impact on poverty.

Teweldemedhin (2014) tests the impact of macroeconomy on poverty in Sub Sahara Country, Africa in 2009. The analysis uses the Weighted Least Square (WLS) technique. The study shows that the ratio of government expenses on GDP, the agriculture ratio on GDP, the direct foreign investment ratio, and the GINI coefficient have no significant impact on the poverty rate in Sub-Sahara Africa. Meanwhile, external debt stocks, GDP Growth, and Population Growth have a positive and significant impact on the poverty rate. However, Gross Domestic savings, Domestic credit to the private sector, military expenditure, and health expenditure have a negative and significant impact on the poverty rate in Sub-Sahara Africa.

This study recommends focussing on an effective human capital policy by education and health investment to the baseline of a poor community, infrastructure development to make poor people have a chance and possibility for trade liberalization as well as good government implementation focusing on other institutions and factors heading to poor people.

Khatibu and Cheyo (2014) test the impact of government expenses on strategic growth and poverty decrease in Tanzania from 2005 to 2013. The study shows that government expenses to raise growth do not help decreasing poverty because the expenses are for social investment and therefore the response of poverty decreasing needs time to take place.

Nwosa (2016) tests the impact of macroeconomic on the poverty rate and unemployment in Nigeria as well as its implication on inclusive growth from 1980 to 2013. The analysis uses the Ordinary Least Square (OSL) estimation technique. The study recommends that fiscal policy and inflation rate significantly has an impact on the poverty rate in Nigeria, while monetary policy needs revising due to interest rate to improve non-fuel growth by giving low-interest lend to investors.

Akhtar *et al.* (2017) test some factors influencing poverty in Pakistan from 1974 to 2014. The analysis uses the estimation technique of Co-integration Analysis for the long term and ECM for the short term. The independent variable used is the ratio of agriculture on the Gross domestic product (PDB), the ratio of Direct Foreign Investment (FDI) to PDB, basic education ratio, domestic credit ratio to private sectors and military expenditure percentage of PDB. The study result shows that all variables have a significant impact on poverty. In the case of agriculture ratio to PDB, the agriculture output growth results in poverty decrease. Education registration also has a negative and significant impact on long-term poverty. It helps to decrease poverty and improving the economy social status of both individuals and the community. Domestic credit also has a negative and significant impact on poverty but military expenditure has a positive and significant impact on poverty in Pakistan.

Afandi *et al.* (2017) test the policy that increases the poverty rate in Indonesia from 1981 to 2013. The analysis used is the Error Correction Model (ECM) estimation technique. The study shows that economic growth has no impact on poverty decrease, inflation has a positive impact on the poverty rate, Foreign Direct Investment has a negative and significant impact on poverty rate, Gini ratio as the proxy of unequal income has no significant impact on the poverty rate. The study result also shows that the poverty rate depends on macroeconomy instability such as price rate.

Oriavwote and Ukawe (2018) examine the effect of government spending on poverty reduction in Nigeria in the 1980 to 2016 period. The analysis used the Error Correction Model (ECM) and Cointegration models estimation technique. and shows the results that government spending on health has a significant effect on income per capita but not elastic while government spending on education in the positive and significant effect on income per capita in Nigeria. Other results show that government spending on buildings and construction has a positive and significant effect on income per capita and there is no causal relationship between government spending in education and government spending in health.

2. Methodology

2.1. Data

Using annual data from 1980 to 2017 in the form of time-series data. annual data based on constant values with the base year in 2000, except for the data in the form of index values and percentages. The data comes from Financial Statistics (IFS) published by Bank Indonesia, Central Bureau of Statistics (BPS). Other data sourced from the International Monetary Fund and the World Bank. Data is tested through unit root test and cointegration test, while the methods for estimating equations using the *Two-Step Error Correction Model* (ECM) in short-term and Ordinary Least Square (OLS) in long-term. The definition of research operational can be explained as follows:

- the poverty rate (*POV*) is measured by poverty incidence;
- monetary policy (*MON*) is measured by interest rate;
- fiscal policy (*FIS*) is measured by aggregate government expenditure;
- exchange rate policy (*EXC*) is measured by the average official US Dollar/Rupiah exchange rate;
- economic growth (*PDB*) is measured by the real gross domestic product;
- inflation rate (*INF*) is measured by the annual inflation rate and;
- a dummy variable is measured by the Indonesian economy term (crisis = dummy 1), not a crisis (dummy=0).

2.2. The model

The aim of this research is to analyze the long run and short run between monetary policy, fiscal policy, other macroeconomic variables, and poverty. The model of this research is developed from Nwosa (2016):

Long-Run model:

$$Log(POV_t) = \beta_0 + \beta_1 \log(MON_t) + \beta_2 \log(FIS_t) + \beta_3 EXC_t + \beta_4 \log(PDB_t) + \beta_5 INF_t + \beta_6 KRISRI_t + \beta_7 ECM\_POV_t \quad (1)$$

Short- Run model:

$$d(\log(POV_t)) = \alpha_0 ECM\_POV_{t-1} + \alpha_1 d(\log(MON_t)) + \alpha_2 d(\log(FIS_t)) + \alpha_3 d(\log(EXC_t) + \alpha_4 d(\log(PDB_t)) + \alpha_5 d(\log(INF_t) + \alpha_6 d(KRISRI_t) \quad (2)$$

3. Case Studies

A stationarity test can be done by testing the unit squares developed by Dickey-Fuller. The alternative of the Dickey-Fuller test is Augmented Dickey-Fuller (ADF) which tried to minimize autocorrelation. This test consists of regression of the first difference of time-series data on the lag variable, lagged difference terms, constant and trend variable. The stationarity test result of time series for all studied variables can be seen in the estimation result described by the following Table 1.

Table 1 mentioned above shows that there is one stationarity variable datum on level INF because the value of *Augmented Dickey-Fuller* is bigger than the critical value of *McKinnon* on a belief degree of one percent. Some other variables are not stationary yet on the level because the statistic value of Augmented Dickey-Fuller is smaller than the critical value of *McKinnon*, such as POV, MON, FIS, EXC, PDB, and KRISRI.

The solution for this in stationary issue is by performing a test on the *first difference* level and retest on ADF. Based on table 1 above, it is shown that POV, MON, FIS, EXC, and KRISRI variables are stationary on the *first-*

difference level because the value of *Augmented Dickey fuller* is bigger than the critical value of *McKinnon* on belief degree of one percent. However, PDB variable is stationary on 2nd Difference.

Table.1 Stationarity test results

No	Variable	ADF Value	Critical Value*)	Probability	Stasionary
1	POV	-5.214762	-3.622900	0.0001<0.01	1 st Difference
2	MON	-3.897747	-3.653730	0.0054<0.01	1 st Difference
3	FIS	-3.859152	3.661661	0.0061<0.01	1 st Difference
5	EXC	-5.250286	-3.626784	0.0001<0.01	1 st Difference
6	PDB	-7.704635	-4.243644	0.0000<0.01	2nd Difference
7	INF	-5.002677	-3.621023	0.0002<0.01	Level
8	KRISRI	-5.830952	-3.626784	0.0000<0.01	1 st Difference

Note: *) trend
Source: Authors' estimation using e-views 6.0

3.1. Cointegration test

Cointegration test is aimed at testing whether the residual regression is stationary or not and also to know whether in the long term there is a connection between the independent variable and dependent variable (by using Engle-Granger test). The cointegration test is performed as a following up of nonstationary data on the level rate. The cointegration test result with e-views 6.0 auxiliary is shown in the following Table 2.

Table 2. Cointegration test

No.	Equatio	ADF TEST	Probability
1	Log(PDBRI)	-5,480484	0,0001*

Note: * Meaningful at α=1%; ** meaningful at α=5%
Source: Authors' estimations using e-views 6.0

Based on Table 2 above, it can be seen that all behavior equations in the research are statistically proven by the ADF-TEST approach with a cointegration test on 1% risk. With this cointegration test result, it can be summed up that long-term equation or ECM is valid to apply.

Table 3. Long-run model

Dependent Variable: Log(Pov)				
Variable	Coefficient	Std.Error	T-Statistic	Prob.
C	13.66442	1.483327	9.212003	0.0000
Log (PDB)	-0.838631	0.143080	-5.861258	0.0000
Log(MON)	-0.320840	0.070214	-4.569480	0.0001
Log(FIS)	-0.038675	0.061660	-0.627235	0.5351
Log(EXC)	0.225490	0.074326	3.033788	0.0049
Log(INF)	0.159950	0.036814	4.344774	0.0001
KRISRI	0.133941	0.054866	2.441240	0.0205

Source: Authors' estimation using e-views 6.0

Table 4. Short-run model

Dependent Variable: D(Log(Pov))				
Variable	Coefficient	Std.Error	T-Statistic	Prob.
ECM_POV(-1)	-0.526202	0.171307	-3.071695	0.0045
D(Log(PDB))	-1.027169	0.237515	-4.324642	0.0002
D(Log(MON))	-0.112270	0.065262	-1.720286	0.0957
D(Log(FIS))	-0.052629	0.037271	-1.412065	0.1682
D(Log(EXC))	0.329304	0.083055	3.964908	0.0004
D(Log(INF))	0.062258	0.023717	2.625055	0.0135
D(KRISRI)	0.105291	0.040941	2.571797	0.0153

Source: Authors' estimation using e-views 6.0

In the ECM model, the independent variable change is not only described by dependent variable change but also by past inequal variable (ECM_POV_{t-1}), where ECM_POV(-1) shows past inequal adjustment pace to recent equality. The change of poverty rate is determined by economic growth, monetary policy, fiscal policy,

exchange rate, economic crisis, and inflation, as well as adjustment due to past inequality. Every percent of past inequality will be responded by poverty rate adjustment of 52.6202% for the first year so that all inequalities will be covered in two years.

The impact of economic growth (PDB) on poverty is negative. In the short term, one percent of economic growth will decrease the poverty of 1.08% and 0.84% in the long term. This study is in line with Kashi and Tash (2014) but in contrast with the study result of Teweldemedhin (2014).

The connection of interest rate (MON) and the poverty rate is negative. The increase of interest rate (MON) as monetary policy proxy will lead to the decrease of poverty rate 0.11% in the short term and 0.32% in the long term. The monetary authority must be able to give low loan-interest rates for the community, especially for micro businessmen. Those micro businessmen are usually poor people. If the loan interest is low they are able to get the loan for their business, but if the loan interest is high they cannot return it and then they quit their business and become poor.

The impact of government expenditure (FIS) on poverty is negative and insignificant on poverty decrease. The increase of government expenditure as the fiscal policy proxy will lead to the decrease of poverty rate 0.05% in the short term and 0.03% in the long term. It shows that government expenditure to resolve poverty is not yet able to significantly contribute to poverty decrease. On the other hand, government programs, such as village fund allocation, productive family programs, electricity for poor, social security cards and others at the beginning of 2014, still need time to see the impact on the poverty rate decrease. It is in line with Khatibu and Cheyo (2014) finding that invested government expenditure needs time to apply in decreasing the poverty rate. The above results are also in line with the results of Oriavwote and Ukawe (2018) which found that fiscal policy with government expenditure instruments with a focus on spending on education had a significant effect on poverty reduction.

The impact of the exchange rate (EXC) on poverty is positive. The increase in exchange rate (EXC)/depreciation will improve the poverty rate of 0.33% in the short term and 0.24% in the long term. This study is in line with Supriyadi and Kausar (2016) findings stating that there is a significant impact of Rupiah Rate depreciation on poverty.

The impact of inflation (INF) on poverty is positive and insignificant both in the short and long term. The inflation increase (INF) will lead to an increase in the poverty rate of 0.06% in the short term and 0.16% in the long term. Monetarily this shows that poverty decrease in Indonesia is mostly caused by inflation. Because, if the price grows people's affordability will go down if the price goes up the previously non-poor people will be in the poor community. This is in line with the finding of Kashi and Tash (2014), Supriyadi and Kausar (2016), and Afandi *et al.* (2017).

This study also sees that the economic crisis (KRISRI) has a positive impact on poverty. The economic crisis also leads to poverty increased by 0.11% in the short term and 0.13% in the long term. This shows that the government's ability to keep stable and conducive economy condition without economic crisis and the social-political crisis will be one of the pillars to decrease poverty. Economy stability, domestically social and political stability will invite foreign and domestic investors to invest in Indonesia. The investment will bring about employment and goods and service demands. The employment availability will lead to people's income so they can fulfill their lively needs and in the end, it will decrease the poverty rate.

Conclusion

This research is to empirically test the impact of monetary and fiscal policy as well as other macroeconomy variables on poverty in Indonesia from 1980 to 2017. This study also tests the inflation and interest rate as monetary policy proxy and government expenditure used as fiscal policy proxy. The result shows that the impact of economic growth (PDB) on poverty is negative. The impact of interest rate (MON) on poverty is negative. The impact of government expenditure (FIS) on poverty is negative. The impact of (EXC) on poverty is positive. Inflation (INF) has a positive impact on poverty increase. The economic crisis (KRISRI) has a positive impact on poverty. The poverty decrease in Indonesia is still dominated by monetary policy, *i.e.* the inflation stability as one indicator of Indonesian macroeconomy stability. However, fiscal policy doesn't really contribute to the poverty rate decrease even though the government budget for community empowerment programs is huge but it misses the target.

Based on the findings of this study, some policies are recommended as follows:

- there must be a synergy between central government, local government, and monetary authority in making poverty exoneration program to make it run well and support each other instead of diminishing each other;
- the government needs to improve the quality of government expenditure. It must focus on education and health investment reaching out to poor people both in cities and villages. It also must focus on

infrastructure development improving poor people participate in the economy of the 4.0 industrial revolution era;
- monetary authority should keep low loan-interest rate especially for Micro Businessmen as well as keeping inflation stability.

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The Simultaneous Effects of Investment and Trade: A Perspective of Manufacturing Growth in Asian Economies

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Abstract:

This study examines the relationship between manufacture value-added growth and trade openness in Asian economies. For this purpose, we choose 18 years' panel data set including suitable variables for estimation econometric strategies such as Ordinary Least Square, Fixed Effect and Random Effect models including GMM aims at how to do trade openness and investment affect manufacture value-added in Asian regions. Findings reveal that trade openness must be improved along with investment in different sectors. The coefficient value of product R&D and investment in transport, ICT and energy sectors decline manufacture value-added growth. R&D more contributes to manufacturing of value-added growth rather than trade openness. In addition, the impact of public investment in transport and ICT is lower on manufacture value-added growth by 11%, 10% respectively. Therefore, trade openness square adversely impacts on manufacture value-added growth than trade openness.

Keywords: investment; trade; manufacture value added; Asian economies; simultaneous effects.

JEL Classification: F10; F13; F14.

Introduction

Trade plays a vital role in determining the growth process of any country undoubtedly. Now more or less all countries tend to participate in the world market for trading the goods. This is why it's a big opportunity to enter into it through the gate of trade liberalization in terms of openness. Trade liberalization and openness of the economy are now almost universally accepted as the main ingredients of successful economic growth and welfare of the population and as considered a well-debated issue.

These are believed to be responsible for the exceptional growth of industrialized and newly industrialized countries. Initially, the developing nations of the world followed restrictive trade policies to protect themselves from the full forced stream trade flood, but with the passage of time and emergence of globalization, all the nations realized the need to liberalize their economies in terms of trade openness. Trade of a country is a key determinant for the improvement of a country's industrialization. Most of the developing countries, under the auspices of the WTO, are taking major steps to liberalize their trade regimes. Moreover, development experienced by a country brings some changes in trade structure on the basis of endowments and comparative advantage (Hultman 1967).

An empirical analysis by Adenikinju and Olofin (2000) suggested that the development of the industrial sector can be determined by trade openness and policies of trade. There are a number of ways through which a positive link between industrial sector growth and trade policies can be explained like scale efficiency is increased through expanding the scope of domestic industrial sector and furthermore an open trade regime causes high competition in world market, which further boosts firms or sectors in a country to follow and take up modern technology which enhances efficiency.

In addition, an open trade regime relaxes constraints caused by the foreign exchange as observed in the case of developing nations. Last but not least it causes high development in technological progress, see Lucas (1988), Grossman and Helpman (1989, 1991) and Romer (1990).

The manufacturing sector is essential for the development of any economy. This is for the reason that the industry inclines to have a multiplier impact on other industries in the economy. Fast development in the manufacturing sector has been complemented with higher productivity and prosperity of manufacturing firms. The manufacturing sector resorts to raw materials and resources from other industries in the economy and consecutively protects them with finished products. The manufacturing sector contributes positively to the employment generation and growth of any economy. In times gone by, the growth process has experienced a movement of people moving from agriculture to non-agriculture activities like manufacturing and services. This represents manufacturing critical for the economy's growth and employment objectives (IBEF 2016).

The present research investigates the manufacturing growth due to trade openness, investment, and restriction of openness due to trade barriers in Asian developing countries. By restricting the free trade, barrier hampers openness. Trade barriers make a twist to free trade as on openness. This research tries to examine the intensity of the fact and suggest a policy that ensures co-existence of trade openness and trade barriers in trade.

Many of the countries set a goal by achieving targets to reach in developed country list. The study discovers the fact and trend to develop, and to what extent they are keeping themselves on the right track as well as find a resourceful and effective result through the intensive inquiry using different relevant variables in trade, investment as well. Literature creates a gap between the manufacturing sector and other related fields. This study contributes to the manufacturing sector by identifying the issues of investment and trade. Furthermore, propose simultaneous or complementary effects of investment in three sectors such as transportation, information communication technology and energy including trade openness and trade square at aims whether it is most important for manufacturing value-added growth in Asian states.

1. Research Background

Several empirical studies on the manufacturing sector with respect to trade, investment, environment, finance, *etc*. have been discussed. For instance, Aggnoluci (2019) assesses the association among the industrial process and air emissions based on UK dataset by combining observed factors that can probably influence the emissions level. Results reveal that undetected collective issues through cross-section dependence, and also production inputs, total factor productivity and economies of scale could not rely upon reduction of emissions from the industrial sector. Therefore, reduction in energy consumption, fuel substation, and market competition could reduce emissions so that one can stabilize the increment of emissions that relevant to investment at a higher level. They found a substantial relationship between industrial emissions and market concentration as well as innovation.

Datta (2019) studies on the manufacture sector in the Indian economy, output-value added symbiosis. Findings explain the general impression of the service sector in India that is a super performer, while manufacturing is a slacker. The service-I consider closely associated with manufacturing; their demand being largely derived demand, has grown rapidly since the 1970s and dynamic part of the overall service sector. The growth of the service sector is the only indicator of the vitality of manufacturing. Output excluding value-added indicates that manufacturing's growth virtually paralleled service-I. During the 1980s and 1990s manufacturing's value-added share could remain stagnant or depressed. The vibrant growth of output is covered by stagnancy of manufacturing and slippage of value-added that away from the sector and declining the relative price. Moreover, value-added is not a sufficient and reliable indicator of the level of activity and conventional measures of productivity. Furthermore, a low share of GPD in the manufacturing sector produce outlier by international comparison. And also labor surplus and capital scarce are newly autonomous choose the skill path based on well-planned industrialization. The policies regarding labor laws and private capital still survive and produced a negated unit of low skill large industry unlike in the counties of East Asia or China.

Coad *et al.* (2019) study on three cheers for industry: Is manufacturing linked to R&D, exports, and productivity growth. Their findings suggest that over the last few days, several industrialized economies such as North America and Europe have experienced stably deterioration in the manufacturing sector. And also outsourcing

and offshoring destabilized the European economies, while policymakers proposed some suggestions on the manufacturing sector regarding R&D boost up, export encouraging and higher productivity. They examined claims such as non-parametric plots and regressions that indicate the robust positive relationship between the manufacturing sector and business expenditure on R&D as well as the relationship between manufacture exports or productivity. Furthermore, the higher manufacture value-added share could lead to higher R&D intensity. There is a reason to believe the manufacturing sector overall has a higher R&D intensity rather than the non-manufacturing business sector. Although the manufacturing sector R&D could not appear to produce externalities that lead to higher non-manufacturing R&D.

Sanni (2018) examines the drivers of economic-innovation in the manufacturing sector of Nigeria. The author sets a broad objective of accompanying scare knowledge based on economic- innovation and also discusses the role of technology push, demand-pull and firm-specific factors in encouraging economic innovation. Results suggest that both eco-innovation and non-eco-innovative firms are found heterogeneous in external and internal characteristics due to most economic-innovative firms are considered more technical and highly innovative. Econometric tools produced outcomes that there is strong support for the consequence of environmental policy on economic-innovation. Findings suggest regarding demand-pull factors that the factors such as satisfaction of customer demands and local market competition significantly contribute to the decision of firms of economic – innovation. Furthermore, technology push factors indicate the gaining of hard and soft programs, access to formal sources of knowledge, public research institutes and personal training are serious factors during the trying to economic-innovation.

Novy (2013) estimates the barriers to international trade are known to be large but because of data limitations, it is hard to measure them directly for a large number of countries over many years. To address this problem, the researcher derives a micro-founded measure of bilateral trade costs that indirectly infers trade frictions from observable trade data. Researchers show that this trade cost measure is consistent with a broad range of leading trade theories including Ricardian and heterogeneous firms' models. In an application, he shows that US trade costs with major trading partners declined on average by about 40 between 1970 and 2000, with Mexico and Canada experiencing the biggest reduction.

Bernard *et al.* (2006) examine the response of US manufacturing industries and plants to changes in trade costs using a unique new dataset on industry-level tariff and transportation rates. Their results lend support to recent heterogeneous-firm models of international trade that predict a reallocation of economic activity towards high-productivity firms as trade costs fall. They find that industries experiencing relatively large declines in trade costs exhibit relatively strong productivity growth. They also find that low-productivity plants in industries with falling trade costs are more likely to die; that relatively high-productivity non-exporters are more likely to start exporting in response to falling trade costs; and that existing exporters increase their shipments abroad as trade costs fall. Finally, they provide evidence of productivity growth within firms in response to decreases in industry-level trade costs.

Limao *et al.* (2001) use different data sets to investigate the dependence of transport costs on geography and infrastructure. Infrastructure is an important determinant of transport costs, especially for landlocked countries. Analysis of bilateral trade data confirms the importance of infrastructure and gives an estimate of the elasticity of trade flows with respect to the trade cost factor of around. A deterioration of infrastructure from the median to the 75th percentile raises transport costs by 12 percentage points and reduces trade volumes by 28%. Analysis of African trade flows indicates that their relatively low level is largely due to poor infrastructure.

Amiti *et al.* (2008) examine the determinants of entry by foreign firms, using information on 515 Chinese industries at the provincial level during 1998–2001. The analysis is based on new economic geography theory and thus focuses on market and supplier access within and outside the province of entry, as well as production and trade costs. The results indicate that market and supplier access are the most important factors affecting foreign entry. Access to markets and suppliers in the province of entry matters more than access to the rest of China, which is consistent with market fragmentation due to underdeveloped transport infrastructure and informal trade barriers.

Feliciano (2001) shows that the Mexican government reduced tariffs and import license coverage by more than 50%. The author, using micro-level data, analyzes the impact of trade reform on Mexican wages and employment. Industries that had greater reductions in protection levels, she finds, had a larger percentage of low-skill workers. Wage dispersion increased in both the non-tradable sector and, to a much greater degree, the tradable sector. This pattern suggests that trade reform increased wage inequality. The decline in import license coverage appears to have reduced relative wages of workers in reformed industries by 2% but did not affect relative employment. Reductions in tariffs had no statistically significant effect on relative wages or relative employment.

Kruse (1993) exhibits that using data from the Displaced Workers Survey and the National Bureau of Economic Research Trade and Immigration Dataset, the author of this study finds that among manufacturing workers displaced in 1979–83, the average duration of joblessness varied directly with the rise in their industry's import share since 1972–74. This relationship appears to be due in large part to the fact that the workforce in industries with rising import shares tends to have demographic characteristics associated with labor market adjustment difficulties, such as higher proportions of women and blue-collar workers than are found in other industries.

Milner *et al.* (2004) analyzed the conditions under which countries have decided such agreements to lower barriers and joined such international institutions. Generally, it indicates that domestic factors affecting global economic scenario and collaboration. Over the past fifty years, substantially, international trade barriers have been decreased. Since World War II is cause curtailed one-sided change by the several countries in trade policy in perspective of declining protectionism. This is a result of agreements that make among the countries to liberalize their trade policies. International trade agreements and especially WTO have played an important role in this liberalization process.

Goldstein *et al*. (2000) studies on trade liberalize legalization and domestic politics. For achieving the best maximum level of legalization, requires reduction of opportunism risks and potential inverse effects of legalization on domestic political procedures. The objective of the global trade regime is to liberalize trade which has become legal over time. The nature of government obligations and information environment has been changed due to increment in legalization that affects the shape of mobilization of domestic interest groups on trade. Authors suggest that possible negative magnitudes of legalization in perspective of liberal trade-in future expansion scenario, magnitudes must be considered against positive effects of legalization on increasing national compliance. The weakly legalized GATT institution has proved that sustain widespread liberalization. Furthermore, legalization should be durable to validate far-reaching alterations in the international trade regime.

2. Methodology

This study required implying several techniques to incorporate the relationship among the variables for Asian economies. We construct two indicators by using the primary variables by implying the PCA and FA. And estimate OLS, FE, and RE to examine the influence of relationship on manufacture value-added growth, investment and trade openness, then, check the robustness and endogeneity many econometric techniques applied.

For this purpose, we choose 18 years panel data set from all Asian economies excluding North Korea and Philistine as well as consider one China (P.R. China, Macao, Taiwan, and Hong Kong) for observation. And also choose suitable variables by collecting the data from many international organizations such as Doing Business World Bank *etc*.

Manufacture value-added growth is a significant factor in the economic growth and development of each economy. This encourages employment and output level in the industrial sector. Ultimately, input prices decline as well as costs of production reduces. Therefore, manufacture value-added is affected by several factors such as trade, tariff, research and development, inflation, etc. We discuss the impact of trade openness on manufacture value-added growth. Ask if, how trade openness effect manufacture value-added?

Trade openness generates investment activities at small and large scales into the firm network in an economy. Firms import raw material and high technology from international markets and produce goods by manufacturing in the home market. Afterward, prepare final goods for selling in the different markets in order to generate revenues through adopting export strategies. Adopting of export strategies by the firm's push make difference between inputs prices and output prices that cause value-added.

Additionally, the relationship between manufacture value-added, trade and investment. Thus, investment is also a significant factor in manufacture value-added. Investment in different sectors such as energy, transportation, and information communication technology increases manufacture value-added growth through providing the infrastructure that causes reduces production's costs (Hussain et al. 2019).

2.1. Model estimation strategies

There are several factors that affect the manufacturing value-added growth such as research and development, infrastructure, investment, GDP, market efficiency, tariff, *etc*. Trade and investment are most important for determining the value of manufacturing growth. For this purpose, we propose an estimation equation:

$$\ln(mvagijt) = \beta 0 + \beta 1 \ln(TOit) + \beta 2 \ln(TO2it) + \beta 3 \ln(fdiit) + \beta 4 \ln(cpiit) + \beta 5 \ln(invit)\ \delta 1 \ln(GDPit) + \delta 2 \ln(NXit) + \delta 3 \ln(Popit) + \delta 4 \ln(R\&Dit) + \varepsilon ijt \quad (1)$$

The manufacture value added growth equation contains variables, explain that beta (β) is the slope of all explanatory variables, delta (δ) is control variables, the term 'mvagijt' indicates that manufacture value added growth of a country i for time period t, the term 'TOit ' is the trade openness of a country i in year t, TO2it is square of trade openness of a country i in year t; fdiit is foreign direct investment of country *i* in year; cpiit is consumer price index (price level of all goods basket) of country i in year t; the term 'GDPijt', popijt, demonstrate that gross domestic product country i and j year t and population of country exporting countries; invitt is investment indicator of a country *i* in year *ti*; R&Dit is research and development of a country i in year t. εijt is error term/residual.

This equation reveals that the dependent variable is manufacture value-added growth, while explanatory variables and control variables are selected for estimation in order to incorporate the association between applying different econometric tools.

3 Empirical results

3.1 Regression analysis with trade openness

Table 1 reports regression estimates of some econometric scales such as Ordinary Leas Square, fixed effect and random effect. By using all these tools, results indicate that explanatory variables have a larger and smaller impact on the dependent variable at a different level of significance. For instance, trade openness has a larger impact on manufacture value-added growth as compared to the square of trade openness and statistically significant at 1 percent level.

Thus, trade openness increases MVG through the mechanism of manufacturing process and investment. Trade openness creates investment activities in the country by exporting and importing goods and services. Consequently, goods are manufactured by the firms and ready to sale after the final shape. In addition, foreign direct investment has also a significant impact on manufacture value added at all scales. How foreign direct investment impact on manufacture value-added. FDI is injected into the economy and reduce the cost of production as well as transfer the technology to the host country. As a result, manufacture activities are increasing and produce a higher level of output. Another side, R&D has a 67% impact on manufacture value-added growth; reported in column 1-indicates that spending on research and development could enhance manufacturing growth through innovation.

Table 1. Regression analysis with trade openness

Estimation	OLS	FE	RE
VARIABLES	mvagrowth	Mvagrowth	Mvagrowth
TO	0.126***	0.324***	0.121***
	(0.124)	(0.567)	(0.324)
$lnTO^2$	-0.277***	-0.227**	-0.249***
	(0.0507)	(0.0956)	(0.0808)
Lnfdi	0.0738***	0.226***	0.0207***
	(0.127)	(0.368)	(0.201)
Lnrde	0.674***	0.579**	0.619***
	(0.202)	(0.279)	(0.237)
Cpi	-0.0109*	-0.0156**	-0.0144**
	(0.00573)	(0.00771)	(0.00655)
NX	0.023***	0.0345***	0.543***
	(0.324)	(0.345)	(0.543)
Constant	16.66***	16.60***	15.98***
	(2.208)	(4.613)	(3.633)
Observations	866	866	866
R-squared	0.118	0.043	
Number of state		46	46

Note: Standard errors in parentheses. Significant level at *** 1%, **5% & *10. Regressions are included Simple Ordinary Least Square, Fixed Effect and Radom Effect. TO = trade openness, TO2 = trade openness square, FDI = foreign direct investment, rde = research and development expenditure, cpi = consumer price index, NX = net exports and ln = logarithm.

Source: Author's calculation

Similarly, the consumer price index has an adverse relation to manufacturing value-added because inflation reduces aggregate demand by the consumer side, while profit gain from inflation goes to firms that increase revenue. If there is the highest value of inflation in the country; the consumer side adversely affected while the

producer side beneficial. Now we discuss net export, how does net export impact on manufacture value-added growth. Actually net export generates revenue after payment that encourages to firms for investment. Results show that there is 2%, 3% and 5% values represent the contribution to manufacture value-added growth at different scales by controlling country effects. All variables are statistically significant at 1% level except FE and RE in columns 2 and 3. Each variable has a significant impact in relation to manufacture value-added growth in all Asian countries.

3.2. The substitutability or complementary of investment

Table 2 reports the estimate of the two-stage sample selection, Heckman model regarding the explanatory and dependent variables. There are two equations; selection and outcome equations. The selection equation[1] is produced by using two-step of the Heckman model, while the outcome equation reveals the simple OLS regression estimates. Results exhibit that the square of trade openness has a lower, but significant impact on manufacture value-added growth under the selection equation rather than outcome at 1% significant level. R&D variable has also significant and positive relation to MVG, while is negatively found under the outcome equation but insignificant.

Table 2. Substitutability of Investment

Estimation	Selection Equation	Outcome Equation
VARIABLES	mvagrowth	Mvagrowth
lnTO2	0.0437*	-0.000437
	(0.562)	(0.0505)
Lnrde	0.713**	-0.618
	(1.563)	(1.338)
Lnptransinvestment	0.120***	0.110***
	(0.124)	(0.121)
Lnpictinvestment	0.117***	0.107*
	(0.0721)	(0.0612)
Lnpenergyinvestment	0.321***	0.124
	(0.136)	(0.110)
Lnptransinvestment*lnrde	-0.0070***	-0.00694***
	(0.0631)	(0.0591)
Lnpictinvestment*lnrde	0.00433*	0.0532*
	(0.0313)	(0.0323)
Lnpenergyinvestment*lnrde	-0.0033**	-0.0233***
	(0.0731)	(0.0543)
Constant	-0.938	-0.938
	(2.133)	(3.226)
Observations	865	0.018

Note: Standard errors in parentheses. Significant level at *** 1%, **5% & *10%. Regressions are included two sample selection Heckman model 91979), TO2 = trade openness square, rde = research and development expenditure, ptransinvestment = public transport investment, pict = public ICT, penerg = public investment in energy and ln = logarithm.

Source: Author's calculation

Now we discuss the partial or marginal[2] impact of observed variables on the manufacturing growth. The marginal MVG of transport investment contributes to the economy in manufacture value-added growth is approximately 11.3%, similarly, marginal MVG of ICT investment is found approximately 7.37%, while marginal MVG of energy investment has a higher impact than ICT and transportation investments by 31.77%. All these estimates are undertaken selection equation in the first column. Because simple OLS estimates could not produce expected signs and relationships between the observed variables.

To check the simultaneously or complementary of investment, we used interaction terms of investment (transport, ICT and energy). Transport investment interaction term indicates that adverse simultaneous relation between MVG. It reflects coinciding contribution to the manufacturing value-added growth is not beneficial for the

[1] Usually selection equation estimates the binary dependent variable through the Probit model, but in our case, binary variable (manufacture value-added growth) could not be estimated due to occurring negative values. So, we estimate continues dependent variable in step two in the Heckman model (1979).

[2] To estimate the marginal impact, we used partial derivative of equation, while keeping constant remaining variable.

industries. Similarly, it same process happens in another field such as ICT investment which reveals the coinciding contribution is positive, but at the lowest coefficient value.

Next energy and R&D simultaneous impact are also estimated for checking the coinciding relation between the variables. Consequently, the simultaneous impact of three types of investment and trade is not productive for MVG according to results. All variables must be injected into the MVG process for identifying the separate contribution. Investment in transportation, ICT, and energy is also dependent on R&D. In contrast, marginal MVG of R&D has a larger and significant impact by 70.67%. R&D is also effecting the transport, ICT and energy investment in the economy.

4. Endogeneity

Endogeneity is a problem in econometric analysis during testing the economic theories or finding an empirical relationship between the observed variables. There are some omitted variables or known and unknown variables correlated with dependent and independent variables. To correct these issues, the most suitable strategy is applied by researchers such as instrumental variables under different distribution *e.g.* GMM as well as Heckman model.

In this case, the net export variable (endogenous) effect the MVG and foreign direct investment, consumer prices index as explanatory variables. We employed a GMM technique to estimate the instrumental variables (exports, imports, private and public investment). These instrumental variables and endogenous variables (net export) are estimated. The next export is significantly impacted by MVG, but instrumental variables exports and imports in US$ are found weak through the application of GMM.

Table 3. Endogeneity

Estimation	GMM	Heckman
VARIABLES	Mvagrowth	mvagrowth
lnTO	0.597***	0.429***
	(0.540)	(0.518)
Lnfdi	0.0942***	0.243**
	(0.200)	(0.226)
Lncpi	-0.277***	-0.0395**
	(0.297)	(0.314)
Inv	0.777***	
	(1.014)	
lnNX	0.719**	-0.626
	(0.549)	(0.488)
lnrde		0.173***
		(0.335)
lnTO		0.012***
		(0.234)
PrI		0.012***
		(0.231)
PubI		0.0265***
		(0.433)
Lnpop		0.013**
		(0.234)
Lambda		0.021**
		(0.324)
Constant	6.649	6.978
	(4.863)	(5.398)
Observations	325	325
R-squared	0.007	325

Note: Standard errors in parentheses. Significant level at *** 1%, **5% and *10%. Regressions are included Generalized Method of Moments, two stage sample selection Heckman Model (1979), TO = trade openness, fdi = foreign direct investment, NX = next exports, PrI = Private Investment, PubI = Public Investment, pop = population, cpi = consumer price indexed, rde = research & development expenditure and ln = logarithm; Instrumented variables = exports, imports, private and public investment.

Source: Author's calculation

Similarly, we used another technique; for instance, the two-stage sample selection Heckman model by using the selection equation. Results report that there is a similar impact of observed variables under both estimations.

To further analysis, we added private and public investment in the selection equation[3] refection of control variables in the model. Private and Public investment coefficients are found statistically significant at 1% level in column 2.

The value of lambda is also significant that indicates the Inverse Mills ratio[4] that correlates with dependent and independent variables and corrects the issue of endogeneity. Overall, all coefficients are similar in relation to manufacture value-added growth undertaken both estimations. In addition, the population has also a significant impact on MVG. This variable creates aggregate demand in each sector especially in the industries by using manufacture goods. Therefore, trade openness and the next export have differences impact positive and negative on MVG respectively.

5. Robustness checks

Robustness checks explain the additional effect of observation in the data used in the specific model. Additional effects may occur due to several reasons, for instance, median and mode and measurement scale. Usually, data is gathered by different organizations, they use different measurement scales. In our model, manufacture value-added is measure by organizations by employing different measurement scale such as growth and constant. Data vary in manufacture value added (MVA) according to economic ground realities and dynamics.

Table 4. Robustness checks

Estimation	New Variable	Non-logarithim
VARIABLES	mvaconstant	Mvagrowth
lnTO2	1.105e+12	
	(1.075e+12)	
Lnfdi	2.286e+13***	
	(4.624e+12)	
Lnrde	1.199e+13**	
	(5.780e+12)	
Lnpop	3.288e+13***	
	(5.383e+12)	
Inv	3.569e+13***	0.220
	(1.190e+13)	(0.419)
Cpi	7.494e+11***	-0.00817
	(2.373e+11)	(0.00520)
TO	219.0***	0.012***
	(53.36)	(0.321)
NX	46.32***	0.012***
	(33.10)	(0.324)
TO2		0.11e-01***
		(1.21e-3)
Fdi		1.72e-06***
		(1.88e-07)
rde		0.171**
		(0.0757)
pop		2.89e-09***
		(7.25e-10)
Constant	-6.738e+14***	5.668***
	(1.172e+14)	(0.419)
Observations	857	865
R-squared	0.157	0.160

Note: Standard errors in parentheses. Significant level at *** 1%, **5% & *10. Regressions are included OLS and added new variable such as manufacture value added constant as well as all original values without transformation. TO = trade openness, fdi = foreign direct investment, NX = next exports, Inv = Investment constructed by Factor Analysis, pop = population, cpi = consumer price indexed, rde = research & development expenditure and ln = logarithm.

Source: Author's calculation

[3] The selection equation is estimated by the Heckman model in two-step process; we used the continuous variable as a dependent.

[4] Inverse Mills ratio is estimate by ratio cumulative probability function and probability density function. Heckman model estimates directly through two-step by using Stata software.

Table 4 above, reports that estimate of robustness checks by incorporating manufacture value-added. So, we added a new variable manufacture value-added constant instead of growth and check the relationship between the explanatory variables. All coefficients are statistically significant at the 10% level in column 1. Another side, we added non-logarithm variables to check the relationship between manufacture value-added growth. There is a slight difference between non-logarithm and new variable estimations findings. Concluded, R&D, foreign direct investment and population have a similar relation to manufacture value-added and growth.

Conclusions

After the discussion, we concluded that trade openness, foreign direct investment, R&D expenditure, investments have a larger impact on manufacture value-added growth. The highest contribution of R&D is reported at approx. 67%, while remaining FDI, TO2 and TO have lower magnitudes. So, countries should improve all these factors in order to increase the MVG. After control of the country characteristics effect, R&D is remained significant and has a larger contribution to the MVG. In addition, CPI reduces the MVG through the consumer side mechanism. Because the higher inflation could cut the luxury consumption expenditures, as a result, demand for manufactured goods decline evidence from the negative magnitude of CPI in the first table.

Afterward, we extended our analysis by adding the interaction terms in order to incorporate the marginal impact and simultaneous effect of investment on MVG. Whether individual or composite factors affect the MVG. Findings suggest that coinciding relation of investment (transportation, ICT and energy) with R&D reduce the MVG, it is hard to differentiate the individual effect. In addition, the marginal impact of MVG on ICT investment has large rather than transportation and energy. So, the states of Asia should focus on investment transportation and energy to keep separate the R&D expenditure. We also correct the issues of econometrics that usually occur during analysis by employing endogeneity and robustness strategies. Findings exhibit that all omitted variables such as exports, imports, public and private investors do not correlate with the dependent variable (manufacture value-added growth). Generally, Asian countries should increase the next exports and trade openness at bilateral and multilateral levels as well as control inflation (CPI) in order to increase the manufacturing value-added growth.

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The Triple Helix Model for Thai Small and Medium-Sized Enterprises Export Promotion: Healthy Snacks to Singapore-Malaysia-Indonesia Markets

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Abstract:

Small and Medium-Sized Enterprises (SMEs) need enablers to build export capacity to access international markets. This study aims to explore the application of Triple Helix Model of government-university-business collaboration for Thai snack SMEs exporting to the highly competitive Singapore-Malaysia-Indonesia markets. This study means to improve marketing activities as well as product and packaging development for snack exporters under the opportunities brought by ASEAN Economic Community (AEC). The various market research methods are employed including secondary research, consumers survey, competitors survey, field trials, observations, focus group interview, product testing and business matching. Under the going AEC project initiated by Industrial Promotion Centre Region 1 and three R&D centres of Chiang Mai University, snack recipes, health benefits, packaging, export terms and conditions are improved to better meet the market needs and the business intermediaries.

Keywords: Triple Helix model; SMEs export competitiveness; AEC snack market expansion.

JEL Classification: M31; O30.

Introduction

In the era of global and regional economic integration, firms seize the opportunities to expand their business outside domestic markets and go international. Entry strategies into foreign markets include merely exporting, licensing, franchising, undertaking production and selling in a foreign country, merging with/ acquiring another business, or joint venturing with foreign firms. However, such internationalization processes best suit the large enterprises. How small and medium enterprises (SMEs) with limited resources can successfully internationalize?

1. Literature review

1.1 ASEAN Economic Community

The establishment of the ASEAN Economic Community (AEC) which officially implemented after 2015, naturally, presents both opportunities and challenges for the ten member states especially SMEs. Approximately 10,000 food

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processing companies in Thailand, 90% remains as SMEs. Since Southeast Asia is already one of Thailand's main agro-food export destinations, the AEC means more opportunities to expand Thai food products in the region. Within the agro-food sector, snacks play an important subcategory especially, the nutritious and delicious snacks, at global sales totaled US$374 billion and increase year over year (Thailand Board of Investment 2013). Snack manufacturers need to adjust and align strategies to changing demographic trends, emerging worldwide middle class, evolving taste preferences and new retail channel alternatives (Nielsen 2014). 'Snackification' is a new food culture of mealtimes and a tendency of modern consumers to substitute snacks over the traditional three square meals schedule strengthened by the eating habits of the millennial generation (Nielsen 2014). Consumers now seek convenient breakfast alternatives that can be eaten on-the-go or in the office. More women in Asia Pacific, entering the workforce, turn snacks as an alternative to breakfast at home.

1.2 Snack Business in Singapore, Malaysia, and Indonesia

Around the world, adults consume energy outside of traditional meals such as breakfast, lunch, and dinner. Food preferences for snacks are similar in several areas of the world. Snack foods will designate energy-dense, nutrient-poor foods high in sodium, sugar, and/or fat such as cookies, cakes, sugar-sweetened beverages, and chips. Snacking refers to the act of eating a snack, regardless of whether healthful choices or "snack foods" are consumed. The motivations to snack include hunger, location, social/food culture and environment, cognitive factors, and hedonic eating (Thompson 2013).

Asia represents vast geographic, socioeconomic, biological, and cultural diversity. This is also reflected in the dietary diversity of traditional foods. There have also been increasing reports of unhealthy diet patterns, high saturated fat, high salt intake, high-calorie diet, and low fiber, leading to a different set of health issues across regions. Access to sufficiently nutritious food is a fundamental factor in good health and a major challenge in the face of the global trend of diet simplification (Ranga and Etzkowitz 2013).

New breakfast categories such as cereal bars, snack bars, fortified bread, grain-based drinks and smoothies have also emerged (Wee 2016). Snacks have potential in Singapore, Malaysia and Indonesia markets. Singapore only produces 10% of its own food and imports 90% from other countries. In 2016, Euromonitor International reported that US$416 million snacks are imported mainly from Malaysia, Italy and U.S. The strong local snack manufacturing sector exists, but there is room for more and still attractive for foreign exporters because there is a strong demand for quality products with strong brand recognition (Euromonitor 2016c).

Malaysia purchasing power is growing by the young who continue to change eating habits. Malaysia imported snacks foods at 65,729 tons in 2015 valued US$268 million at 10% growth rate per annum from the western countries also China, Indonesia and Thailand. Local products dominate this snacks market with a widespread national distribution reach. Locally produced branded products compete on price against imports (Euromonitor 2016b).

Indonesia is the fourth most populous nation in the world. Emerging middle class consumers are well educated and have a growing interest in imported goods, particularly processed foods. Local companies have a strong position in baked foods, wheat-based products, snacks, etc. as well as there are several multinational companies. In 2016, Indonesia imported 43 thousand tons of snack food valued US$162.19 million. Although local products are abundant but consumers are willing to try new products from China, Malaysia, Thailand, Singapore and Vietnam which have a large market share due to price competitiveness, taste, and geographic proximity (Euromonitor 2016a).

The rapid nutrition transition in this region may be due, instead, to increasing food availability and food purchasing power, rather than to a shift in food preferences towards modern Western foods (Lipoeto *et al.* 2012).

This study aims to explore how the Triple Helix Model of government-university-business collaboration can enable Thai SMEs healthy snack manufacturers going international to Singapore-Malaysia-Indonesia snack markets.

2. Methodology

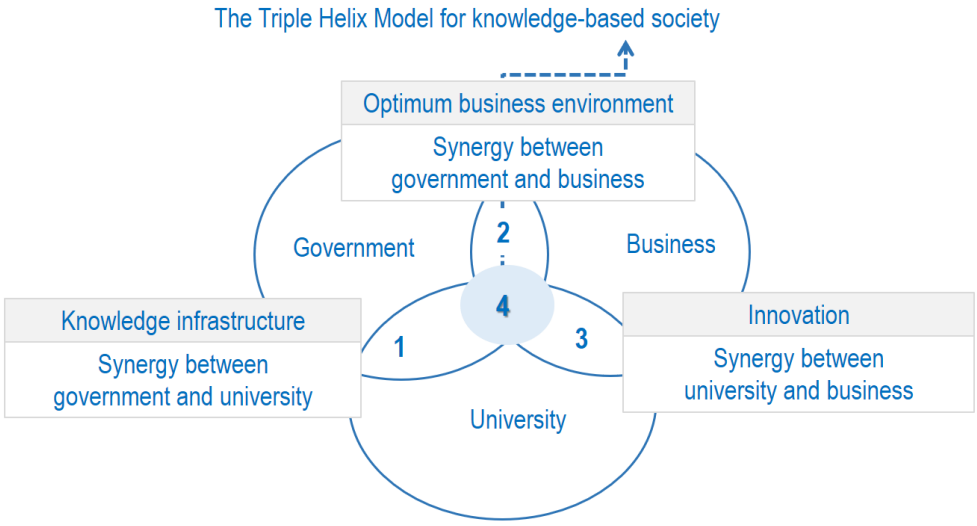
2.1 The Triple Helix model

The Triple Helix Model is applied in this study. The theory emerged in the mid-1990s, a time when universities and industry were exhorted by policy makers to mutually engage in R&D that can be used commercially. The concept of government-university-industry relationships initiated by Etzkowitz (1993) and Etzkowitz and Leydesdorff (1995), encompassing elements of precursor works by Lowe (1982) and Sábato and Mackenzi (1982), interprets the shift from a dominating industry-government dyad in the Industrial Society to a growing triadic relationship between

university (education) – industry (business entrepreneur) - government to generate new knowledge, innovation and economic development in the Knowledge-based Society (Smith and Leydesdorff 2014).

In reference to the Triple Helix of Government-University-Business relations, as shown in Figure 1, Etzkowitz and Leydesdorff (1995) lays the foundation for current thinking on the cooperation between government, university and businesses. As a result of this collaboration shown in Figure 1, the synergy occurs between the three partnerships. First, the synergy (1) between government and university leads to knowledge infrastructure in which everyone can develop knowledge in an optimal way. Government invests a significant portion of its budget in education and university not only creates new knowledge, but knowledge is also transferred to students through seeking and application of innovation. Second, the synergy (2) between government and business leads to optimum business environment. Innovation, and sustainable development can prosper. The government facilitates and seeks to simplify regulation. Tax payments allow the government, in turn, to invest in education, innovation and de-regulation. Third, the synergy (3) between university and business leads research and development to innovation. By using knowledge developed in collaboration with universities or R&D institutes, businesses are able to innovate and drive economic development and growth. Forth, the synergy (4) between government-university-business leads to knowledge-based economy. Here, synergy works at its best for economic and social development.

Figure 1. The synergy of the Triple Helix model



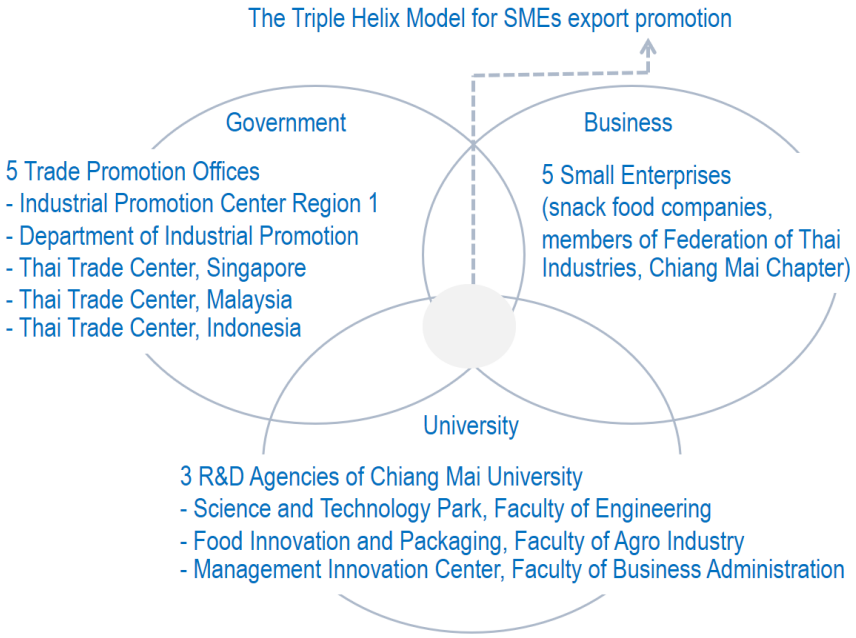
Source: Etzkowitz and Leydesdorff (1995). The Triple Helix: University-Industry-Government Relations: A Laboratory for Knowledge-Based Economic Development.

From a Triple Helix perspective, the articulation and the non-linear interactions between the spaces can generate new combinations of knowledge and resources that can advance innovation theory and practice, especially at the regional level (Ranga and Etzkowitz 2013). Innovation is an important component of the development of high-tech knowledge economy. The Triple Helix of interaction between government-university-industry aiming creation of innovations, is already used to promote the national innovation systems in many countries and can be used in Thailand as well.

2.2 Scope of the study

The scope of this study is limited to improve marketing activities as well as product and packaging development for snack exporters under the opportunities brought by AEC. The project is carried out by the government-university-business collaboration as players listed in Figure 2. The five selected snacks are organic rice crackers; sticky rice and dried fruits granola; banana chips; frozen banana coated with premium chocolate and dried longan. Based on information collected from primary and secondary market research methods, the five original selected snacks are both improved and newly created responding to the consumers' eating habits and buying behaviors. Also, the manufacturers joined the going AEC project can set out export terms and conditions responding to the preferences of the contacted importers/distributors/buyers in the three snack markets.

Figure 2. Triple Helix model and the players for SMEs' snack export promotion in this study

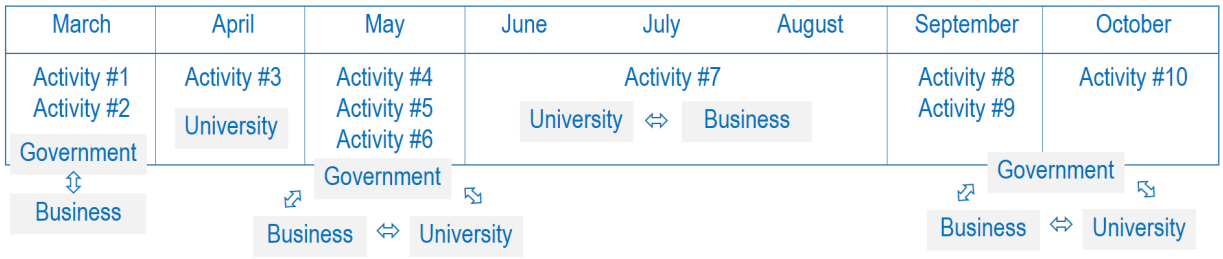


Source: Authors

2.3 Timeframe and activities

This study takes 8 months from March to October 2016 to conduct 10 key activities as shown in Figure 3.

Figure 3. Scope of activities, timeframe and responsible bodies



Source: Authors

The 10 key activities include #1 promoting the going AEC project, #2 recruiting and selecting five local producers with potential snack for export, #3 collecting secondary data, #4 exhibiting new and improved products in ThaiFex 2016, Asia's largest food and beverages trade show, #5 conducting the first round market surveys and exhibitions, #6 meeting and presenting 'original' to the prospect buyers in Singapore, Malaysia, Indonesia markets at Thai Trade Centres, #7 improving original products and/or developing new health snacks, packaging and setting competitive trade terms and conditions, #8 conducting the second round market surveys, #9 meeting and testing 'new improved' products and business matching with food snack importers-distributors-buyers in Singapore, Malaysia, Indonesia markets at Thai Trade Centres and #10 following up of potential deals and purchase orders and evaluating the project success on the criteria of productivity performance, export performance, sales and overall satisfaction.

The project consists of 10 activities as shown in Figure 3, various methods were employed as follows:

- products and SMEs selection methods: presentation and interviews. Selection criteria are product competitiveness, possibility for product and packaging development, export potential, export experiences and readiness, financial readiness, certified standards *i.e.* Halal, GMP, HACCP, ISO9001 also entrepreneur's vision, attitude and determination;
- market research methods: in addition to secondary data collection, primary data was collected from consumers' survey, competitors survey, product testing, focus group interview of local distributors and observations at local retailers;

- product and packaging development methods: food science and technology laboratory test for sensory characteristics, shelf life extension and nutritional analysis for nutrition labels;
- export promotion methods: business matching and trade fair exhibition at ThaiFex 2016 Bangkok, Thailand.

3. Results

The information and insights analyzed from secondary and primary researches in the first round market survey using original products reveal the snack eating habits and buying behaviors of the sampled consumers as are summarized in Table 1.

Attitude of Singapore, Malaysia, Indonesia consumers towards food snacks produced from Thailand are positive because of their perception in tasty Thai cuisine and quality of Thai products. Consumers are increasingly relying on product image when making their purchasing decisions. This does not necessarily mean that consumers will purchase well-known brands, but rather that they will purchase snacks that 'look good'. Packaging and advertising thus play an important role in affecting consumers' purchasing decisions.

Table 1. Consumers' insights from the first round surveys of Singapore-Malaysia-Indonesia snack markets

Snacks Market in Singapore - Healthier Choice Symbol enhances fortification more specific health claims			
Translation of Consumers' Insights into Marketing Mix			
P: Product	P: Price	P: Place	P: Promotion
▪ healthy & tasty; ▪ low fat, low salt, low cholesterol, low sugar and more aware of organic benefits.	▪ ≤ 3SG$ is ideal snack price or use value-based pricing strategy	▪ premium supermarket; ▪ convenience store; ▪ online/ mobile shopping.	▪ education-based marketing; ▪ promotional activities emphasizing health benefits.
Snacks Market in Malaysia and Indonesia Promising but highly competitive markets filled with local-made and imported snacks, all age groups snack all day every day and during social gatherings			
P: Product	P: Price	P: Place	P: Promotion
▪ healthy & tasty; ▪ less aware of health and give less importance on organic value than consumers in Singapore market.	▪ price-sensitive; ▪ better use competitive; ▪ pricing strategy, suggested retail price should be ≤ 2.5 times of FOB.	▪ hypermarket; ▪ supermarket; ▪ convenience store; ▪ traditional grocery store.	▪ product testing; ▪ discounts; ▪ giveaway; ▪ bundle deal; ▪ in-store promotions; ▪ aggressive advertisings.

Source: Authors

The insights from market surveys of consumers and competitors are the important input for product and packaging development to better meet the demand of snackers and to be attractive enough for snack players. Secondary data were confirmed by the first round observation of local customers' snack buying behavior. From observations, companies in the modern snack trade are expected to increase their use of advertising and promotional activities, while SMEs with limited resources are more likely to promote their products by giving out free samples and discounting prices. Yet value-for-money will remain important to consumers, but they will also be looking for greater variety in snacks. There is also likely to be greater concern with the nutrition aspects of snacks products.

Results gained from the first round market survey lead to the product and packaging development. At home market, Thai SMEs snack producers have their unique selling propositions, more or less, which keep them competitive and efficient with the values of health, nutrition, organic ingredients, storytelling, culture, eco-friendly production and packaging, food technology and innovation. However, snacks are consumed by mixed of purposeful snackers and spontaneous snackers, they are varied by age group, ethnicity, gender, healthy conscious, environmentally conscious, urban or elderly.

So there will never be one best snack solution for all. Yet 'healthy indulgence' seems a best practice approach to snack consumption without compromising taste, price, convenience and guilt.

Table 2 shows a comparison of original products and new/ improved products of the five selected Thai SMEs in the going AEC project after the two rounds market surveys, product testing, business matchings' and trade fair exhibiting.

Table 2. New/improved products created for ASEAN peer markets

Original products already available in the local domestic market	Products and packaging developed after the first round market survey	New/improved products created for ASEAN peer markets
▪ *Organic rice crackers* from famous Thai jasmine rice natural taste and gluten free	▪ *Differentiate* the five original snacks with new/improved recipes focus on a product of nature than a product of industry; ▪ *Add pleasure snacking benefits* with a better appearance in color, smell, taste, texture and shape; ▪ *Add healthy snacking benefits* with less salt, less sugar, more nutritional value, food safety, no MSG, no artificial, no trans-fat, no preservatives and longer shelf life; ▪ *Improve packaging* for product durability, eye catching, eco-friendly, consumers' convenience with individual pack, single-serving, daily intake and perfect portion packs.	▪ *Organic rice crackers* plus purple sweet potato, all natural, heart healthy and gluten-free light bites
▪ *Sticky rice and dried fruits granola*, high fiber made of 100% real rice		▪ *Riceberry granola 'breakfast cup'* with 3 flavors choices: caramel, mixed berries and chocolate from 100% real rice, non GMO
▪ *Banana deep-fried chips* and coated with sugary glaze and butter		▪ *Banana baked cookies* coated with mulberry sauce distinct delicious sweet and sour fresh flavors
▪ *Frozen banana coated with premium chocolate* serving in ice cream cup		▪ *Chocolate-coated frozen fruits* banana, strawberry, mango coated in vibrantly colored aromatic chocolate
▪ *Dried longan meat* with traditional medicinal snack for health benefits		▪ *Golden dried longan* meat in brighter golden longan color served in daily intake packet for all day snack emphasis on natural sleeping aid benefit

Source: Authors

Mainly, Food Innovation and Packaging Centre of Chiang Mai University adjusts and creates new recipes to differentiate the existing products already available in the Thai market for the more sensory savvy snacks to go ASEAN peer markets. The new/improved snacks are perceived more as a product of nature than a product of industry with better appearance in color, smell, taste, shape, less salt, less sugar, less fat, less cholesterol, more nutritional value plus food safety by adding no MSG, no artificial, no preservative. Definitely, longer shelf life is improved. Packaging is developed as well to become more attractive, eco-friendly, convenient, individual pack and perfect portion for a single serving and daily intake.

The second round market survey is conducted for the new/adapted healthy snack products. When going international, the previously mentioned values are able to fully respond to the demand or preference of such a broad base snacking consumers.

Table 3. Buyers' insights from two rounds surveys of Singapore-Malaysia-Indonesia snack markets

Snack Players' Preferred Conditions and Incoterms	Snack Markets		
	Singapore	Malaysia	Indonesia
Min/max order quantity	On a negotiated basis		
Product shelf life	At least 2 months, longer is preferred		
Incoterms	FOB is preferred		
Margin	Typically 15-20% markup over cost		
Payment	On a negotiated basis		
Marketing expenses	Require co-responsibility and lots plus free promotional samples		
Specific regulations and procedures	Responsibility and services of the local importers		
Delivery mode	On a negotiated basis		
Product Insurance	Preferred		

Source: Authors

While negotiating export/import terms and conditions are the other important job in order to satisfy or surpass expectation of the snack players including importers, distributors, buyers and others. Therefore, setting out export terms and conditions must be competitive and preferred by the contacted importers/distributors/buyers in Singapore, Malaysia and Indonesia snack markets. Table 3 shows detailed insights.

Exporting snack to Singapore-Malaysia-Indonesia markets, Thai SMEs snacks producers must have reliable freight forwarding and customs clearing companies represent them in the goods clearing process and customs regulations. Product registration procedures are usually carried out by the importer, distributor, or an agent on behalf of the Thai exporting company and must be completed prior to import. Products approvals are issued by the National Agency for Drug and Food Control of the Department of Health with a registration number that must be printed on each individual product label.

The export process to an overseas market can often be smoother when SMEs choose the correct local partners, they are importer/distributor or buyer or sales representatives who play one of the most critical success factors for overcoming regulatory barriers and facilitating snack promotion in the foreign countries.

Conclusion and Recommendations

Conclusion

This study aims to explore how the Triple Helix Model of government-university-business collaboration can enable Thai SMEs going international. By working together, the government both local, national and overseas agencies as well as the university R&D agencies can better facilitate Thai SMEs on their route to the three ASEAN peer snack markets. The government party initiates the going AEC project targeting Singapore, Malaysia and Indonesia. Thai Trade Centres in the three countries are asked to join for providing overview of markets situation and regulations also arranging business matching with the importers, distributors, buyers who are interested in and seeking for Thai snack products. The university party provides marketing, food science and technology expertise to enhance local SMEs' capacity to going international.

Lastly, business party participates in efforts to improve their performance. Through eight month activities, two recipes of chocolate-coated frozen fruits and golden dried longan are improved while three recipes of organic rice crackers, riceberry granola and banana baked cookies are newly created for health benefits and taste preferences that better meet the market needs also add value in a creative way. Longer shelf life is developed for organic rice crackers, riceberry granola and banana baked cookies. Eco-friendly and convenience packaging are designed for the five new/improved healthy snack products in the going AEC project to meet buyers' requirements and to attract consumer attention. Six meetings and three business matching establish a small network between the five pilot Thai SMEs and the players in Singapore, Malaysia and Indonesia snack markets. After the second round business matching, initial purchase orders of the five snacks from the three countries are made. At the end, all the agencies taking part in the going AEC project are very satisfied.

As the AEC opens a two-way road, more regional food snack products will enter Thailand and compete in the domestic market leads to more competition for Thai snack manufacturers, especially those unable to compete to other ASEAN rivals. Results of this study show that under the Triple Helix approach, government and university ease the route for small snack enterprises entering Singapore, Malaysia and Indonesia markets. Since The Triple Helix Model leads to knowledge infrastructure, the study shows the interplay of government (regional, national and overseas agencies), university (R&D agencies) and business (local association and SMEs) create a win-win-win situation each party can benefit in an optimal way. For government agencies, knowledge gained from this synergy improves SMEs support and future export promotion. For university, knowledge prospers innovation and is transferred to students. For business, knowledge allows local SMEs to go international faster and overstep the export boundaries.

Recommendations

As AEC established, the opportunities are clear also the challenges are there. Thai SMEs with attractive products and efficient operations will therefore need considerable support if they are to take full advantage of the AEC. Policy makers, government agencies, trade bodies, enterprises and academics all have roles to play. This study recommends the role and initiatives of the three parties under the Triple Helix Model for SMEs' export promotion and internationalization as follows:

The Government (regional/national agencies) should:

- initiate SMEs promotion programmes that work to help SMEs in marketing capability, management development, technology, innovation and access to international markets;
- provide funding to support business-academic relationships and networks at regional-national-international levels that build the knowledge infrastructure for effective service to SMEs development.

The Government (overseas agencies) should:

- organize promotional events to build more and maintain existing business relationships and networks of food/snack distributors in AEC region that helps assessing to local knowledge, business practices, capacities and opportunities;
- put full effort in reducing non-tariff barriers and streamlining of certain administrative procedures such as quality standards, rules of origin, or some forms of domestic protection. These are still sensitive issues and currently create obstacles to distribution and limiting trade.

The University should:

- assist SMEs broaden their market intelligence across Southeast Asia then identify opportunities and threats in the new markets for market entry or defense strategy;
- create an open educational resources or open database which are freely available/accessible to the public for learning and research purposes.

The Business should:

- invest sufficient time and resources into foreign relationship development and industry insights to create the necessary trust and networks for market entry strategies and remain competitive;
- recruit employees with foreign languages proficiency who are familiar with both the business and the target markets that company seeks to venture into. They are flexible to work in different environments and take up business development challenges.

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Dynamic Influences, Government Debt, Subsidies on Fiscal Deficits in Indonesia

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Abstract:

This study aims to identify effects of government debt, subsidies and macroeconomic variables on fiscal deficits. Macroeconomic variables as inflation, exchange rates, and Bank Indonesia rates. Fiscal deficit is measured using the ratio of fiscal deficit to GDP. This study uses time series data: 1975-2017. The ARDL model is used to identify short-term effects, while long-term effects are carried out using the Cointegration Long Run Bounds Test. From the ARDL test results, government debt, subsidy expenditure and macroeconomic variables have a significant effect on the fiscal deficit. Government debt now has a negative and significant effect on fiscal deficits. Subsidies have a negative and significant effect on fiscal deficits. Inflation and Bank Indonesia rates have a positive and significant effect on the fiscal deficit, while the exchange rate has a negative and significant effect on the fiscal deficit. The results of the Long Run Bounds Cointegration Test show that government debt has a negative and insignificant effect on the deficit. Subsidy spending has a positive and insignificant effect on the fiscal deficit. Inflation and the exchange rate have a positive and insignificant effect on fiscal deficits. Meanwhile, Bank Indonesia rates have a positive and significant effect on the fiscal deficit.

Keywords: government debt; subsidies; macroeconomic variables and fiscal deficits.

JEL Classification: H3; H6; H68; H68.

Introduction

Fiscal deficit shows the low fiscal capacity to finance all expenditures including debt payments (Hazmi *at al.* 2019). Since 2012, Indonesia has experienced widening of the fiscal deficit, and the highest occurred in 2015. Data from the Indonesian Ministry of Finance said that the payment of debt interest in 2014 only reached 7.5% of

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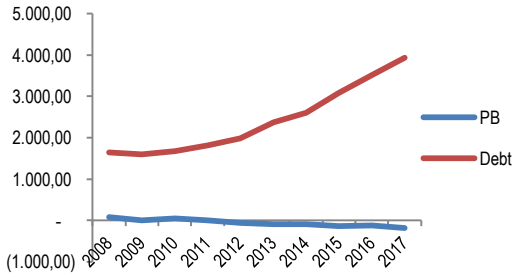
total state expenditure, and in 2018 it increased to 11.7%. As a result of the burden of increasing interest payments, which has an effect on other expenditure allocations, the increase in government debt can actually be reduced if the ability to collect taxes can be increased. However, what is happening right now is that the tax revenue ratio actually tends to slow down. Furthermore, so far the fiscal deficit must be covered by debt. If most of the APBN expenditure comes from debt, this means that energy subsidies actually come from debt. An increase in subsidies will have an effect on increasing the fiscal deficit, so that debt and interest rates go up. Reducing subsidy spending is an effort to meet the needs of infrastructure development and human resources, especially for education and health. Energy subsidies for fuel oil have caused pressure on the exchange rate of the rupiah against foreign currencies. The weakening of the rupiah has a negative impact on the state budget, as a result of increased spending, including payment of debt interest and subsidies.

1. Literature Review

1.1. Fiscal deficit

Fiscal deficit shows the fiscal conditions that can meet spending (Adam 2011). Fiscal deficits indicate that the fiscal conditions can finance all spending for an unlimited period (Langenus 2006). Consequently, the fiscal deficit must be able to take into account fiscal vulnerability. Vulnerabilities that arise from direct liabilities that can be predicted in advance and contingent liabilities due to an event out of control (Brixi and Schick 2002). Fiscal deficit is closely related to fiscal capacity, which is shown from the primary balance. The primary balance since 2008 until now shows a negative number. This indicates a fiscal inability to finance all expenses originating from own income, and does not include payment of debt installments and interest. Figure 1 shows the movement of primary balance and government debt that is widening.

Figure 1. Trends in primary balance and debt orders 2008-2017



Source: Bank Indonesia

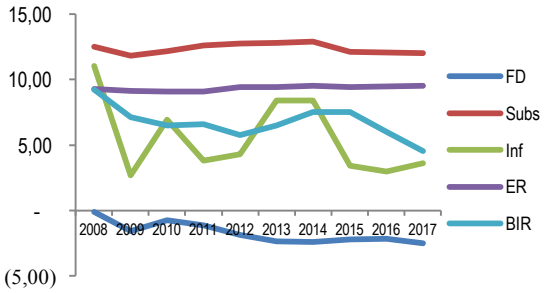
An increase in debt in a negative primary balance condition will potentially form debt accumulation. The accumulation results from the withdrawal of new debt in order to meet debt obligations that are past due. This condition has adversely affected efforts to increase economic growth and income distribution. As a result, part of the expenditure is intended to repay debt and interest installments. The increase in debt in the past few years is as a result of increased spending and debt repayment payments.

Several studies mention that excessive debt is the focus of fiscal policy in a number of countries, especially as a result of the failure to make debt payments. In conditions of high debt, if there is even a slight increase in debt, it will greatly damage the ability to pay debts. Debt growth is closely related to increased government spending, including subsidy spending. On average, each year subsidy spending reaches around 3.1% of GDP. Realization of subsidy expenditure often exceeds budget limits, thus giving effect to increased spending. A number of studies say that the subsidy policy which is not on target has resulted in the majority of subsidy (energy) spending enjoyed by high-income people. Amid the fiscal deficit and the growth of government debt, efforts to limit subsidy spending are needed. The limitation of subsidy expenditure is intended to reduce fiscal deficit and debt growth rate as well as to realize fiscal deficits (Wanke 2012, Dartanto 2013). Figure 2 shows the trend of Fiscal deficits, Government Debt, Subsidy and Macroeconomic 2008-2017.

Figure 2 shows the trend of fiscal deficits, subsidy spending and macroeconomic variables. The increase in deficit is in line with the increase in government spending as an effort to increase economic growth, especially infrastructure, education and health (Kementerian Keuangan Indonesia, 2018) including subsidy expenditure. Fluctuations in subsidy spending have been relatively stable from 2008 to 2017 in the range of 12%. Changes (downward trend) occurred in 2017 and were in the range of 5.38%. The (up/down) trend of the fiscal deficit is in line with the trend of subsidy spending. Although in 2017 there was a decrease in subsidy spending, but it did not

have an effect on reducing the fiscal deficit. This is a result of expenditure policies by the government that tends to increase spending, especially infrastructure spending.

Figure 2. Trends in fiscal deficit, government debt, subsidies and macroeconomics



Source: Bank Indonesia

1.2. Interaction of government debt to deficit

The growth of government debt today is not due to the amount or ratio of debt to GDP, but rather the ability to repay. At this time, many funds are needed for infrastructure development. However, until now the government has not been able to increase tax revenue. From year to year, Indonesia's tax ratio continues to fall. The tax ratio that continues to fall is actually an indicator that the government must be more careful to owe more. The increase in government debt is in line with the increase in expenditure, especially for infrastructure and debt repayment payments that are due. Expansive fiscal policy turns out to have a negative effect on increasing deficits and debt, which is caused by spending exceeding state revenues. Efforts to overcome the deficit can be done through fiscal adjustments (revenue and expenditure) or through debt withdrawals. If the withdrawal of debt is interpreted as an effort to reduce the deficit, then this effort will result in an increase in fiscal risk. Fiscal risks that occur are as a result of fiscal failure in making repayments of debts that are past due, whereas fiscal adjustment will adversely affect the efforts of economic growth, as a result of a decrease in output and aggregate demand. These two actions are closely related to efforts to maintain the fiscal deficit in the midst of a state budget deficit. The fiscal deficit is closely related to the regulation of public debt. Fiscal deficits are needed so that economic growth can occur in the short and long term (Aldama and Creel 2019). An increase in government debt at an alarming rate as a result of the 2008 global financial crisis resulted in a significant fiscal deterioration. There is great concern in overcoming the problem of fiscal deficit. The debt to GDP ratio serves as a measure of fiscal strength. Fiscal risks arising from excessive debt have become the focus of policy interests throughout the world, including in Indonesia. There is a certain debt threshold that should serve as a signal regarding the level of sustainability risk. Thus, there is a need for fiscal consolidation and stronger debt stabilization.

The ratio of government debt to GDP becomes an important variable in fiscal sustainability. A sharp increase in debt and a long process of fiscal consolidation do not always lead to a reduction in the ratio of debt to GDP. This shows that the primary balance can stop adjusting after the debt has reached a certain threshold. The study stated differently by using primary balance together with the ratio of debt to GDP and IRGD to find a country's public debt rate. In general, there is an influence between the primary balance and the debt to GDP ratio. Law Number 17 of 2003 concerning State Finance, states that the budget deficit is limited to a maximum of 3% and a maximum debt of 60% of GDP (Pemerintah Indonesia 2003).

1.3. Interaction of subsidies on deficits

Subsidies are an effort to improve the ability of consumers to consume public goods/services. (Moor 2001) states that subsidies are policies to relieve certain consumers in order to obtain products below market prices, or in the form of policies to help producers to earn income above the prices paid by consumers, by providing assistance directly or indirectly. Market failures that often occur in developing countries such as market distortions, where buyers do not get complete information, the number of companies is limited, the weak protection of copyright for an item in the economy. To overcome this condition, a subsidy policy is needed to reduce market inefficiencies. Research (Dartanto 2013) states urgent action is required to stop energy subsidies in Indonesia. Subsidies have led to increased deficits and worsening distribution of people's income, where energy subsidies are enjoyed by good income groups by consuming an average of 63.8% of the total subsidies between 1998 and 2013. Amid increasing deficits and worsening fiscal performance, efforts are needed to streamline subsidy spending. This

step is an effort to reduce the increase in debt and to create fiscal space in accelerating infrastructure and physical spending in the regions.

1.4. Interaction of macroeconomic variables on deficits

Fiscal Theory of the Price Level (FTPL) explains that inflation is caused by government debt, current and future taxes, government spending and has no direct effect on monetary policy. The effect of government debt is the fiscal pathway affecting inflation. However, FTPL theory has been criticized, which states that fiscal policy plays an important role in determining prices through budget constraints related to debt, spending and taxation policies. The relationship between fiscal policy and monetary policy is explained through the price level mechanism. According to classical inflation theory, the price level is determined by the money supply, which is explained through the influence between the value of money and the amount of money, as well as the real money and prices. Inflation in one country is higher compared to other countries; this shows the price of goods in that country rises faster than other countries. This affects the decline in exports and increased imports. This is because the prices of the country's goods are more expensive compared to other countries (Depari 2009).

Exchange rate is the price level agreed between countries in international trade transactions (Mankiw and Quah, 2014). The exchange rate is influenced by the relative inflation rate, the level of relative income, the relative interest rates of expectations, the money supply (M2) and the balance of payments of the domestic currency against foreign currencies. Pareshkumar and Narendra (2014) state factors that influence the price level are inflation, capital account balances, the role of speculators, industry costs, state debt, gross domestic product, political stability and economic performance, relative strengths of other currencies, macroeconomics and geopolitical events. Monetary policy can influence fiscal policy through four monetary policy transmission channels, namely: the exchange rate channel, the interest rate channel, the set price channel and the bank credit line.

According Keynes, the interest rate is a monetary phenomenon. Interest rates are determined by the supply and demand of money (money markets). Money affects the economic level (GDP), as long as money affects the interest rate. Changes in interest rates further affect the desire to invest. The supply of money (money supply) has a positive effect on output and economic growth. This condition has an impact on increasing investment, which in turn will create an increase in output and economic growth. Interest rates are expressed from the burden of money borrowed. The interest rate is essentially price. The stability of interest rates is intended to maintain domestic investment, exchange rate stability and economic growth. Interest rates become an instrument in controlling the money supply. Thus, the government can regulate the circulation of money in an economy. Raising interest rates is a tool of the central bank in raising inflation rates, through limiting money supply in society. High interest rates make borrowing costs more expensive and economic activity declines. High interest rates cause cost of money to be expensive and weaken competitiveness so as not to be passionate about investment; production will fall and economic growth becomes stagnant. Research (Mackiewicz-ziyziak and Łyziak 2019) states that real interest rates in the long run will affect the increase in debt. Research conducted on 27 European Union countries has contributed to the assessment of the sustainability of fiscal policy over time, especially during the global financial crisis and the debt crisis in the euro area.

2. Methodology

2.1. Model and data analysis

This study uses secondary data in the form of time series data, from 1975 to 2017. The data were obtained from official institutions, sourced from: Bank Indonesia, Central Statistics Agency (BPS), Ministry of Finance, National Fiscal Agency, and scientific articles. Research (Zaretta and Yovita 2019) uses the Autoregressive Distributed Lag (ARDL) model. This model has two advantages: it can obtain the results of long-term estimates and short-term estimates simultaneously, and avoid the occurrence of autocorrelation problems. The ARDL model can also distinguish between independent variables and dependent variables. According to (Shin, Yu, and Greenwood-Nimmo 2014), ARDL can detect non-linearity and focus on the long-term influence and short-term asymmetry between economic variables. There are several other tests that need to be done to support the results of the ARDL model such as the Cointegration Long Run Bounds Test. This test is intended to determine the long-term effects of government debt, subsidies, and macroeconomic variables on fiscal deficits. Meanwhile, to determine the effect of the short term is done by estimating ARDL.

Time series data has a non-stationary tendency. Non-stationary data will produce a pseudo regression model, that is, the statistical processing results show high R Square and significant t-statistics; however, the results have no scientific meaning. Stationary data tests are performed with a unit root test for each variable. Data

that are not stationary do not meet the requirements, or, in other words, the data has an average and the variance changes over time. Testing the unit roots used is conducted by means of the ADF (Augmented Dicky Fuller). The concept of the ADF test is that if a time series data is not stationary in the zero order, I (0), then the stationarity of the data can be searched through the next order so that the stationarity level in the n-order (first difference) or I (1) or the second difference or I (2) is obtained, and so on. This test has the following equation:

$$Yt = \beta 0 + \beta 1 x 11t + \beta 2 x 12t + \ldots + \beta P x 1Pt \quad (1)$$

$$\Delta Yt = \beta 0 + \beta 1 x 11t - x 11\ t\text{-}1 + \beta 2 x 12t - x 12t\text{-}2 + \ldots + \beta P x 1Pt - x 1Pt\text{-}1 \quad (2)$$

Determination of the optimum lag in the model is done to know the lag combination in the ARDL model (p, q). Optimal lag is chosen based on the Akaike Information Criterion (AIC) base value, Schwarz Bayesian Criterion (SC), and Hanna Quinn Criterion (HQ). According to (Pesaran *at al.* 2001), ARDL-AIC and ARDL-SC showed better ability in the majority of experiments conducted. This shows that the Schwarz Bayesian Criterion (SC) is a consistent model selection criterion when the Akaike Information Criterion (AIC) is inconsistent. Determination of the optimum lag is done by selecting the smallest criterion value. Furthermore, cointegration tests between variables are performed. Cointegration is formed when a combination of variables that are not stationary produces a stationary variable. Cointegration Test has the following equation:

$$y_t = \beta_0 + \beta_1 x_1 + \varepsilon_t \quad (3)$$

Then the variant of the equation becomes:

$$\varepsilon t = yt - \beta 0 - \beta 1 x 1 \quad (4)$$

Note that εt is a linear combination of x_1 and x_{12}. The cointegration concept introduced (Engle and Granger 1987) requires that εt must be stationary at I(0) in order to produce equilibrium in the long run.

2.2 Autoregressive Distributed Lag (ARDL) estimation model

The ARDL estimation model is one of the econometrics models introduced (Pesaran *at al.* 2001). ARDL is a combination of Autoregressive and Distributed Lag models. Lag has the meaning of a past value that will be used to see the value of the future. The Autoregressive Model (AR) is a model that uses one or more past data from the variable y. Whereas Distributed Lag (DL) is a regression model that involves data on the present and past times of the variable x. The Augmented Autoregressive Distributed Lag (ARDL) model is:

$$yt = \alpha 0 + \alpha 1 t + \sum_{i=1}^{p} \emptyset i\ yt{-}1 + \beta' xt + \sum_{i=0}^{q-1} \beta j\ '\Delta xt{-}j + ut \quad (5)$$

$$\Delta xt = P1\Delta xt{-}1 + P2\Delta xt{-}2 + \cdots + Ps\Delta xt{-}S + \varepsilon t \quad (6)$$

where: x_t is a k dimension variable on integration one 1 (1) which is not cointegrated between them; ε_t is an error with zero mean, constant variance and covariance and is not serially correlated; P_t is a matrix coefficient k x k autoregressive vector process at stable x_t.

According (Gujarati 2012) the ARDL model does not matter the number of samples or little observation. This model can explain the effect of balance in the short and long term. The ARDL model approach requires a lag (time difference). Lag shows the time needed to respond (Y), due to an influence (action or decision). The selection of lag is done using the basis of Schawrtz-Bayesian Criteria (SBC), Akaike Information Criteria (AIC) or by using other criteria information. The ARDl model requires Error Correction Term (ECT) to have a negative and significant value. The ARDL model requires the stability of parameters in the long run, which is carried out by the The Cumulative Sum of Recursive Residual (CUSUM) test. The CUSUM test results will be in the form of a line plot with a real rate of 5 percent. If the cumulative sum is outside the line, the estimated parameters are not stable. Research using the ARDL model requires all variables to be free from violations of classical assumptions.

2.3. Research formulation

The equation of the research formulation using the ARDL model is as follows:

$$FD_t = \alpha_0 + \alpha_1 FD_{t-1} + \ldots + \alpha_p FD_{t-p} + \beta_1 LogDebt_t + \beta_2 LogDebt_{t-1} + \ldots + \beta_q LogDebt_{t-q} + \kappa_1 LogSubs_t + \kappa_2 LogSubs_{t-1} + \ldots + \kappa_q LogSubs_{t-q} + \gamma_1 Inf_t + \gamma_2 Inf_{t-1} + \ldots + \gamma_r Inf_{t-r} + \rho_1 LogER_t + \rho_2 LogER_{t-1} + \ldots + \rho_s LogER_{t-s} + \mu_1 BIR_t + \mu_2 BIR_{t-1} + \ldots + \mu_t BIR_{t-t} + \varepsilon_t \quad (7)$$

where: FD_t: Fiscal Deficit (%) at time *t*; FD_{t-1}: Fiscal Deficit (%) at time *t -1*; LogDebt: Government Debt Logs at time *t-1*; $LogSubs_{t-1}$: Subsidy Log (Rupiah) at time *t-1*; $Infl_{t-1}$: Inflation (%) at time *t-1*; $LogER_{t-1}$: Exchange Rate Log (Rupiah) at time *t-1*; BIR_{t-1}: Bank Indonesia Rate (%) at time *t-1*; ε_t: Error term.

3. Research results

3.1. Data stationarity test, model stability test and long run bounds cointegration test

Data stationarity

The results of the unit root test using the Augmented Dickey-Fuller (ADF-test) obtained the variable Fiscal deficit (FD), Inflation and stationary Bank Indonesia Rates (BIR) at I(0), while the variable Government Debt (Debt), Subsidies (Subs) and stationary Exchange Rates (ER) at I(1). From the results of this test, the ARDL model is the right model to obtain the research objectives, proving the absence of short-term and long-term effects between variables. Table 1 shows the results of a model stability test with a confidence level of α equal to 5%.

Table 1. Unit Root Test Results-ADF-test

Variable	t-Statistic	Mackinnon Critical	Information
	ADF	Value (5%)	
FD	-4.577397	-4.443649	stationary at I(0)
LDebt	-5.868243	-4.443649	stationary at I(1)
LSubs	-7.324559	-4.443649	stationary at I(1)
Inf	-1.206308	-4.443649	stationary at I(0)
LER	-1.327408	-4.443649	stationary at I(1)
BIR	-4.563001	-4.443649	stationary at I(0)

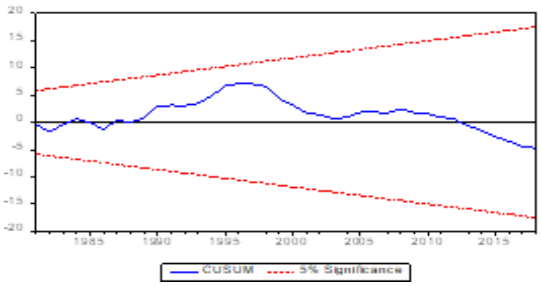
Source: Data processed, 2019

Model stability

To provide maximum results, time series data requires model stability testing. This is intended to ascertain whether the model used is stable or not. Model stability testing was performed using the Cusum and CusumQ tests. The results of the model stability testing are shown in Figure 3 and Figure 4 below.

The model stability test was carried out using the CUSUM and CUSUMQ tests with the confidence level of 95%. The CUSUM test result for the ARDL model is shown in Figure 3 below. From this test, it proved that the model used was stable, as indicated by the position of the blue CUSUM line which was between the two 5% significance lines in red. For the ARDL model, the CUSUM line is between the significance lines, which proves that the ARDL model is stable.

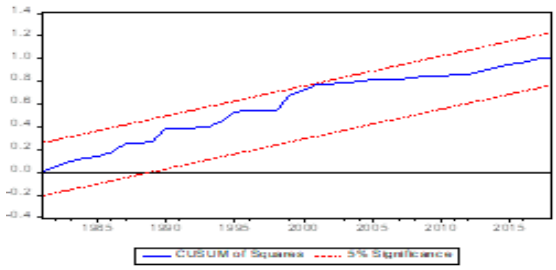
Figure 3. Model stability test results with Cusum



Source: Data processed, 2019

The following is the result of the model stability test by using CUSUMQ, as in Figure 4 below. From this test, it was also found that the model used was stable as indicated by the position of the blue CUSUMQ line which was between the two 5% significance lines in red. For the ARDL model, the CUSUMQ line is between the significance lines, which proves that the ARDL model is stable.

Figure 4. Model Stability Test results with CusumQ



Source: Data processed, 2019

Cointegration Long Run Bounds

From the result of the long run bounds test, the F-statistic value will be compared with the critical value at 5% level. If the F-statistic value is greater than the upper bounds value, then the null hypothesis is rejected. This means that the dependent and independent variables together move in the long run.

Table 2. Test Result of Cointegration Long Run Bounds

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	7,027245	10%	2.08	3
K	5	5%	2,39	3,38
		2,5%	2,7	3,73
		1%	3,06	4,15

Source: Data processed, 2019

From the results of the long run bounds test, it shows that the F statistic value is equal to 7.027245 which is greater than the critical value at the significance level of 5%, which is 3.38. The result of this test indicates that government debt, subsidies and macroeconomic variables have a long-term effect on fiscal deficit.

3.2. Autoregressive Distributed Lag Estimation

From the ARDL estimation result as shown in Table 3, government debt and subsidies have a short-term effect on fiscal deficits, through the macro variable path. The ARDL estimation result is shown in Table 3.

Table 3. Test results of ARDL-Short Term

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.40558	8.17549	-0.78351	0.4448
LDebt	-1.88484	0.71289	-2.64395	0.0177
LSubs (-2)	-1.17885	0.2346	-5.02492	0.0001
LSubs (-3)	-0.34926	0.14729	-2.37129	0.0306
Inf (-2)	0.073127	0.02088	3.501897	0.0030
LER	-3.61984	1.29916	-2.78629	0.0132
LER (-1)	-3.23098	1.33873	-2.41347	0.0282
LER (-3)	-2.54683	0.86340	-2.94977	0.0094
BIR	0.186766	0.04994	3.739721	0.0018
BIR (-1)	0.11950	0.03622	3.298903	0.0045

Source: Data processed, 2019

The ARDL test results indicate that each increase in current government debt of 1% will affect the reduction in the deficit of 1.88484. Subsidies at lag -3 and lag -2, if subsidies increase by 1%, it will affect the reduction in deficits of 0.34926 and 1.17885, respectively. Inflation at lag-2 shows a positive and significant effect on the deficit. If inflation increases by 1%, it will have an effect on the deficit of 0.073127. Exchange rates on lag -3, lag -1 and now show a negative and significant effect on the deficit. If the exchange rate strengthens (appreciation) by 1%, it will have an effect on reducing the deficit, respectively 2.54683, 3.23098 and 3.61984. Bank Indonesia rates at lag -1 and now show a positive and significant effect on the deficit. The increase in Bank Indonesia rates will have an effect on the increased fiscal deficit.

3.3. Estimation of *Long Run Bounds test*

From the results of the long run bounds test estimation as shown in Table 4, the increase in debt in the long run has a negative and significant effect on the reduction of deficits. The increase in government debt of 1 percent will

have an effect on the reduction of the deficit of 2.231935. Subsidies, inflation and the exchange rate are not significant to the deficit. Significant changes only occur in Bank Indonesia rates.

Table 4. Estimation result of Long Run Bounds test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.08624	20.85201	-0.77145	0.4517
LDebt	-2.231935	2.348641	-0.95031	0.3561
LSubs	0.34072	0.520114	0.655088	0.5217
Inf	0.183427	0.132499	1.384363	0.1853
LER	2.744672	4.342157	0.632099	0.5363
BIR	0.300098	0.139895	2.145164	0.0476

Source: Data processed, 2019

Conclusion

This study found that government debt and subsidies have an influence on the fiscal deficit. Several macroeconomic variables such as inflation, exchange rates and Bank Indonesia rates contribute to this relationship. From the results of the long run bound test, the increase in government debt has no long-term effect on the deficit. Likewise, subsidies, inflation and the exchange rate have no effect on deficits. Only Bank Indonesia rates have a significant effect on the deficit. However, the government needs to limit the increase in debt. This is intended to increase fiscal space in financing.

Government debt, inflation, exchange rates and Bank Indonesia rates are significant in reducing deficits. Subsidies have a significant negative effect on deficits. Reducing subsidies does not have the effect of reducing deficits. This is due to the reduction in subsidy expenditure responded by increasing other spending such as infrastructure, education and health. This is in line with the current government program. To reduce the impact of the reduction of energy subsidies and maintain people's purchasing power, the government needs to target subsidies.

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Determination of Inter-Regional Investment in Riau Province, Indonesia: Generalized Method Moment Approach

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Abstract:

The Development Strategy undertaken by UNDP as an effective and coherent implementation of the sustainable development agenda is known as MAPS (Mainstreaming, Acceleration and Policy Support). This study aims to identify determinations inter-regional investment in Riau Province. The specific target in this study is to examine the development of investment growth that occurs as a reference in taking policy direction for the research area for the future in a sustainable manner. The research method used is the quantitative method with a dynamic panel regression, analysis tool using the Generalized Method of Moment (GMM) approach with data secondary time series in the period 2011-2016. The results of this study are the variable lag investment, economic growth and inflation have a significant influence on current investment between regions in Riau Province. The output of this research is to provide information related to investment development and can create the management of economic development policies to spur the development of economic growth-oriented towards equitable distribution of investment between regions in Riau Province.

Keywords: investment; lag investment; economic growth; inflation; dynamic panel regression; GMM.

JEL Classification: C33; E22; O11.

Introduction

UNDP has developed an effective and coherent strategy from the sustainable development agenda known as MAPS (Mainstreaming, Acceleration and Policy Support). This activity aims to reduce poverty, improve people's welfare and protect the environment in 2030. UNDP has a key role in supporting each country in managing sustainable economic growth, inclusive, productive labor and reducing unemployment (UNDP 2016). This strategy will also be used as a reference for regional economic development as a driver of the country's economy.

The economic condition of Riau Province over the past six years with the use of GRDP data including oil and gas has fluctuated with an average economic growth of 2.83%. The rate of growth in 2011 amounted to 5.57% and decreased for the next period. In 2015, economic growth decreased by 0.22% and again increased in 2016 by 2.23%. Economic growth was also followed by the development of investment in Riau Province. In 2012 investment in Riau Province increased from the previous year of 9,224 billion Rupiahs but the rate of economic growth decreased by 3.76%. This shows that investment has no influence on the economic growth of Riau Province.

Theoretically, economic development will basically produce high economic growth through the encouragement of investment with the aim of improving people's welfare. But in reality, in Riau Province, high investment is not always accompanied by increased economic growth. The last few periods, the Riau provincial government has applied a development system that focuses on economic growth with the support of a good investment climate. Although this development system has been implemented, the results are still far from satisfied.

Investment can be reflected from the availability of infrastructure and financial support that is able to facilitate all economic movements. Investment as a supporting indicator of development focuses on economic equality and

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increases national development stability. Economic development is related to economic growth and is accompanied by changes in investment (Charles 2014). In essence, economic development will produce high economic growth while increasing prosperity and income distribution (Nafziger 2012).

The objective of this study is to prove the effect of investment lag, economic growth and inflation on an inter-regional investment. There are three hypotheses of this research. The first is that investment lag has a significant effect on investment. The second hypothesis is that economic growth has a significant effect on investment. The third hypothesis is that inflation has a significant effect on investment. This paper consists of an introduction, literature review, research methodology, results and discussion, and brief conclusions from the study.

1. Literature Review

Investment is an expenditure aimed at adding capital goods and production equipment to produce a number of goods and services in an economy and to gain profits in the future. Investment is a component of the Gross Domestic Product that links the present and future (Mankiw 2014, 2012).

Hermansen's model of investment allocation between regions (Hermansen 1969) includes aspects of increasing production, income and savings in the two regions, assuming that the increase in production and income is only generated by an increase in the use of capital and all related variables in real value. Furthermore, this model is recursive, meaning income in year *t* is determined entirely by income distribution and investment allocation in the previous year. Planning and policymakers should see the condition of the year at least a year before if they are going to take the current year policy. Here it is seen that this model produces a conclusion that is prioritizing the allocation of investment to areas that have high productivity (Sjafrizal 2018).

Schumpeter argues that economic growth is an increase in output caused by a natural increase in the rate of increase in population and the level of savings. Economic growth is also defined as a slow and steady long-term change that occurs through an increase in savings and population (Jhingan 2011).

The Interregional Income Model assumes exports as a factor within the economic system of the region concerned (endogenous variable). The fluctuation is determined by the development of inter-regional trade activities which are divided into consumer goods and capital goods. In addition, this model also includes elements of government in the form of local government revenues and expenditures and investment activities in accordance with the principles of Keynes's Economic Theory (Sjafrizal 2018).

In-depth studies of investments continue to take place over time. Research by Gürsoy, Sekreter, and Kalyoncu (2013) relates the causality of FDI and economic growth for Azerbaijan, the Kyrgyz Republic, Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan over the period 1997-2010. The cointegration test results indicated that FDI and Economic Growth variables are cointegrated for Azerbaijan and Turkmenistan. By using the Granger Causality test we found that FDI causes GDP for Azerbaijan and bidirectional causality is observed for Turkmenistan.

Research related to the determination of FDI that has been carried out by Su et al. (2018) has results based on a panel ARDL model identified a significant relationship between FDI, corruption index and labor force with advanced education however this causality was only detected in the long run. According to the Granger causality in a panel, the attraction of FDI inflows succeeded in generating changes in the total tax rate, but the issues related to corruption were not reduced at an acceptable level for foreign investors in Poland, Slovakia, and the Czech Republic.

Next, the results of research by Simionescu (2017) stated that FDI in both countries is attracted by increasing GDP from year to year. On the other hand, the inflation rate is the strongest determinant, showing the stability of the country's economy which is making great efforts in getting a single-digit inflation rate. Similar research by Sakali (2013) using panel data and a long time span, Results indicate that FDI in Bulgaria has been motivated by both market and efficiency reasons, as well as the high quality of the Bulgarian workforce.

Furthermore, research from Tabassum and Ahmed (2014) in Bangladesh, the results show that domestic investment has a positive effect on economic growth while foreign direct investment, trade openness is less significant. Other studies from Rahman (2015) results obtained in this research signify a negative correlation between FDI and economic growth and may be a concern for the government of Bangladesh. Moreover, research results from Sweis, Sabri, and Suos (2018) and Alzaidy *et al.* (2017) show that in the long-run foreign direct investment (FDI) has a causal relationship to economic growth.

Research conducted by Iqbal, Jamil, and Ali (2015), Etale and Ayunku (2016), Bosco and Emerence (2016) and Masoudi (2016) support the existence of short-term dynamic adjustments and long-term equilibrium relationships between macroeconomic variables. The results suggest that interest rates affect private investment. A positive impact is also seen in the influence of inflation towards private investment. Therefore, the empirical

evidence provided shows that there will be an increase in the level of private investment. Meanwhile, the results by Jamshid and Tania (2013) state that inflation has a negative impact on private investment.

2. Methodology

The research method used is a quantitative method with a dynamic panel regression analysis tool using the Generalized Method of Moment (GMM) approach. This study uses secondary time series data in the period 2013-2017. The unit of analysis in this study is 12 regions consisting of 2 cities and 10 districts in Riau Province. The type of data used is secondary data from a number of Central Bureau of Statistics surveys including economic surveys, as well as time-series data from the Investment, GRDP, and inflation.

For the formulation of the model to be used, there are several variables that must be defined as follows:

- Investment (INV), this variable uses annual investment data in units of billions of rupiah;
- Economic growth (LPE), this variable uses the constant GDP price data of 2010, the unit value used as a percentage;
- Inflation (INF), this variable is an annual inflation data derived from the central statistics bureau in percent units.

Generalized Method of Moment (GMM) is a method of estimating the expansion parameters of the moment method. The moment method cannot be used if the number of instrument variables is greater than the number of parameters to be estimated. GMM equates the condition moment of the population with the condition moment of the sample. GMM method is one method that can overcome the data condition by violating the assumptions in the regression analysis. GMM is obtained by minimizing the number of squares weighted from the moment of the sample conditions (Verbeek 2012, Ekananda 2019).

If an equation is stated as $Y = X\beta + e$, which is $E|ee'| = \sigma^2 I$ then $E|Xe'| = 0$ is known as an orthogonal condition with $Var|Xe'| = \sigma^2(X^2X)$. The OLS estimator for this model gets the value β such that $e'e$ or $(Y - X\beta)'(Y - X\beta)$ has a minimum value. Thus it can be concluded that GMM is a minimizing method.

$$(X'e)\ (X'\mathrm{e}) = e'XX'e \tag{1}$$

Because this method is intended for general solutions (as in GLS), W is used as a covariance variance matrix (as in GLS) which minimizes $e'XWX'e$ where *W* is a Weighting matrix. By minimizing $e'XWX'e$, we get:

Minimization: $(Y - X\beta)'X\ WX'(Y - X\beta)$

$$(Y - X\beta)'X\ WX'(Y - X\beta) \qquad (Y'X\ \ WX' - \beta'X'X\ \ W\ X')\ (Y - X\beta)$$

$$Y'X\ \ W\ X'Y - \beta'X'X\ \ W\ X'Y\ -\ Y'X\ W\ \ X'X\beta + \beta'X'X\ \ W\ X'X\beta \tag{2}$$

Thus, in order to form a matrix multiplication as desired, the equation can be changed to:

$$F(X,Y,\beta)\ =\ Y'\ X\ W\ X'Y\ -\ 2\beta'X'X\ W\ X'Y + \beta'X'X\ W\ X'X\beta \tag{3}$$

By using matrix differentiation obtained:

$$\frac{\partial F(X,Y,\beta)}{\partial \beta} = -2X'XWX'Y + 2X'XWX'X\beta = 0 \text{ or } \mathrm{X}'\ \mathrm{XWX}'\ \mathrm{X}\beta = \mathrm{X}'XWX'Y \tag{4}$$

In various econometric models, the matrix W is estimated with $(X'X)^{-1}/\ \sigma^2$. In general form (generalized) is obtained $(X'\Omega Z)^{-1}/\sigma^2$. Assuming $E(e'e) = \Omega$, the more general form of the GMM estimator (in the presence of instrument variable elements) is:

$$\beta_{GMM} = (X'Z[Z'\Omega Z]^{-1}X'X)^{-1}X'Z[Z'\Omega Z]^{-1}X'Y \tag{5}$$

This evidence shows that the instrument variable (IV) is the solution to the problem moment. While the covariance matrix (this matrix is useful as an inference when looking for standard errors of β) is:

$$(X'Z[Z'\Omega Z]^{-1}X'X)^{-1} \tag{6}$$

If seen from the process of instrumentalising the Z variable, there are two steps to completion, namely: 1) Estimation of variable Z, where the regressor is a variable that has no correlation with the residual (Stage 1); 2) Regression uses variables Z and LS (Stage 2), which makes *e.g.* (5) often referred to as generalized 2SLS.

In order to obtain the dynamic panel data model as follows (Greene 2012):

$$y_{it} = \alpha_i + \beta' x_{it} + \gamma y_{it-1} + \varepsilon_{it} \tag{7}$$

Furthermore, applied in this study as follows:

$$INV_{it} = \alpha + \beta_1 LPE_{it} + \beta_2 INF_{it} + \beta_3 INV_{it-1} + e_{it} \quad (8)$$

The basic assumption of the regression model is that the dependent variable has a correlation with the residue, while the regressor must not have a relationship with the residue and the model contains a lag of the dependent variable that has a correlation with the residue. If the estimator with LS is not consistent, then it can use the instrument variable to replace the lag of the dependent variable. This estimator uses the concept of instrument variable. One method that uses instrument variables is the Generalized Method of Moment (GMM) to solve the problem of the lag correlation of dependent variables with residuals.

In seeing the long-term relationship between variables by calculating $= \frac{\beta_1}{1-\beta_3}$; $\pi_1 = \frac{\partial \delta}{\partial \beta_1} = \frac{1}{1-\beta_3}$ and $\pi_2 = \frac{\partial \delta}{\partial \beta_3} = \frac{1}{(1-\beta_3)^2}$. Continue to calculate the combined variance by: $\text{Est. Asym Var}\ (\pi) = \pi_1^2 \text{Est. Asym Var}\ (\beta_1) + \pi_2^2 \text{Est. Asym Var}\ (\beta_3) + 2\,\pi_1 \pi_2 \text{Est. Asym Var}\ (\beta_1, \beta_3)$ (9)

With a hypothesis:

- If H_0 for δ_1 then $Z\pi = \frac{[\delta - 1]}{\sqrt{var}}$ is smaller than the absolute value Z_{table} for $\alpha\ (0{,}05)$, so H_0 for $\delta_1 = 1$ is rejected; no significant long-term impacts occur.
- If H_0 for δ_0 then $Z\pi = \frac{[\delta - 0]}{\sqrt{var}}$ is greater than the absolute value of Z_{table} for $\alpha\ (0{,}05)$, so H_0 for $\delta_1 = 0$ is accepted; Significant long-term impacts occur.

3. Result and discussion

In the analysis of determination investment between regions in Riau Province, there are several indicators of supporting variables that influence it, including economic growth and inflation. In an effort to determine the effect of the investment lag, economic growth and inflation on investment between regions in Riau Province, the Generalized Method Moments (GMM) method is used on the use of dynamic panel models. Analysis of dynamic panel data is supported by the increasingly dynamic relationship between economic variables in relation to the dynamics of adjustment analysis. This dynamic relationship is characterized by the lag of the dependent variable as an independent variable that drives the emergence of endogeneity problems and can be overcome by the GMM approach.

Table 1. Summary of GMM results

Dependent variable: INV				
Method: Panel Generalized Method of Moments				
Transformation: First differences				
Sample (adjusted): 2013 2017				
Total panel (balanced) observations: 60				
Instrument specification: @DYN(INV,-2) INF LPE				
Constant added to instrument list				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LPE	16366.98	7510.256	2.179284	0.0335
INF	-65963.43	7169.558	-9.200488	0.0000
INV (-1)	-0.115258	0.005794	-19.89317	0.0000
Effects Specification				
Cross-section fixed (first differences)				
Mean dependent var	115234.0	S.D. dependent var		2111307.
S.E. of regression	2062937.	Sum squared resid		2.43E+14
J-statistic	10.47722	Instrument rank		12
Prob(J-statistic)	0.313249			

Source: Output Eviews, 2019

Test the validity of the instrument in the dynamic panel regression under the conditions of over-identification restriction or conditions where the number of instrument variables used exceeds the estimated number of parameters is part of the Sargan test. Statistic statistics are distributed in the chi-square x (ρ-k) statistic using the null hypothesis (H_0) for valid over-identification. Based on Table 1 Results of Dynamic Panel Regression it can be explained that the value of J-statistic (Sargan Statistic) is 10.4772 with a Prob value (J-Statistic) that is 0.3132

greater than the 0.05 significance level so that H_0 is accepted. It can be concluded that the over-identification restriction conditions in the model are valid.

To find out the long-term impact of economic growth on investment between regions in Riau Province, it can be examined the problem of non-linear combined restrictions that can be calculated as follows:

$$\delta = \frac{\beta_1}{1-\beta_3} = \frac{16366{,}98}{1-(-0.115258)} = 14675{,}51 \quad (10)$$

$$\pi_1 = \frac{\partial \delta}{\partial \beta_1} = \frac{1}{1-\beta_3} = \frac{1}{1-(-0.115258)} = 0{,}8966 \quad (11)$$

$$\pi_2 = \frac{\partial \delta}{\partial \beta_3} = \frac{1}{(1-\beta_3)^2} = \frac{116366{,}98}{(1-(-0.115258))^2} = 13158{,}85 \quad (12)$$

Table 2. Coefficient Covariance Matrix

	LPE	INF	Lag INV
LPE	56403939.6691	22369665.3418	-25.7694
INV	22369665.3418	51402555.8864	9.1415
Lag INV	-25.7694	9.1415	3.3568

Source: Output Eviews, 2019

Then calculate the combined variance in e.g. (9):

$$\text{Est.}(\pi) = (0.8966)^2(7510.256)^2 + (13158.85)^2(7169.558)^2 + 2(0.8066)(135885)(-25.7694)$$

$$= 8.900632745\times10^{15} \quad (12)$$

$$\sqrt{Varians} = \sqrt{8.900632745\times10^{15}} = 94343164{,}8 \quad (13)$$

Hypothesis testing results:

If H_0 for δ_0 then $Z\pi = \frac{[\delta-0]}{\sqrt{var}} = \frac{[14675{,}51-0]}{94343164{,}8} = 0.000156$ greater than $Z_{table} = -0{,}6267$ so H_0 for δ_0 this shows that there is a long-term impact that has a significant value of economic growth variables on investment between regions in Riau Province.

3.1. Determination of interregional investment in Riau Province

Based on the estimation results in Table 1 the Investment variable (-1) which is the lag of the Investment has a probability of 0.0000 smaller than the significance level of 0.05 (5%). Thus it can be concluded that the investment lag in one previous period affected the present investment value.

The coefficient value of -0.115258 reveals that investment in the previous period has a negative effect on the present investment value. It can be concluded that if there is an increase in the value of the investment in the previous period of 1 billion, the investment value will decrease by 0.115258 billion or 115.258,000 rupiahs in conditions of cateris paribus and vice versa. This indicates that if the large value that occurred in the previous year will reduce the value of the investment in the present, which more investment is flowing into Riau Province in the form of physical and material production. This type of physical investment results in the present value being influenced by the value of the previous period.

The results of this study are in line with Hermansen's model of investment allocation between regions, which is recursive where income in year T is determined entirely by the distribution of income and investment allocation in the previous year. Planning and policymakers should see the condition of the year at least a year before if they are going to take the current year policy. This model also prioritizes the allocation of investment to areas that have high productivity.

Economic growth has a probability of 0.0335 smaller than the significance level of 0.05 (5%). Thus it can be concluded that economic growth influences the current investment value. The coefficient value of 16,366.98 shows that economic growth has a positive effect on the present investment value. It can be concluded that if there is an increase in the economic growth of 1%, the value of an investment will increase by 16,366,980 billion rupiahs in conditions of cateris paribus and vice versa. Furthermore, these results are in line with Gürsoy, Sekreter, and Kalyoncu (2013), Simionescu (2017), Sakali (2013), Sweis, Sabri, and Suos (2018), Alzaidy *et al.* (2017) through the results of research in several countries it is known that in the long-run foreign direct investment (FDI) has a causal relationship to economic growth.

Economic growth is a decisive indicator in the movement of investment between regions in Riau Province. Encouragement of increasing economic growth can increase investment, which in turn can increase employment

opportunities for people between regions in Riau Province which at the same time are expected to increase people's income and realize income distribution in each region in Riau Province.

The inflation coefficient value of -65963.43 shows that inflation has a negative effect on the present investment value. It can be concluded that if there is an increase in inflation of 1%, the value of an investment will decrease by 65,963,430 billion rupiahs in conditions of cateris paribus and vice versa. Furthermore, inflation has a probability of 0.0000 smaller than the significance level of 0.05 (5%). Thus it can be concluded that inflation affects the present investment value. These results are not in line with (Bosco and Emerence 2016, Masoudi 2016) which states that the inflation rate has a positive impact on private investment.

This result states that inflation has an influence on investment patterns that occur in Riau Province, simply if inflation rises, the price of needs to be used by production will rise, this is a consideration of investors to invest further or delay investment activities in Riau Province. Afterwards, follow the results from Jamshid and Tania (2013) which is Regarding the reverse relationship between investment and inflation and applying effective policies on decreasing inflation that cause encourages of saving and causing motivations for investment, preventing capital escape from production section toward speculative and broker's activities.

Conclusion

The acceleration of economic development is inseparable from the encouragement of investment as one indicator in accelerating regional economic growth. Investment fluctuations are now a reflection of past investments (lag-investment). This condition is one of the considerations for the Riau provincial government in making policies to accelerate investment growth now in the future.

Based on the results of the model, it can be concluded that the investment of the previous period and inflation can reduce the value of an investment. Meanwhile, economic growth can increase the present value of investment between regions in Riau Province. These results provide evidence that investment allocation tends to occur in areas with high productivity. Furthermore, the policy that must be carried out by local governments is to maintain economic stability both in terms of inflation control and accelerated economic growth. The social planner must encourage low-productivity areas in order to become high-productivity areas, then the social planner must also choose the type of investment that enters to avoid bad investors, where there is absolutely no transfer of technology to the destination area.

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The Development Model of Strategic Transformation Capability Based on Relational Quality to Exploitability Knowledge and Innovative Performance

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Abstract:

The importance of effective network quality and dynamic capability approaches in organizations, especially knowledge-based organizations, is to improve innovative performance. It happens because of dynamic capabilities based-organizations development, exploitability knowledge and the important role of the networks quality in fashion industry, are a fundamental concern for top managers to strengthen the capabilities of strategic transformation in enhancing innovative performance. The purpose of this study was to develop a strategic transformation capability model based on relational quality towards the exploitability knowledge and innovative performance. This study used a purposive sample with 287 respondents from the fashion industry in Central Java, Indonesia. The AMOS software used to Structural Equation Model analysis technique in this study. The findings of this study indicate that there is an increase in the exploitability knowledge carried out by increasing the strategic transformation capability. Therefore, it is necessary to take several steps to improve the company's network quality. Based on the findings of this study, suggestion proposed is to ensure innovative performance that is more productive through more effective exploitability knowledge.

Keywords: relational quality; strategic transformation capability; exploitability knowledge; innovative performance.

JEL Classification: D8; J5; L2.

Introduction

Organizations operating in a hypercompetitive environment with increasingly new challenges in innovation development require the development of dynamic capabilities in developing strategies that lead to the creation of corporate wealth (Adegbile and Sarpong 2017). Developing dynamic capabilities, making companies with development capability, integrating and transforming competencies can maintain long-term profitability (Teece 2007). However, companies must have transformation capabilities to have valuable strategic resources as part of complex networks that can enhance or replace each other so a combination of important resources gets competitive advantage (Saranga *et al.* 2018). Many company leaders have used knowledge-based thinking in developing strategic values that are driven by innovation to increase competitive advantage (Christensen and Christensen 2013). In addition, companies need to get ready to improve their strategic transformation capabilities in designing business models that produce innovative performance. They must prepare to strengthen the transformation capabilities that shape their skills and place limits on the feasibility of certain strategies (Teece 2017). For that reason, they need comprehensive new capability. It is the capability of strategic transformation as the capability to re-form the creation of useful and complex products. The strategic transformation capability makes it possible to achieve innovative performance from the company.

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1. Literature Review

This research discussed some theories. First is about the quality of networks related to the quality of trust, coordination, relationships and synergy with stakeholders that lead to an increase in the exploitability knowledge that ultimately has the potential to produce innovative performance. Second is building the configuration of transformation capabilities and strategic resources empirically so that it leads to the improvement of innovative performance through the exploitability knowledge. In addition, previous research recommendations explain that technological innovation has an important role in achieving strategic objectives through strategic knowledge transformation (Liu and Gallagher 2010). Relational quality with the main dimensions of trust, commitment and satisfaction is very important for management strategies that are appropriate to the age of a relationship (Nyadzayo, Matanda and Ewing 2016).

1.1. Relational quality

Relational quality as part of organizational competitiveness means that decision making to improve and achieve innovative performance requires corporate strategies that adopt processes and are designed to provide a series of initiatives in achieving a set of corporate goals (Mileski, Wang and Zeng 2017). Relational quality is important resources in increasing the company strategic value (Payne *et al.* 2017). Relational quality refers to assets is influenced through relationships based on trust, respect given and hope realization (Kim 2018). Relational quality is an effective component that must be owned by companies that have a network relationship interpreted in the quality of stakeholders trust (Allameh 2018). Relational quality shows the company strength and quality that are accompanied by intensive frequency of interactions and mutual trust (Yan and Guan 2017). Relational quality is seen as a result of interaction, whether their mutual trust values between the company and stakeholders that encourage and pay attention to enhance the capabilities of strategic transformation, existing in absorption capacity, or potentially increase innovative long-term performance (Chuang, Chen and Lin 2016). The quality of a well-built network in increasing the capability of the company's strategic transformation which tends to improve organizational innovation performance in long period (Kittikunchotiwut 2015). Therefore, the company can maintain relational quality in the future. They can manifest the relational quality in several processes and relations among stakeholders in long period.

Although there is no consensus concluding on the exact construction that underlies most researchers identify trust as core components of relational quality (Kale *et al*. 2000). Therefore, this study incorporates critical factors in the current model representing relational quality that determines management's ability to build networks (Gounaris and Tzempelikos 2014). Some important dimensions of relationship quality, such as commitment, trust, and cooperation as factors that are very important for every business to consider in company growth (Nyadzayo, Matanda and Ewing 2016). Study of Miquel-romero, Caplliure-giner and Adame-sánchez (2014) found that trust and commitment are the result of implementing relational quality. The indicators used in measuring relational construction are individual level commitment, and alternative quality. Meanwhile, this study did not assess investment in alternative size and quality because these variables are normally not used in evaluating relational quality (Manusov *et al.* 2018). Therefore, this study used some indicators. They are trust, quality of coordination, quality of relationships and stakeholder synergy.

This study analyzed fashion industry to investigate the relationship between network quality and the strategic transformation capabilities developed by the fashion industry in the context of enhancing innovative performance through exploitability knowledge. The sustainability of the fashion business in Indonesia and collaboration among stakeholders are crucial issues in providing several benefits and creating shared value in business development and sustainability (Mayangsari 2017). The fashion industry generally forms a major part of income and labor-intensive growth. The fashion industry allows many people in home industry to experience high levels of output growth (Uddin and Afrin 2015, Daryanto *et al.* 2015).

1.2. Strategic transformation capability

Knowledge-based theory (KBT), dynamic-capability approach (DCA), and resource-based theory (RBT) explain how strategic transformation capabilities have an influence on exploitability knowledge, and innovative performance. First, resource-based theory is the main theory that explains how companies achieve profitability and can be maintained over time through resources and capability integration as a basic direction for corporate strategy (Grant 1991). The idea of strategic transformation is about an organization's ability to accumulate and integrate skills, strategic abilities and processes using a variety of strategy-making and transforming itself to ensure long-term survival and create greater stakeholder value (Stockport and Stockport 2013).

Second, the conceptualization of knowledge-based theory from organizational capabilities explains that one of the company's strategic capabilities is its ability to integrate knowledge. It is as the most important strategic resource of the company to create the ability to produce innovation (Nielsen and Nielsen 2014). Knowledge-based views of the company define core abilities as a collection of knowledge that is unique, distinctive, differentiating, superior to competition, difficult to emulate, to provide competitive advantage (Saranga *et al.* 2018). Organizational level capabilities have been treated as a reflection of company-specific competencies to manage, regulate, and coordinate certain sets of activities better than other companies as different skills as well as a collection of important resources and competencies specific to companies (Vesalainen and Hakala 2014).

Finally, the dynamic capability approach emphasizes that different competencies refer to the key role of strategic management. They are to adjust, integrate, and reconfigure organizations appropriately as resources, skills, and competencies in dealing with changing characters and environments (Helfat and Martin 2015). Companies need the ability to feel, seize and transform resources into capabilities that are very important in dealing with regular risks and deep uncertainties and linking them with strategies to defend themselves in rapid technological change and disruption (Teece, Peteraf and Leih 2016). It is emphasized that the company's core capabilities are as integration of core capabilities, and dynamic capabilities consisting of adaptive and innovative capabilities in relation to the company's strategic direction to overcome environmental change (Wang and Ahmed 2007). Knowledge transformation refers to the absorptive capacity formed by dynamic capabilities as a series of organizational processes from the acquisition of external knowledge, assimilation, transformation by sensing, seizing, and transforming new opportunities (Huang *et al.* 2017, Newey *et al.* 2015).

Strategic transformation refers to entrepreneurial capability, that defined as the ability to reconfigure creative ways by presenting new choices that attract customers (Pearce and Robbins 2008). The success of transformation as a simultaneous shift in strategy development requires a combination of strategic resources and dynamic capabilities in improving the corporate innovation performance (Makadok 2001). The ability of strategic transformation as a strategic management role is very important to deal with rapid market changes and produce innovative performance in business competition. Therefore, the strategic transformation capability has defined as the capability of organizations to acquisition of attracting innovations, accumulating and integrating strategic renewal to create greater stakeholder value as well as new options that ensure long-term survival. Based on that review, the hypotheses proposed in this study is:

Hypothesis 1: Relational quality has a positive influence on strategic transformation capability.

1.3. Exploitability knowledge

Exploitability is basically the integration of human resource capabilities and the process of gaining competence by adopting, integrating, and applying new knowledge that requires the acquisition of knowledge to create reliable experiences (Liu 2006). Exploitability knowledge is based on the integration of resource-based theories and knowledge management derived from professional abilities and exploitability knowledge (Widodo and Nurhayatie 2018). Exploitability knowledge is the ability of human resources who have the quality of communication, introducing new things related to the network (Widodo 2018). When they obtain new knowledge, the next challenge is to change the assimilated new knowledge so that it can be utilize for new special innovations. For that reason, companies must have ability to change the knowledge obtained from external sources and thus develop the new exploitability knowledge (Hakanen 2014). Therefore, the following hypothesis is proposed:

Hypothesis 2: The capability of strategic transformation has a positive impact on the exploitability knowledge.

1.4. Innovative performance

The company can enhance innovative performance by internalizing external knowledge that can be utilized for the development of knowledge transformation. Companies with superior absorptive capacity to capture the transformation processes toward innovation performance (Zhang *et al.* 2010). Current investment in transformative capacity comes from absorptive capacity to increase innovation in the future. The support for the idea generally provided to absorption capacity that related to innovative performance (Liu *et al.* 2017). Most research shows that capacity change refers to absorption capacity that has a positive impact on innovation performance. Absorption capacity is an important factor to help companies in achieving and promoting corporate innovation performance by processing new external knowledge for organizational innovation activities (Huang *et al.* 2017, Kostopoulos *et al.* 2011, Fosfuri and Tribó 2008). In addition, by focusing on the competitive business environment to face variations in competitive forces, they must consider the capacity building process to increase innovative capacity and

adaptation of strategies through sustainable processes enables it to maintain its competitive advantage in the market or industry over time (Shams 2016). Hence, based on this argument, the hypothesis is as follows:

Hypothesis 3: Strategic transformative capabilities has a positive impact on innovation performance.

A successful planning strategy to promote innovative performance requires the knowledge exploration built by sharing knowledge as a knowledge strategy based on entrepreneurial capacity (Widodo 2018). On the other hand, increasing the ability of human resources through the exploitability knowledge will create innovative performance with low qualifications to achieve sustainable competitive advantage (Widodo and Nurhayatie 2018). Knowledge management is the capacity of transformation as part of the capacity for knowledge understanding (Campos-Climent, Sanchis-Palacio and Ramon 2017). Furthermore, for increasing the exploitation of corporate knowledge, it is necessary to have the capability of strategic transformation based on the quality of trust as a strategic way to improve the company's innovative performance. Thus, we hypothesized that:

Hypothesis 4: Exploitability knowledge has a positive impact on innovation performance.

2. Methodology

The sampling technique used was purposive sampling, based on certain characteristics, such as the fashion industry that has innovation. The research respondents were the leaders of the fashion industries in Central Java Province, Indonesia. The number of samples was 287 and it referred to Hair *et al.* (2010). Meanwhile, hypotheses test using Structural Equation Modeling (SEM) software.

Relational quality is the sustainability of the network. It is manifested in different processes and networks in the future. The indicators used were trust, coordination quality, relationship quality and synergy. Then, strategic transformation capability is the organizational capability of reshaping product creation, reconfiguring product development skills, and integrating strategic renewal for long-term survival. Indicators used such as the capability of reshaping product creation.

Exploitability knowledge is the ability of human resources that have introducing new things through the network. The indicator refers to Tamayo-Torres, Ruiz-Moreno and Javier (2011) such as the quality of communication and organizational management. Innovative performance is the contribution of processes and products to the results of innovation. It is achieved from the production activities carried out. The indicator referred to Zerenler and Hasiloglu (2008) such as changes and new product technologies.

According to Table 1, the results show that the validity test with loading factor values above 0.5 and the reliability test results with a minimum value of 0.6 (Hair *et al.* 2010). Therefore, the data from the instrument is valid and reliable.

Table 1 Validity and reliability test

No	Variable	Indicator	Loading Factor	Reliability
1	Relational Quality	a) Trust to stakeholders b) Coordination quality c) Relationship quality d) Synergy with stakeholders	0,69 0,81 0,61 0,72	0,80
2	Strategic Transformation Capability	a) Capability of reshaping product b) Reconfiguration of development skills c) Integration of strategic renewal	0,59 0,74 0,74	0,73
3	Exploitability Knowledge	a) Quality of communication b) Quality of organizational management c) The quality of information technology d) Adaptive to the environment	0,63 0,56 0,58 0,66	0,70
4	Innovative Performance	a) New product technology b) Changes of new products c) Management renewal	0,72 0,68 0,66	0,73

Source: own processing of authors

3. Result and discussion

The empirical model test used was Structural Equation Modeling. The model indicates Chi-square = 187,032 with a probability value of 0,000; GFI = 0.914, AGFI = 0.877 and TLI = 0.909, while the value of RMSEA = 0.074. The result of the model is a Fit. Based on statistical analysis, the results of this study indicate compliance with the

required standard values. Moreover, Table 2 present that three of the four hypotheses proved. However, one hypothesis is not significant.

Table 2. Inner Path Model coefficients and their significance

Exogenous Variable	Endogenous Variable	Standard Estimate	T-score
Strategic Transformation Capability	Relational Quality	0.897	9.827***
Exploitability Knowledge	Strategic Transformation Capability	0.810	8.871***
Innovative Performance	Exploitability Knowledge	0.699	3.518***
Innovative Performance	Strategic Transformation Capability	0.312	1.838

Source: own processing of authors
Note: P < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001

Hypothesis 1: relational quality has a significant influence on the capability of strategic transformation. It means that the higher relational quality will increase the capability of transforming new products strategically in the fashion industry. It happened because the quality of network includes good trust with partners. It means that good quality trust with partners can increase the ability to re-create product creation so it can improve the quality of organizational management in meeting changing market needs (Kale *et al.* 2000). The better the quality of coordination and relationships with trusted partners possessed by the company can be used for product development and integration of strategic renewal that are sufficient to create new products (Payne *et al.* 2017).

Hypothesis 2 is significant and the results showed that the capability of strategic transformation has a significant influence on the exploitability knowledge. It means that the capability of strategic transformation has the ability to reshape product changes in accordance with consumer tastes change. It is as well as the dynamics of competition and the accumulation of product development expertise with adequate strategic renewal integration in creating products that are more competitive and strategic for long-term survival. This condition supports research of Campos-Climent *et al.* (2017) which showed that transformation capability through exploitability knowledge did not previously exist. The consequence is the potential to increase the process speed, emergence of new products and potential to create new technologies that are superior in creating higher quality products and in accordance with consumer tastes change.

The results of hypothesis 3 indicated that the capability of strategic transformation to develop on innovative performance has not supported by empirical data. This condition is due to the renewed management that is not optimal and not balanced by more modern management dynamics, such as management breakthroughs in accordance with the digital era and the demands of social media in the industrial revolution. As a result, the creation and changes of new products supported by the exploitability of adequate knowledge such as support for adequate quality of communication, quality of information technology and attitudes that are adaptive to changes in the rapid environment change.

Hypothesis 4 is significant, where the presence of innovative performance has significantly influenced by the exploitability knowledge. It means that when entrepreneurs improve the quality of adequate communication with stakeholders, the changes in new products can more quickly known by the market to meet changes in consumer tastes and faster competition. It supports the study of Widodo and Nurhayatie (2018) which explained that the exploitability knowledge built by sharing knowledge reflects the quality of knowledge strategies to improve adequate new products. As a result, the intensity of the exploitability knowledge that is stronger can trigger an increase in new products changes and new product technologies that are more responsive.

Conclusion

The capability to reform product and integration of adequate strategic renewal can increase changes of new products faster and develop new technology products that are more responsive. The increase of the capability to transform products of strategic value has the capability to re-form product creation that is more responsive to the market. The integration of strategic renewal with the reconfiguration of skills for product development can actively accept changes made based on relational quality.

The capability of strategic transformation can be reform with good trust with partners, coordination and relationships quality that achieve synergy with stakeholders. It can create good communication quality, adequate organizational management quality and quality of information technology that is more adaptive to the environment. Exploitability of adequate knowledge has the potential to improve adaptive new product technologies, new product changes and management renewal that are more appropriate with environmental changes.

The limitations of this study were in the testing results of complete SEM model. It shows that SEM model is an appropriate model. However, the suitability test that was received marginally was the Adjusted Goodness of Fit

Index (AGFI = 0.877) and the chi-square value divided by degree of freedom (CMIN/DF = 2,562). The results of calculations using AMOS software show that the effect of strategic transformation capability on innovation performance has a standardized regression weight estimate of 0.332 and weak influence qualification below 0.5. Based on these limitations, it is clear that the object is an interesting study area.

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Plecit Bank is Blessing or Suffering? A Study on Moral Perspective in Banyumas Regency

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Abstract:

This study examines the existence of *Plecit* bank that provides blessings or suffering for the community. This study uses an interpretive approach to explore more deeply the problems that occur. Data collection was conducted by interview and observation techniques. The results show that there is an exploitative correlation that utilizes borrowers in perpetuating their business by applying high interest rates. Interest slavery grips the borrowers resulting difficulties paying off their loans. So based on a moral perspective, the credit service of the *Plecit* bank is not based on the conscience principle but rather gives suffering, not a blessing.

Keyword: *Plecit* bank; interest rate; credit; moneylenders; non-bank financial institutions; moral perspective.

JEL Clasification: G21; G23; G210; E43; G51.

Introduction

Poverty becomes a serious problem in the world, most of the people are unable to meet their basic needs. One important factor in poverty alleviation is providing the poor with funds and guidance to be entrepreneurs that has the potential to increase income, standard of living and poverty alleviation (Nguyen 2018). Family welfare is determined by loans provided by microfinance institutions (Craig and Porter 2003, Yunus 2003, Quach 2005, Weiss 2008).

Informal financial institutions are an important financial source for the poor (Nagarajan *et al.* 1995, Kochar 1997, Bell *et al*. 1997, Agénor dan Montiel 2015, Conning and Udry 2005, Guirkinger 1998). This institution helps increase capital number and mitigate consumption fluctuations so that the poor move out of poverty. However, this loan is not about welfare for the community, it is more about inequality and misery. Loans from informal financial institutions have a tremendous impact on society.

The problem of debt repayment is not only an economic problem but also morality. Regarding this, when a lender wants to lend money to a borrower, he/she has the choice between applying high interest as a consequence of his/her welfare or giving a good loan. So that this study emphasizes whether the *Plecit* bank is a blessing or suffering for the middle to lower classes of society viewed from a moral perspective.

1. Literature Review

1.1. *Plecit* bank as moneylenders

Plecit bank is one of the informal financial institutions in providing loans to the public. The history of *Plecit* bank in Indonesia occurred during the Indian invasion of Medan due to European control in India. The lending community was known as *Chetti* (Seibel 2013). Although the Chetti are rarely present, their thoughts have been passed on to their members in the form of more modern money lending practices, one of which is scattered in Central Java, namely *Plecit* bank. The bank practices as money lenders helping the poor reduce their financial difficulties. The bank existence as moneylenders in fact can sustain the economic life of the community. *Plecit* banks exist in the

community as the social demands. Informal institutions are different from formal institutions, because the regulations on informal institutions tend to be easier and more flexible. Informal institutions are usually only managed by individuals, such as *Plecit* bank, *mindrik*, and moneylenders (Nugroho 2001).

The characteristics of *Plecit bank* as money lenders make traditional market traders as the target of operations to perpetuate their business, including in *Pasar Wage* Banyumas which is the Main Market. Traditional market traders are entangled a lot of loan interest which can reach 40%, this is very detrimental to traders. The difficulty of obtaining credit because the lack of collateral is a major obstacle faced by the traders in developing their business so they are forced to take credit from *Plecit banks* with high interest rates.

From a different perspective, one could say that the assistance provided by *Plecit bank* represented a trap of increasing customer dependence on its creditors. In a cultural sense, *Plecit* banks realize that people who have received assistance from them will feel indebted and obliged to return aid in the future. Indirectly, this cultural value is instrumentalised by *Plecit* banks to support their economic activities. Damsar (2006) said that in economic matters, humans have a tendency to pay the lowest cost as much as possible to get the maximum profit. In the context of getting a loan, usually someone would prefer to borrow at a low cost. But vendors in traditional markets choose to get loans from the high-interest loan schemes provided by *Plecit* bank (Distinguin 2016).

1.2. Providing credit to overcome poverty

The provision of credit funding to small traders helps them to run the business they do. It is considered as a powerful instrument to alleviate poverty. Access to credit can significantly improve the ability of households to meet financial needs. The access credit by rural households has the potential to accelerate the adoption of modern technology that can increase the income of small communities (Tenaw and Islam 2009, Anyiro and Oriaku 2011). Bakpo and Kabari (2009) in their research emphasized about one of the decision problems that require serious attention namely the provision of loans by financial institutions. This shows that, the provision of credit really has an important role to help the economy of the middle to lower classes.

Many researchers postulated that the provision of financial services to the poor or microfinance is a powerful way of providing capital for low-income families and helping them escape poverty so that it changes their lives (Robinson 2001). Providing loans can increase productivity and management skills, create jobs, smooth the flow of income and consumption, enlarge and diversify their businesses, and increase their income and other benefits, such as health care and education (Morduch 1995, Gulli 1998, Zeller 2000).

1.3. *Plecit* banks in various countries

Plecit banks do not only exist in Indonesia, but also in some countries with different names that have the same destination. In Italy, this kind of bank is called "Papacy" which is an informal financial institution in accepting money deposits and channeling it with moneylenders. While in United States of America, it is known as "Payday". It is one of the easiest small lenders to get. Usually, this loan requires a bank statement and document of fixed income, whether it is earned from work or the government or from other financial resources. If the loan is not repaid on time, the creditor can make a bank check or make an electronic withdrawal from the checking account (Barth *et al.* 2015).

The practice of moneylenders or *Plecit* banks is also similar in Malaysia. It is not known as money lender but *Ah Long*. The name is linguistically not known as a Malay or Chinese nomenclature, but is a separated Malaysian term. Reports show that many victims were in debt because of *Ah Long's* practice. *Ah Long* is an illegal financial body that is not protected by law. It is also not a bank, but they lend their own money to people who need it, most targeting gamblers who really need fast access to earn money. They then charge a very high interest rate (120%) and there is often a threat to customers who cannot afford to pay (Abdullah 2007).

1.4. Perspectives of moral judgment in the practice of *Plecit* bank

Moral Judgments play a central role in psychological functions throughout life. Judgment is also defined as a transition in thinking according to agreed principles (Adler 2008). Moral Judgment involves decisions about which actions are the most moral. An individual will consider each choice and determine the best alternative that is worth taking in a particular situation. Moral Judgment involves decisions about which actions are the most moral. An individual will consider each choice and determine the best alternative that is worth taking in a particular situation. Moral judgment is a consideration in seeing how far someone evaluates themselves in terms of acting or not acting, intentions, motives, character, or people as a whole (more or less) good or bad as measured against some good standard.

According to Forsyth (1980) Moral Judgment is the correlation between moral values and moral behavior. This means that moral decisions taken by individuals can be reviewed through belief in an ethic, and decisions taken against moral dilemmas. Forsyth divided consideration into two basic dimensions, namely relativism and idealism. Where on the one hand, idealism views a person as holding fast to ethical principles that apply universally, while on the other hand relativism sees someone else will reject the ethical principle skeptically with a number of considerations. Based on the explanation above, moral judgments refer to the process of individuals in developing the ability to make moral judgments or individual decisions without being influenced by the feelings and views of others in dealing with moral situations. Moral Judgments can also be defined as the process of a person reaching a mature decision about what to do in moral matters (Rest 1979).

Based on some experts' explanations regarding Moral Judgments, it can be concluded that morality is a crucial aspect of development, given its role as one of the factors that contribute to moral behavior. It is expected that a high level of moral judgment, a person will act or behave consistently between what becomes a Moral Judgment and the actions or behaviors that arise. Thus, in generating moral or humanistic actions/behaviors, it should be based on a mature or high Moral Judgment. The theory of moral judgment pays attention to covert behavior by touching moral thought/consideration as the main characteristic of human beings.

2. Methodology

This is a qualitative study using an interpretive approach. The main purpose is to understand the meaning of social situations based on the point of view of those who live with such life. Researchers must interpret this, to understand the process of understanding of construction and reveal what the meaning of human action (Schwandt 1998). The objective of this study is to find out how the position of the role of money lending carried out by *Plecit bank* to traders who need money. The focus of this study is to uncover concrete evidence whether *Plecit bank* brings blessings or misery to the community if viewed from a moral perspective. Data collection was carried out using interview techniques. Hesee-Biber (2007) suggests that interviews are the best way to understand the world scope of respondents. The strength of the interview lies in the process between the questions and answers of the interviewer and the interview as it is with interactional in nature because there is an exchange or dividing roles, feelings, and beliefs and information such as data, facts and opinions (Steward 2003). To conduct conversation in an interview, unstructured and semi-structural interviews are the type that is usually used in a research framework (Bryman 2008, Letherby 2003).

3. Result and Discussion

3.1. Borrowing culture of communities

Life from loans is a culture of society that still exist. In a sharp visual contrast with community perceptions, especially in Banyumas regency it is visually resemble isolated micro-urban centers in the countryside. Formal access for loans from governmental banks is very difficult to obtain because of difficult conditions (requirements) and guarantees. So, it provides a way for moneylenders in perpetuating their business, one of which is related to *Plecit* bank. The money lending business in the countryside has been developing since ancient times. The more spread of money economy in rural communities, the more widespread the culture of borrowing. In the early 19th century, traditional and closed Javanese farmers became open to the modern world economy. The expansion of the money economy in rural communities means that everything can be exchanged and valued with money. The community's need for money is increasing while the amount of money circulating is limited causing the development of credit traditions in society both in the form of money and goods.

Actually there are two kinds of fund sources circulating in the community, namely official finance institution and non-official institution. Before the existence of official money lending institutions established by the colonial government, there were informal money lending business in Java which had rules and traditionally managed by money lenders, both local and foreign Easterners. In general, this informal financial source is much in demand by rural communities, especially farmers, because the requirements are very easy and the rules are not strict. This system caused farmers with low income, lack of education and skills and capital, to become heavily involved in debt.

This lending activity has been rooted in the past and is inherited today. This certainly becomes a culture that borrowing can save from the hardships of life. As the informant said that:

> *"Borrowing culture among the people is inevitable, by borrowing, we can make a living through borrowed business capital. So, this has become a culture that is embedded in society".* (Merchant 2).

Naomi Quinn and Dorothy Holland (1987) stated that there is a correlation between culture and cognition. There is a kind of cultural meaning of cognition, from which arises the perspective of anthropological perspectives, which sees culture as shared knowledge. When the phenomenon of borrowing culture in the community is already rife, it has become the thinking of people that borrowing is the basis for continuing life. The assumption of culture as a cognitive system is that it is influenced by cognitive psychological flow, that ideas are everything. Culture that is pervasive in society, is not only taught, but must through its own thinking to interpret the culture. As one informant said:

> *"When borrowing at the Plecit bank, of course, not merely I immediately followed the habits of the community, but first, it needs to be learnt further. So borrowing requires ideas, how to pay off loans". (*Merchant 1*).*

Based on the discussion based on the interviews, it can be viewed that an individual's response to culture depends on how the culture appears in the cognitive world. Everyone has their own world image because the image is a product determined by the following factors:

- their physical and social environment;
- their physiological structure;
- their desires and goals;
- their past experiences.

How an individual understands the world depends, first of all, on the nature of the physical and social environment in which he is involved. What a person sees among the various things he/she can see in his environment, and how he/she sees it, is partly determined by his physiological structure. Individual differences in their sensory capacity and intellectual abilities reflect physiological differences. Cognition of intelligent people is more complex and more integrated than cognition of superficial people. In addition, the content and organization of one's image of the world is shaped by past experiences, recorded in their psychological capacity, and the record is unique to each individual. So that each person has a different view about borrowing which has become a culture in society. And it can be said that the consideration of borrowing or giving loans is influenced by the culture of the community. Of course this culture is very easy for moneylenders or loan sharks to develop their businesses and have a detrimental impact on borrowers.

3.2. Interest slavery

Limited factors of capital hinder the community to develop their business to become bigger. Lack of knowledge brings people to a marginalized position in an increasingly capitalist economic situation. Lack of skills in managing a business will reduce the opportunity for people to diversify their businesses and tend to stick to their routine (Nugroho 2001). As said by one of the following informants.

> *"Honestly, I only have the skills to sell vegetables, take it from the fields, I sell it here, sometimes the yield of rice fields is also small, income is also small. My husband and I also do not really have the skills in processing vegetables into something of more value, so they are sufficiently sold, the profit obtained is used to buy daily meals. So that to pay my child's school fees, I need to borrow a Plecit bank".* (Merchant 8).

Based on this, it shows that most of the people make loans due to forced conditions. They must borrow money even at very high interest rates. During this time, traders in the market are very dependent on borrowing capital in the business. These limitations of the community are exploited by *Plecit bank* practitioners who have the ability of socio-economic analysis and entrepreneurship much better than traders. With all their capital capabilities, they enter the economic system by offering loans, even though the interest rate offered is quite high at around 20% per installment payment. By relying on personal, family, and cultural approaches the *Plecit bank* succeeded in making people dependent on them in meeting cash needs. The results of the following interviews indicate the compulsion of traders in borrowing at *Plecit banks*.

> *"Yes, I immediately borrowed. Because of needs without consideration because I need money once, whereas no one wants to guarantee except Plecit bank". (Merchant 6)*

The application of high interest is one of the immoral acts. As Aristotle (384-322 BC) said together with Plato (427-347 BC) who condemned all loans with interest because money cannot create wealth by itself, community lending is just a way for lenders to take advantage of borrowers. This action belongs to capitalism, where capitalism has shown that loans can produce wealth. If the loan funds are well invested, allowing the borrower to improve his lot, then the payment of interest is a gift to the lender for providing useful funds (Kasdi

2013). In contrast to traditional market traders, borrowing at *Plecit* banks only adds to their burdens, because deposits must be multiplied due to the interest applied by the bank. The benefits obtained should be able to be saved. However, it is only able to be used to pay off installments. Of course this is a burden for borrowers at the *Plecit* bank.

When customers are not able to pay, it does not rule out the possibility that, most *Plecit banks* make cuts to savings and other deposits. This is also experienced by a customer.

> "*I usually deduct savings, they also save with the deposit, withdrawing the savings is a strategy in anticipating the breakdown of the deposit*". (*Plecit* Bank 7).

The existence of *Plecit banks* does not make them think that the application of interest is an obstacle to the progress of their business. However, they are very happy with the existence of *Plecit banks* that has helped them get out of the venture capital problem, even though most people know how the consequences are experienced with high interest rates.

> "*If you think, the interest given is quite high, because it is not a formal bank, so they don't want to lose money with their business. Yes, I can't do more, I have already borrowed, and they are all good"* (Merchant 7).

Bank interest is indeed a problem for traders. However, lenders also do not want to lose money in running their business, so bank interest is the main support in this business. As said by one of the *Plecit bank* members.

> "*One way to benefit from this business is the interest, the interest we give is high, in my view, as a wage we manage money for them, nothing is free in this world*". (*Plecit* Bank 1)

The description of the increasingly permissive of the public towards the practices of *Plecit banks* should not be misinterpreted as the loss of negative connotations of the banks. Some residents who are not directly involved in *Plecit bank* credit activities, either as customers or lenders still maintain the stereo type that *Plecit banks* are "loan sharks like moneylenders". They live above the poverty chain of people by extracting interest, because *Plecit* interest activities having the ethos of "earning as much money as possible" are suspected to be the cause of customers falling into "debt traps" which will lead to "interest slavery".

3.3. Exploitative Relationship

This situation is thought to be created by the behavior of a *Plecit* bank, which is carried out by maintaining the customer's dependence on it, so that they can bring the customer into a debt trap. The way to guarantee this dependency is through a strategy where interest is required to be paid in every installment, the loans are paid later, so the correlation between the two is exploitative. In fact, the customers themselves do not consider that their relationship with the *Plecit* bank is exploitative. This can be seen from the statement of all customers that the presence of *Plecit* banks is not detrimental but on the contrary it is profitable, even not infrequently some of them regard the *Plecit* bank as a helper god because it can help them get out of the problem of money difficulties. They also never felt humiliated or harassed despite having a large enough debt or often in arrears.

The results of this study are also in line with a research conducted by Nugroho (2001) which stated that dependence on *Plecit* banks is bigger than dependence on formal banks. It is known that, formal banks do not have an efficient system in providing loans and seem to complicate traders who want to borrow. So the popularity of this *Plecit* bank caused severe dependence.

Furthermore, the results of the study indicate that the *Plecit* bank interaction is getting more intense with the introduction of the *Plecit* bank and the trader. The beginning of the interaction that resulted in traders lending at the *Plecit* bank by means of the hospitality of the bank to offer lending services. All people in their lives need help from others to make ends meet. So that the presence of *Plecit* banks in providing money lending assistance causes social interaction.

One of the needs that must be met by traders in their lives is venture capital. The existence of social interaction between traders and *Plecit* banks, which were initially introduced by the way *Plecit* banks buy at traders, which is a *Plecit* bank strategy in finding customers, has developed into a more intense relationship. The existence of hyperbolic offers from *Plecit* banks make traders tempted by these offers, resulting in traders easily trusting the banks and finally borrowing money from them.

The findings of the research show that, in attracting customers by *Plecit* banks make attractive offers with regard to the needs of traders. One way is to provide loans to traders without complicated and not bound by collateral that prevents borrowing. The flexibility of this *Plecit* bank supports their existence in the community. Then, the offers given by the *Plecit banks* to the traders, when they accept the offer, there is a loan process

between the two parties. The results show that, no special conditions are required to be able to borrow at a *Plecit bank*, but only honesty and trust, both parties can carry out loan transactions. *Plecit banks* place great trust in traders so they do not hesitate in lending their finances. They are also very happy if many customers borrow from them. This is because the more of their customers, the benefits derived from interest rates are very high so that makes them stay in business. The principle of trusting its customers to get recognition of the *Plecit* bank's existence is very strategic. In this day and age, borrowing in capital with trust is hard to find even in the class of state banks, there is a need for collateral so that traders or small communities are unable to borrow.

Trust between the two parties is certainly held by the *Plecit* bank. They need to trust strangers with whom they deal. Communities that arise in conditions of trust have the potential to create extraordinary economic value. They believe that trust opens the way to success. That the concept of trust is also getting attention. As expressed by Mill (1891, 68) recognizes that trust is beneficial for humanity to trust each other in every gap and gap in human life. With the capital of the trust owned by *Plecit* bank in a strategy to find as many customers as possible is very successful. And this trust capital is not owned by formal banks so that *Plecit* banks are the only traders' options in developing their businesses in the traditional markets of Banyumas sub-district. This is reflected in the attitude of official banks that always prioritize formal matters, while *Plecit* banks explore various information from people around to find out potential customers, on this basis the accounts receivable debt transactions are carried out by both parties on the basis of trust.

It seems that *Plecit* Bank is a savior for people who are pressed. As said by Heru Nugroho (2001) who stated an argument that underlie the reality that *Plecit* banks are always more popular than state banks. The less attractive formal financial institutions are in finding clients than the informal financial institutions, making the *Plecit* bank more flexible in carrying out its practices and building personal relationships with its customers, thus establishing an exploitative relationship with the borrower.

3.4. Moral perspective of *Plecit* bank

Aristotle said that morality is a characteristic of a person and not just a result of abstract moral reasoning (Blasi 1993, Solomon 1992). Morality is understood as the essence of being someone (Narvaez and Lapsley 2009). The study of moral perspectives on *Plecit bank* is seen in terms of people's need for money. Money is one part of extrinsic factors that are considered by individuals to conduct debt behavior or provide loans with high interest. This is because debt is not only to meet needs, but to create one's well-being and happiness (Taneja 2012). In fact, according to Marguire in Atmadja and Atmadja (2006) explains that humans have now deified or deified money so that gave birth to money theism. Sina (2013) states that a person's experience, especially related to money can have the opportunity to become money belief. How someone interpreted money as a tool, is very influential on what actions will be taken in managing money.

Basically everyone should be able to manage spending money that is used so as not to be wasteful and difficulty in buying needs that are sometimes sudden, even five-year-old children have seen that money is an important thing (Duravasula and Lysonsnki 2007). Furnham (1998) states that money is seen as a strong thing because it has the ability to affect one's well-being and cognition. For those who don't have money, money acts as a motivator. Money also has the power to provoke anxiety and unhappiness for those who are very difficult to have money (Taneja 2012).

Such is the importance of money that it gets rid of feelings of shame in carrying out the practice of *Plecit* banks that have high interest rates. Many of the banks are indifferent to their profession. Likewise, with the borrowing customers. Based on this analysis it can be concluded that, most *Plecit* banks consider that giving loans to traders is a legitimate job as long as it can help the difficulties of its customers. Likewise, the merchant community, by borrowing at a *Plecit* bank, they feel they are assisted by a *Plecit* bank. Whereas morally, the behavior of borrowing with interest is not in accordance with the principle of conscience. It can be seen that, the Moral Judgment of traders in choosing a *Plecit* bank is still in a stage that has not yet reached their conscience. That is because it is caused by compulsion which is a culture in borrowing. Another case with a *Plecit* bank, on the pretext of looking for profits and as tired in running everyday looking for deposits so that the interest is feasible for them to receive. Yet on the other hand it is very burdensome to the community.

In recent years the issue of debt and credit has received much attention from anthropologists. Among other things they have documented the evil effects of aggressive crediting (Killick 2011). They have shown that microcredit schemes that used to be popular now are increasingly and negatively referred to as microcredit schemes that have inadvertently reproduced the inequalities they should have overcome and turned people into vulnerable neoliberal subjects, they have shown that it does not help to distinguish between formal and informal debt for granted (James 2012, Peebles 2010), and they have explored the complex relationship between debt

and morality (Graeber 2014). The findings of this study indicate that the practice of *Plecit* banks leads to the misery of the people where the excuse about their existence which brings blessings is only an illusion. Their existence is like a destructive parasite if left unchecked.

Conclusion

Based on the results and discussion of this study, it can be viewed that the selection of *Plecit* bank in borrowing by traders is based on compulsion and the urgent needs of traders to fulfill their daily needs. In addition, because of the difficulty of borrowing at formal/state banks as well as a complicated requirements and there must be guarantees to be a factor for traders in finding other alternatives that are easier to find, and one of them is *Plecit* bank. This *Plecit* bank practice is an act that is not based on Moral Judgments, traders do not consider it on the basis of wrong and right, appropriate and inappropriate, fair and unfair. The *Plecit* banks which give a high interest rate is certainly an immoral act, not in accordance with the principle of conscience. Because this kind of relationship is only exploitative, which only benefits one party only and is a slavery of interest. The Alibi of *Plecit* banks to provide assistance to the community is an illusion that brings misery to the community not a blessing.

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Word-of-Mouth Behavior on Social Networking Sites: Case Study on Y and Z Generation Instagram User

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Abstract:

Generational differences naturally form a different pattern of behavior. Demographic characteristics play a dominant role in consumer behavior in the context of communication. This study seeks to explain the relationship of marketing communication activities through social media in the context of describing word-of-mouth behavior on social networking sites. Study on Instagram users' Y and Z generation is related to factors that cause the emergence of interest in shopping on online shopping platforms. The causal relationship of marketing communication through social media is related to trust, social capital and social identity that arise from activities on social networks. This type of research is an explanatory quantitative research. Based on the proposed hypothesis, there are four variables namely trust, social capital, and social identity as well as the word-of-mouth variable.

Keywords: consumer behavior; generation Y; generation Z; word-of-mouth; attitudes; subjective norms; behavioral control.

JEL Classification: M31; M15.

Introduction

Most studies have examined how the internet has a significant influence on the world of marketing. The emergence of social media as a place for humans to interact with each other in cyberspace is an example of a product of the development of the internet. Jones (2010) mentions that web technology on the internet originally only produced information consumers on the network (online). Gradually, with the development of web 2.0, a technology that allows human internet users to create information based on personal experience to the public, the level of use, engagement, and participation of people on the internet is increasing. This is due to their increased participation from being limited to consuming information to be a contributor. A social media user is originally a reader of information. In the process, if there is something that he thinks about and wants to be conveyed to the information disseminator, then the user will respond with comments so that a discussion is created in the online space.

The use of social media as a communication tool needs to prepare a mature strategy (Erdogmus and Cicek 2012). Companies that use social media for marketing communication tools have better efficiency and effectiveness in the marketing strategy than those who spend the majority of the budget on traditional media because social media can increase brand awareness, brand recognition and recall, and segment brand loyalty specifically and segmented. Through social media, companies can monitor consumer interests, product development, and the company's image itself based on consumer responses to issues communicated on social media.

According to Kotler and Keller (2012, 498), one important aspect in the use of social media as a marketing communication tool is word of mouth (WOM). WOM means a dialogue between different parties on the same issue. WOM becomes an important aspect in marketing communication through social media strengthened by the results of Daft and Lengel's (1986) study which states that the greater the presence and social involvement, the greater

the influence it has in communicating with the opposing party. In online promotion tools, the spread of issues through WOM is a measure of customer satisfaction and customer purchasing decisions.

Technological advances have increasingly given rise to relevance in relying on social media as a place to get information. At present, social media has become the main reporting platform and news source for the community. Mobile device ownership is one of the most significant factors in online shopping behavior. Based on Nielsen's research, Indonesia ranks globally in the use of smart phones for online shopping. The latest data from Google consumer behavior written by Kemp (2018) states that Indonesia, whose total population is 265.4 million, has 50% of internet users. Half of the internet users are digital natives. Indonesia occupies the sixth position of the most internet users in the world. The results of the We Are Social survey conducted in Singapore in 2017 (Triastuti, Prabowo and Nurul 2017, 18) show that the population of Indonesia using social media reached 106 million out of a total population of 262 million. The highest activity of social media users in Indonesia is carried out by digital natives with a percentage of 62% using smartphones, 16% using computers, and 6% using tabs.

Tapscott (2009, 11-16) describes the generation of the internet in America which is divided into four groups of generations. First, the baby boom generation (January 1946 - December 1964) which lasted for 19 years and produced 77.2 million children or 23% of the population. Second, generation X (January 1965 - December 1976) which lasted for 12 years and produced 44.9 million children or 15% of the population. This group is also called baby bust. Third, the internet generation (January 1977 - December 1997) which lasted for 21 years and produced around 81.1 million children or 27% of the population. This group is also called millennial generation or generation Y. Fourth, generation Z (January 1998 - present). Millennials and Z generations belong to digital natives who spend almost all of their time interacting through the media. Generational differences naturally form a different pattern of behavior. Demographic characteristics play a dominant role in consumer behavior in the context of communication. Generations Y and Z should not be viewed the same. There has been a shift in shopping behavior patterns from initially conventionally currently leading to the utilization of online shopping platforms that are currently spearheaded by Generations Z and Y. Therefore, in-depth studies are needed regarding how word-of-mouth behavior on social networking sites studies on users Instagram Generation Y and Z. Through word-of-mouth that is spread through Instagram social networks, resulting in the exchange of information between opinion leaders with opinion seekers. The urgency of this research is to describe the various activities carried out by Generation Y and Generation Z consumers in the use of social media in their daily lives. In a research construct there are 3 mediating variables that influence shopping interest, namely attitudes, subjective norms and perceived behavioral control. Therefore, it is necessary to conduct research to find out the factors that influence words of mouth on social media Instagram related to factors that cause the emergence of interest in shopping on an online shopping platform.

1. Literature Review

1.1 Word of mouth and social media

Word-of-mouth (WOM) is an activity that is initiated or driven by organizations. Embed a message in a network rewarding regular consumers to engage in WOM (Lang and Hyde 2013). Consumers imitate the habits or decisions of other consumers along with the social life experienced and the learning done. In addition to imitating, consumers will also discuss the experience of using a product to other consumers. This activity is called word of mouth communication (WOM) because there is a process of sharing information from the direct opinion of a product buyer who has gained experience of use (Hawkins *et al*. 2004 in Litvin *et al.* 2008). WOM was originally interpreted as a face-to-face communication between buyers who have felt the benefit of the product to others who have experience of use or do not have at all both of which are not part of commercial entities (Arndt 1967 in Carl 2006 in Litvin *et al*. 2008).

However, gradually, Westbrook (1987 in Litvin *et al.* 2008) describes WOM more broadly as all informal communication activities directly between consumers of a product by including elements of ownership, usefulness, and characteristics of the product that is already being used. Informal communication referred to by Westbrook is all forms of communication outside the use of mass media and are private. This means that WOM only occurs between consumers, not between producers and consumers. Buttle (1998 in Litvin *et al.* 2008) adds that all informal communication is not always inclusive because companies already use viral marketing that blurs the boundaries between WOM and commercial messages. In its distribution, WOM is influenced by two variables, namely the party that is the source of the message that gives the influence (originator) and the party who receives the message or listener or follower (listener). Duhan *et al.* (1997 in Litvin *et al.* 2008) found that the initiators of WOM who had the most immediate influence were those closest to them, such as friends, family, and relations who had strong relationships or were often called respected and respected people.

According to Kaplan and Haenlein (2012), social media is defined as a collection of internet-based applications that are built on the foundation of web 2.0 ideas and technologies that provide space for users to create content. Jones (2010) mentions that the era of social media has strengthened since media utilizing the internet developed user collaboration features so that it enriched the information and experience gained by modern consumers in evaluating products, brands, and companies. Some social media that have many users are Facebook, Instagram, and Twitter.

1.2 Demographic factors shape consumer behavior

According to Mothersbaugh and Hawkins (2016, 6) defines consumer behavior as actions that are directly involved in obtaining, consuming and consuming products or services, including the decision process that precedes and follows this action. Consumer behavior is a complex, multidimensional process. Consumer decisions often involve numerous steps and are influenced by a host of factors including demographics, lifestyle, and cultural values Consumer purchasing behavior is influenced by cultural, social, and personal cultural factors are the basic determinants of one's desires and behavior (Schiffman and Wisenblit 2015, 258). Cultural, subcultural, and social classes greatly influence consumer buying behavior. Each culture consists of several smaller sub-cultures that provide more specific identification and socialization for their members. Subculture includes nationalities, religions, racial groups, and geographical areas. Personal factors also play an important role in consumer behavior patterns. Personal factors include age and stage in the buyer's life cycle; employment and economic conditions; personality and self-concept; and lifestyle and values.

A generation is a group of individuals of the same age range who have experienced the same historical event in the same time period (Ryder 1965). Borodin, Smith and Bush (2010); Schullery (2013) also states that people who belong to the same generation have similar experiences such as culture, politics, economics, world events, natural disasters and technology so as to form the same views, values, choices and beliefs. According to Mothersbaugh and Hawkins (2016, 117-126) a generation, or age cohort, is a group of persons who have experienced a common social, political, historical, and economic environment. Age cohorts, because their shared histories produce unique shared values and behaviors, often function as unique market segments. Today there are several generations that are still actively working in organizations, including silent generation or traditionalists (1925-1945), baby boomers (1946-1964), generation X (1965-1981), millennials or generation Y (1982-1994) and Generation Z (1995-2009) his generation has also been labeled the digital natives due to the fact that none of the members of this cohort can recall a time before computers, the Internet, and cell phones.

1.3 Research framework

An alternative approach to predicting interests or desires which is generally used in research on consumer behavior is a theory of planned behavior postulated by Ajzen (1991). The theory postulates three factors forming interest, namely attitude towards behavior (attitude towards the behavior), subjective norms (subjective norms), and perceived behavioral control (perceived behavioral control). Each factor has a different effect according to variations in behavior and the situation at hand. This theory also shows that interest directly influences behavior and interest also becomes the media that fully determines the impact of attitudes on subjective behavior and norms, and determines a portion of perceived behavioral control (Ajzen 1991). According to TPB, interest or intention to behave is determined by the relative weight of attitudes toward behavior, subjective norms, and behavioral perceptions. Ajzen and Fishbein (1980 in Bagozzi *et al.* 1989) state that the relative weight of determinants or behavioral formers of interest must be reflected in the interest in behaving itself and that each individual cannot be generalized by determining an equal measure. Below are the factors that formulate behavior:

$$\text{Behavioral Intention(BI)} = {}_{w1}\,\text{Attitude(AT)} + {}_{w2}\,\text{Subjective Norm(SN)} + {}_{w3}\,\text{Perceived Behavior Control(PBC)} \quad (1)$$

In this formulation, each forming factor of interest behaves varies in weight so that although the indicators of each factor are determined equally, the weights in each object of research will be different. Behavior in theory has three aspects, namely: cognitive, affective, and conative (Fisbein, 1967). However, to predict actual behavioral motivation and behavior, researchers use Ajzen's theory (1991) which focuses on the affective aspects only as described above. In order to make research more accurate and in-depth, Huang and Hsu (2009) suggest that TRA Ajzen (1988) about the four elements inherent in behavior are also considered, namely: action, target, context, and time (context) time).

2. Methodology

This type of research is an explanatory quantitative research that aims to identify and explain a phenomenon and state the relationship between variable causality studied (Cooper and Schindler 2006 in Schmidt 2014). This research will provide information and state the effect of electronic word of mouth activities as an independent variable and shopping interest as the dependent variable. Based on the proposed hypothesis, there are four research variables, namely: eWOM, attitudes, subjective norms, perceived behavioral control, and shopping interests. Furthermore, to determine the instrument based on research variables and samples, data collection is done by the method of observation, interviews, and questionnaires.

The data collected is processed using descriptive and quantitative analysis tools. Data analysis technique used to analyze data is Structural Equation Modeling (SEM). The sampling technique in this study was purposive sampling. The population in this study are all Instagram social media users who have an interest in shopping who are members of the same online group as researchers who are active on Instagram and have never or never shopped on online platforms such as Bukalapak, Tokopedia, and Shopee. The sampling technique means the method used to determine the sample that is used as a representation of the population (Sugiyono 2010, 76). The steps taken for purposive sampling in this study are as follows:

- Create a population category of friends in an online group based on age, gender, education level, occupation, and area of origin;
- Determine the sample who really has the desire to shop online and use Instagram;
- Collect a sample of up to 110 respondents and fill out a questionnaire online.

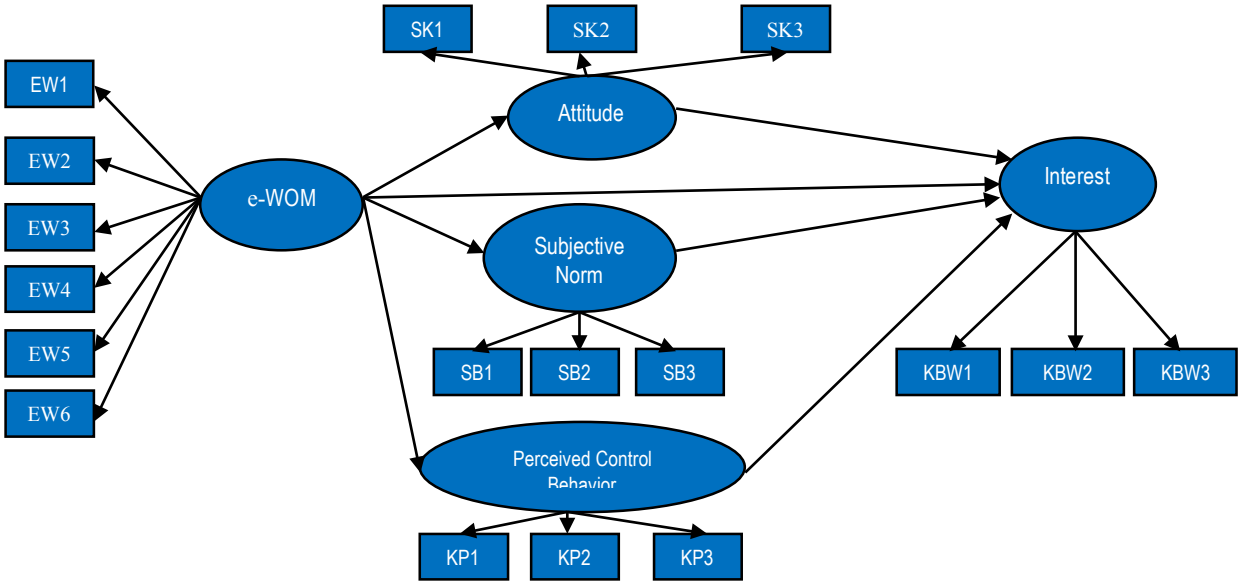
2.1 Data analysis

This study uses SEM analysis techniques to reduce measurement errors and get a confirmatory factor analysis (Confirmatory Factor Analysis). The stages of SEM use conducted in this study will refer to the Hair *et al*. (2014, 565) described as follows.

- Identify the construct individually. The first stage is to build a model that is in accordance with the theoretical basis that has been explored in order to obtain justification for the theoretical model to be developed. Furthermore, the model will be empirically confirmed again;
- Build the entire measurement model. The theoretical model that has been built in the first stage will be illustrated in a flowchart to make it easier to see the causality relationships to be tested;
- Select an input matrix and model estimation. The type of input matrix entered is input data in the form of variance or covariance matrix or correlation matrix. Raw observational data will be converted automatically by the program into a covariance matrix or correlation matrix. The estimated model in this study uses the Maximum Likehood Estimation (MLE);
- Assess the identification of structural models. Structural models are said to be good if they have a solution for one parameter estimate;
- Test Criteria for Assessment of fit. Consist of overall model fit test, test match model measurement, structural model match test;
- Interpretation and modification of the model.

The number of representative samples according to Hair *et al.* (2014, 567). Is dependent on the number of indicators multiplied by 5 and in this study the indicators used were 18, so the sample that should be taken was 90 samples. So this research has exceeded the minimum sample requirements because the number of samples taken was 110. The distribution of the observed variables must be multivariate normal and the absence of outliers. Data is declared multivariate normal if the mutlivariate *c.r.* (critical ratio) meets the requirements -2.58 < c.r < 2.58. The SEM model flow chart of this research is presented in the following figure.

Figure 1. Structural Model of the Effect of eWOM on Shopping Interests with Attitudes, Subjective Norms, and Perceived Control Behavior as Intermediate Variables



Source: Primary data, 2019

3. Findings

3.1 Characteristics of respondents

Demographic characteristics of respondents based on gender, age, occupation and income. Respondents in this study were dominated by women as many as 73 respondents or 66.36% while the rest were men, amounting to 37 people or 33.64%. Around 60.91% of respondents or 67 respondents aged 17-22 years and the rest aged 23-28 years that is equal to 35.45% (39 people), 29-34 years which is about 1.82% (2 respondents) and 35 -39 years at 1.82% (2 people). When viewed in terms of work most of the respondents were students, namely 76.3% (84 people), while 16.36% (18 people) were private employees, and BUMN employees were 1.82% (2 people) while the rest were 5.45% (6 people). When viewed in terms of income, most respondents have income<Rp. 3,000,000, namely 79.09% (87 people), then 18.18% of respondents (20 people) have income > Rp. 3,000,000 - Rp. 10,000,000, and the rest 2.73% of respondents (3 people) have an income > Rp. 10,000,000.

3.2 Structural equation modeling (SEM) analysis

Hypothesis testing in this study uses SEM analysis to reduce measurement errors and get a confirmatory factor analysis (Confirmatory Factor Analysis). The stages of SEM use conducted in this study will refer to the Hair *et al*. (2014, 565) Selecting the input matrix and estimation models.

Table 1. Model compatibility testing

No	Constructs	Indicators	Λ	λ^2	1- λ^2	CR	VE	Information
1	*e-WOM*	EW1	0.710	0.504	0.496	0.840	0.470	Good Validity
		EW2	0.731	0.534	0.466			Good Validity
		EW3	0.547	0.299	0.701			Good Validity
		EW4	0.753	0.567	0.433			Good Validity
		EW5	0.624	0.389	0.611			Good Validity
		EW6	0.724	0.524	0.476			Good Validity
	TOTAL		4.089	2.818	3.182			Good Reliability
2	*Attitude*	SK1	0.707	0.500	0.500	0.808	0.586	Good Validity
		SK2	0.852	0.726	0.274			Good Validity
		SK3	0.730	0.533	0.467			Good Validity
	TOTAL		2.289	1.759	1.241			Good Reliability
3	*Subjective Norms*	SB1	0.745	0.555	0.445	0.850	0.656	Good Validity
		SB2	0.899	0.808	0.192			Good Validity
		SB3	0.778	0.605	0.395			Good Validity

No	Constructs	Indicators	Λ	λ^2	1- λ^2	CR	VE	Information
	TOTAL		2.422	1.969	1.031			Good Reliability
4	*Perceived Control Behavior*	KP1	0.753	0.567	0.433	0.844	0.645	Good Validity
		KP2	0.886	0.785	0.215			Good Validity
		KP3	0.764	0.584	0.416			Good Validity
	TOTAL		2.403	1.936	1.064			Good Reliability
5	*Interest*	KBW1	0.605	0.366	0.395	0.831	0.624	Good Validity
		KBW2	0.692	0.479	0.308			Good Validity
		KBW3	0.804	0.646	0.196			Good Validity
	TOTAL		2.101	1.491	0.899			Good Reliability

Source: Primary data, 2019

The model estimation in this study uses Maximum Likehood Estimation (MLE) because this technique requires a sample size of 100-200 and in this study 110 samples were used. Model fit testing in this study has a good value, because all constructs have construct reliability values (CR) > 0.7, then for the variance extracted value (VE) most constructs have values> 0.5 only e-Wom construct values are has a value below 0.5 that is 0.470 but the value is also close to the recommended value. So it can be concluded that all research variables and indicators in the fit model have good validity and reliability.

3.3 Hypothesis testing results

Research hypothesis testing was carried out on seven proposed hypotheses. Hypothesis testing is done by using the t-value with a significance level of 0.05. The t-value in the AMOS 21 program is the critical ratio (C.R.) value in Regression Weights from the fit model (Full Model). If the value of the critical ratio (C.R.) ≥ 1.96 and the probability value (p) ≤ 0.05, then H0 is rejected (research hypothesis is accepted).

Table 2. Hypothesis testing results

			Estimate	S.E.	C.R.	P	Label
Attitude	<--	eWOM	.355	.106	3.339	***	par_14
Subjective Norm	<--	eWOM	.510	.121	4.202	***	par_15
Perceived control	<--	eWOM	.534	.123	4.326	***	par_18
Interest	<--	Perceived control	.105	.063	1.667	.096	par_16
Interest	<--	eWOM	.167	.085	1.979	.048	par_17
Interest	<--	Perceived control	-.005	.062	-.086	.931	par_19
Interest	<--	Attitude	.376	.093	4.033	***	par_20

Source: Primary data, 2019 (***: Significant level of p < 0.001)

Hypothesis 1

H0: eWOM does not have a positive influence on attitudes towards shopping on an online platform.

H1: eWOM has a positive influence on attitudes towards shopping on online platforms.

Based on Table t-value or C.R. of 3.339 > 1.96 and p value of (***) < 0.05 then H0 is rejected and H1 is accepted. So eWOM has a positive influence on attitudes towards shopping on online shopping platforms.

Hypothesis 2

H0: Attitude of shopping on online shopping platforms has no positive influence on shopping interest.

H2: The attitude of shopping on online shopping platforms has a positive influence on shopping interests.

Based on Table t-value or C.R. of 4.003 > 1.96 and p value of (***) < 0.05 then H0 is rejected and H2 is accepted. So shopping attitude on the online shopping platform has a positive influence on shopping interest.

Hypothesis 3

H0: eWOM has no positive influence on subjective norms.

H3: eWOM has a positive influence on subjective norms.

Based on Table t-value or C.R. of 4.202 > 1.96 and p value of (***) < 0.05 then H0 is rejected and H3 is accepted. So eWOM has a positive influence on subjective norms.

Hypothesis 4

H0: Subjective Norms do not have a positive influence on the desire to travel.

H4: Subjective Norms have a positive influence on the desire to shop.

Based on Table t-value or C.R. amounted to 1,667 < 1.96 and p value of 0.096 > 0.05 then H0 failed to be rejected. So subjective norms do not have a positive influence on the desire to travel.

Hypothesis 5

H0: eWOM has no positive influence on perceived behavior control.

H5: eWOM has a positive influence on perceived behavioral control.

Based on Table t-value or C.R. of 4.326 > 1.96 and p value of (***) < 0.05 then H0 is rejected and H5 is accepted. So eWOM has a positive influence on perceived behavioral control.

Hypothesis 6

H0: Perceived behavioral control has no positive influence on shopping interest.

H6: Behavioral control has a positive influence on shopping interests.

Based on Table t-value or C.R. equal to -0.086 <1.96 and p value of 0.931> 0.05 then H0 fails to be rejected. So perceived behavioral control has no positive influence on shopping interest

Hypothesis 7

H0: eWOM has no positive influence on shopping interests.

H7: eWOM has a positive influence on shopping interests.

Based on Table t-value or C.R. of 1.979 > 1.96 and p value of (0.048) < 0.05 then H0 is rejected and H7 is accepted. So eWOM has a positive influence on shopping interest

3.4 Direct, indirect and total effects

The analysis of influence is intended to see how strong the influence of a variable with other variables both directly and indirectly. The interpretation of these results will have important meanings for determining clear strategies in improving the performance of marketing managers. The results of the calculation of direct, indirect and total influence by AMOS 21 are as follows

Table 3. Direct, indirect and total effects

	eWOM	Perceived behavioral control	Subjective Norm	Attitude	Interest
Perceived behavioral control	.523	.000	.000	.000	.000
Subjective Norm	.500	.000	.000	.000	.000
Attitude	.406	.000	.000	.000	.000
Interest	.287	-.009	.183	.563	.000

Source: Primary data, 2019

The variables that have a direct influence on the variable desire to travel are eWOM variables of 0.287 and Attitudes of 0.563. Subjective norms and behavioral control variables do not have a direct influence on travel preferences because in Table 1 the value of t-value or C.R.<1.96 and p value>0.05 so H0 is accepted. In addition, eWOM variables also have a direct influence on attitude variables of 0.406, subjective norm variables of 0.500 and behavioral control variables of 0.523. The eWOM variable is 0.315 which has an indirect influence on shopping desirability.

The results of the calculation of the total effect of eWOM, behavioral control, subjective norms, and attitudes, towards shopping interest. The total effect of attitude (0.376) has the most influence on travel intention compared to other variables. Furthermore, for the eWOM variable, the total effect value on behavioral control is 0.534, the subjective norm is 0.510 and the effect on attitude is 0.355.

Table 4. Total effects

	eWOM	Perceived behavioral control	Subjective Norm	Attitude	Interest
Perceived behavioral control	.534	.000	.000	.000	.000
Subjective Norm	.510	.000	.000	.000	.000
Attitude	.355	.000	.000	.000	.000
Interest	.351	-.005	.105	.376	.000

Source: Primary data, 2019

3.5 Discussion

3.5.1. Effects of electronic word-of-mouth on attitudes, and attitudes on shopping interests

Attitude is an important psychological construction in analyzing human behavior because the attitude influences and becomes a tool of reductions for a behavior to be carried out (Krauss 1995 in Jalilvand 2012). In this study, what is defined as behavior is shopping interest and what is defined as attitude is the attitude to shop on online shopping platforms. In the research of Dennis *et al.* (2009 in Jalilvand and Samiei 2012) who developed a model of consumer behavior in the online world, the desire to buy occurs when there is a positive influence on the consumer's attitude toward the seller. According to Soderlund and Rosengren (2007 in Jalilvand and Samiei, 2012), WOM has an indirect influence on the attitudes of recipients of information about the company through assessments made by recipients of information on emotions sent by the sender of information.

The results of this study indicate that eWOM has a significant influence on attitudes as seen from the t-value or C.R. in Table 3 which is 3,339>1.96. and the value of p (***) is significant at the level of 0.001 so H0 is rejected and H1 is accepted. eWOM has a positive influence of 0.355 on attitudes to shop online, this means that if the value of eWOM increases it will increase the attitude to shop on online media platforms assuming other independent variables are considered constant. The results of this study are supported by research conducted by Ying and Chung (2007 in Jalilvand and Samiei 2012) which states that a positive WOM encourages an attitude that has a positive impact on the product rather than a negative WOM.

A positive and interesting post or review can have a positive effect on one's attitude when considering shopping. In the process of determining which online shopping platform to choose and to convince themselves in shopping for a product, not a few people will see posts or reviews about a product on social media, one of which is Instagram. Information about services and access will certainly greatly affect a person's attitude if delivered in a complete and accurate manner. By consulting with people who have made posts and reviews about online shopping platforms, someone will feel safer and feel confident about choosing to shop on that platform. There is a tendency to be afraid of choosing the wrong destination if they do not make sure they have received good and relevant information about the product they are buying.

Attitude variables in this study have a positive influence on online shopping interest, this can be seen from Table 2 which shows the value of t-value or C.R. of 4.003 > 1.96 and p value of (***) < 0.05. The more positive the value of attitude will also increase interest in shopping online. Indicators in attitude variables that have a positive influence on shopping interest when viewed are strongly influenced by the eWOM variable itself. The more interesting and positive posts and reviews about the online shopping platform on Instagram, the more people will judge the quality of the platform's products and services. People will feel that if they decide to shop on an online shopping platform, the experience gained will be worth the money.

3.5.2. Effects of electronic word-of-mouth on subjective norms and subjective norms on shopping interest

Referring to TPB, the second factor forming desire is subjective norm. In TPB, subjective norms are defined as perceptions that are formed from social pressure from outside the self which determines whether or not a behavior is carried out (Ajzen 1991). Components of subjective norms are normative beliefs or also called a person's perception of the opinions of others who refer a thing to him to do or not do a behavior. Hung *et al.* (2003) in their research concluded that the influence of peers and social environment is an indicator of subjective norms affecting behavior in the process of technological adaptation. What is meant by peer influence here includes WOM from friends, colleagues or respected people, and family, while the influence of the environment in question is the opinion of experts, media reports, and general information circulating in the community (Teo and Pok 2003 in Jalilvand, Samiei, Dini, Manzari 2012).

From the results of this study indicate that eWOM has a significant influence on subjective norms, it can be seen from the t-value or C.R. in Table 4. that is 4,202 > 1.96. and the value of p (***) which is significant at the level of 0.001. eWOM has a positive influence of 0.510 on subjective norms, this means that if the value of eWOM

increases it will increase the subjective norm assuming the other independent variables are considered constant. Other research that also supports the results of this study is a study conducted by Schepers and Wetzel (2007 in Jalilvand and Samiei 2012) in an analysis model for developing technology acceptance states that subjective norms that influence the use of new technology by consumers are spread through WOM.

In this study also obtained the results that subjective norms do not have a significant effect on the desire to travel it can be seen from the t-value or C.R. in Table 4 that is equal to 1.667<1.96 and p value of 0.096>0.05. This shows that subjective norms do not play a role in influencing tourist desires. The decision to go on a person's tour is more due to their own awareness or decision. After getting information about a destination, personal decision will determine whether someone wants to travel to Lombok or not. Suggestions from others both from close people such as friends or family are not very influential in the decision making process.

3.5.3. Effects of electronic word-of-mouth on perceived behavior control and perceived behavioral control on shopping interest

Perceived behavioral control is defined as whether or not perception is easy in carrying out a behavior (Ajzen, 1991). Furthermore, Ajzen (1992) adds that perceived behavioral control is assumed to be a reflection of past experiences that are anticipated and the consequences that might be received if the behavior is carried out again. Mathieson (1991) adds that perceived behavioral control is situational or depends on the characteristics of each individual so that it cannot be generalized. Behavioral control is also associated with the use of information technology as in direct tests conducted Mathieson (1991) found that behavioral control perceived has a significant effect on the intensity of the use of information technology. Other research on control behavior tries to relate it to WOM as conducted by Palka *et al*. (2009) about mobile WOM where the results of the study found that resource-based conditions can influence perceived self-control.

In this research, the results show that eWOM has a significant relationship to self-perception which is perceived subjectively it is seen in Table 4 of the value of C.R. of 4.326>1.96 and p value of (***) which is significant at the level of 0.001. eWOM has a positive influence of 0.534 on perceived behavioral control, this means that if eWOM has increased it will also be followed by an increase in perceived behavioral control. While from the results of this study in the hypothesis of the influence of perceived behavioral control on shopping interest it was found that the perceived behavioral control variable did not have a positive influence on shopping interest on online shopping platforms, it can be seen from the t-value or C.R. of -0.086<1.96 and p-value of 0.931> 0.05.

If you look at the demographic characteristics of respondents who showed a number of 76% of respondents are students / students who are generation Z, then it can be understood why the perceived behavioral control variable does not have a positive effect on Shopping Interest. For Generation Z where they do not yet have their own income, the decision to shop on an online media platform will be greatly influenced by their resource capabilities.

3.5.4. Effects of electronic word-of-mouth on shopping interest

Based on the WOM definition put forward by Westbrook (1987 in Jalilvand and Samiei, 2012), electronic word of mouth (eWOM) can be interpreted as all informal communication that occurs directly between consumers through the internet media related to experience in using goods and services or related to the seller of goods and these services. Such communication also includes communication between producers and consumers as occurs between consumers who flow from mouth to mouth itself (WOM) or through the mass media. (Goldsmith 2006 in Jalilvan and Samiei 2012). Litvin *et al.* (2008), conducting research in the United States, also found that the selection of restaurants for culinary tourism was influenced by WOM recommendations from opinion leaders.

In this study eWOM has a positive influence on shopping interest, it can be seen from the t-value or C.R. in Table 4 which is 1,979>1.96. And p value 0.048<0.05. eWOM has a positive effect of 0.351 on shopping interest, this means that if the value of eWOM increases it will also increase interest in shopping on online media platforms assuming other independent variables are considered constant. The results of this study are in line with previous research which found that eWOM in the form of consumer reviews influences purchasing decisions such as research conducted by Chen and Xie (2008). According to Godes and Mayzlin (2004 in Jalilvand and Samiei 2012), modern consumers will seek information and solicit input from other consumers who already have experience in using the product before making a purchase.

Conclusion and Managerial Implications

Based on the discussion that has been described in the previous chapter, it can be concluded as follows:

- Word-of-mouth on social media has a positive influence on attitudes toward shopping interest;

- Attitudes towards online shopping platforms have a positive influence on shopping interests;
- Word-of-mouth on social media Instagram has a positive influence on subjective norms;
- Subjective norms do not have a positive influence on shopping interest;
- eWOM has a positive influence on perceived behavioral control;
- Perceived behavioral control has no positive influence on shopping interest;
- eWOM has a positive influence on shopping interests.

Managerial implications

There are several managerial implications that can be applied both by the government and related parties such as the private sector, namely companies that provide online shopping platforms. Because the eWOM variable has an influence on attitudes, subjective norms, perceived behavioral control and asking to shop on an online shopping platform, the eWOM variable becomes the main focus that must be used as a reference for online shopping platform providers to increase the number of consumers. From the statement contained in the eWOM variable, it can be seen that the statement about searching for information about the review of an online shopping platform that is intended before shopping gets the largest average value, therefore the related parties should provide information about the services and products offered online either through websites and other social media because with this information more people will read and generate interest in shopping online.

Besides needing to convey tourism information online, both through the website and social media, online shopping platform service providers need to control the form and content of the information submitted to further enhance positive information related to the online shopping platform. Collaborating with social media users such as Influencers and social media accounts that specifically promote online shopping practices such as Instagram. Understanding the behavior patterns of Generation Y and Z raised in this study is very important, their adaptation to high technology compared to other generations, allows companies to provide online shopping platforms to maximize their sales, demographically Generation Y and Z are the main consumers of shopping platforms on line.

Implications for further research

For further research it is recommended to use a wider area coverage because of the potential for online shopping in Indonesia which is currently developing very rapidly. Future studies are expected to use more samples so that research results are better. Future studies can examine other variables related to marketing communication and explore more deeply the impact of eWOM for e-commerce trends in Indonesia in general.

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Rising Profits with Declining Investment? An Empirical Investigation

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Abstract:

The paper is a contribution to explaining the phenomenon of the slow investment growth in recent decades, which accompanied ever-rising profits. It investigates profit share and capacity utilization effects on the investment share of output for US nonfinancial corporates. It utilizes the demand regime literature to explore the effects of income distribution and production capacity on Investment. We use the US nonfinancial corporate businesses data for (1960-2018) as a sample. The tested dependent variable is the investment share of output, while the independent variables are the profit share of output and capacity utilization, expressed as the ratio of output to nonresidential fixed capital. Given the nonstationary and absence of co-integration in the tested variables, the econometric test is based on a vector Autoregression model that uses the (Toda and Yamamoto 1995) procedure to test for Granger causality. The paper finds that profit share does not Granger-cause investment share of output, while capacity utilization does Granger-cause the investment share, which puts into question the feasibility of profit-led growth policy. The paper confirms the validity of the late Kaldorian view of the relationship between income distribution and growth, which has emphasized a prominent role of capacity utilization in determining investment.

Keywords: income distribution; investment; accelerator; post-Keynesian.

JEL Classification: E01; E12; E25; E22.

Introduction

Recent decades witnessed a decline in investment accompanying high profits for US corporates (Lazonick 2014). At the same time, there has been a revival of recognizing the role of the accelerator effect -capacity utilization rate- in stimulating investment (IMF 2015). To shed light on the dynamics of the accelerator effect, income distribution, and investment, the paper empirically investigates the profit share and capacity utilization effects on investment share for the US of nonfinancial companies in the last six decades. The evidence supports demand-driven investment where capacity utilization rather than profits is what drives investment spending.

This paper is part of the broader debate about the role of the accelerator and income distribution in the process of economic growth within the family of models that emphasizes the role of demand in the process of economic growth.

Understanding the dynamics of income distribution and growth has gained importance with the experienced rise of income inequality and the weak performance of investment accompanying rising corporate profits. These dynamics have been tackled in the demand regime literature pioneered by (Bhaduri and Marglin 1990) seminal paper (Blecker 2016).

This literature studies the relationship between income distribution and growth from a demand point of view. Its models explore the relationships between capacity utilization, profits in one hand and investment on the other hand. Illustrative examples of the models are the Neo-Kaleckian models inspired by (Bhaduri and Marglin 1990), Goodwinian models of (Barbosa-Filho and Taylor 2006), and Kaldorian model of (Perez and Vernengo 2017) based on (Kaldor 1970), (Kaldor1988), emphasis on the role of capacity utilization -expressed as the ratio of output to fixed capital - in driving profit expectations and investment.

Both the Kaleckinan and the Goodwinian models conceive the possibility of profit-led regimes in which higher profit share stimulates investment, (Stockhammer and Stehrer 2011). However, the Kaldorian model objects to the possibility of such a regime, as an investment is derived demand stimulated mainly by capacity utilization, (Dosi *et al.* 2015) that is driven by higher levels of wages or debts. Similar to the Kaldorian model, in the Sraffian super-multiplier of (Freitas and Serrano 2015), growth of investment is driven by the degree of capacity utilization.

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The two groups of models have different implications regarding the role of profits in stimulating investment. At the core of this debate is the question whether producers' investment decisions are driven mainly by the rate of capacity utilization-the accelerator effect- as maintained by the Kaldorian model, or also by profit levels as in the Kaleckian and the Goodwinian models. The paper is an attempt to settle this debate by empirically investigating these relationships in the case of US nonfinancial corporates between 1960 and 2018.

In the demand regime literature, among the conducted to determine the regime demand of national economies at aggregate level, (Onaran and Galanis 2011), using macro data, found the demand regime in the US to be wage-driven. While (Carvalho and Rezai 2015) using Gini coefficient and real output in a two-dimensional threshold VAR method, found the demand regime to be profit-led.

To specify the relationships among the three variables for US nonfinancial corporates, the paper implements an econometric test to investigate Granger causality between profit share and capacity utilization in one hand and investment spending share in the other hand.

Given the nonstationary and absence of co-integration in the tested variables, we employ the (Toda and Yamamoto 1995) causality test procedure. The econometric test finds that capacity utilization Granger-cause investment share, while profit share does not Granger-cause investment share, which statistically imply for a view of investment as derived demand and provides support for the Kaldorian view of investment.

1. Nonfinancial Corporates Capacity Utilization, Investment, and Profit Shares Trends

When we examine the trend of capacity utilization of nonfinancial companies measured as the ratio of output to nonresidential fixed capital since 1960, Figure 1, we find that there has been a secular decline of capacity utilization since the late 1960s. Capacity utilization was greater the whole studied period average in the 1960s and the 1970s and has declined below the average since 1979. After the 1970s it maintained a long-run declining trend accompanied by cyclical fluctuations throughout the whole period, Table 1.

Figure 1. Nonfinancial corporate capacity utilization 1960 Q1- 2018 Q3

Table 1. Historical averages of the main variables 1960 Q1-2018 Q3

	Capacity Utilization	Profit Share of Output	Net Investment Share of Output
1960 Q1 - 2018 Q3	1.46	46.93%	5.50%
1960s	1.78	43.22%	6.77%
1970s	1.54	43.92%	6.70%
1980s	1.36	46.80%	5.61%
1990s	1.39	47.67%	5.35%
2000s	1.35	49.17%	4.07%
2011 - 2018 Q3	1.32	51.64%	4.36%

Nonfinancial corporates' net fixed investment share of output has been declining since the early 1980s. It recovered in the late 1990s boom, then continued a declining trend, Figure 2. The profit share of the nonfinancial corporates – profits are measured as the gross value added minus employee's compensation- was below the period average in the 1960s and 1970s, but since the early 1980s, it witnessed a secular increase characterized by levels above the average and cyclical fluctuations that did not dent the robust increase in profit share, which reached unprecedented levels in 2000s until the end of the examined period, Figure 3.

Figure 2. Nonfinancial corporate net fixed investment share of output 1960 Q1- 2018 Q3

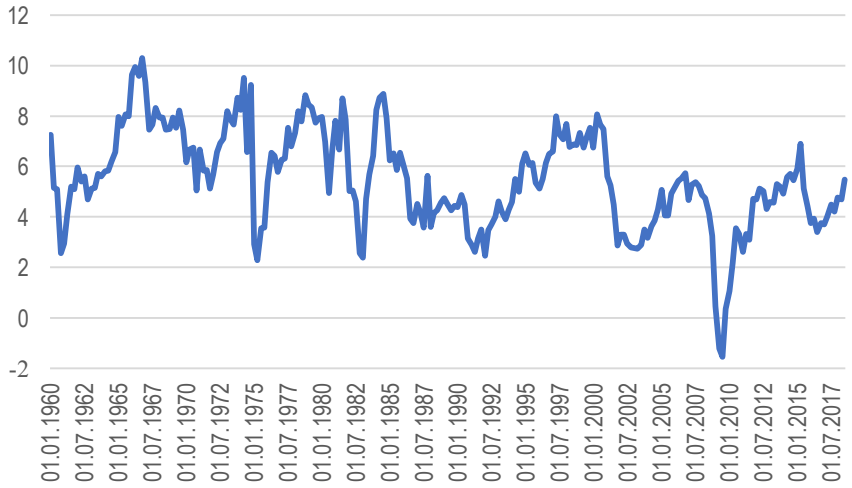


Figure 3. Nonfinancial corporate profit share 1960 Q1- 2018 Q3

Using scatter plots to investigate the relationship between the variables. We find overall a positive association between capacity utilization and investment share of output, Figure 4, which could suggest a demand-driven view of investment.

Figure 4. Scatter plot of capacity utilization and investment share of output

Profit share and investment share of output plot, Figure 5, shows a negative association which could be a result of squeezing income out of the wage-earning class which causes a decrease in consumption and a reduction in capacity utilization, which also shows a negative association with the profit share, Figure 6.

Figure 5. Scatter plot of profit share and investment share of output

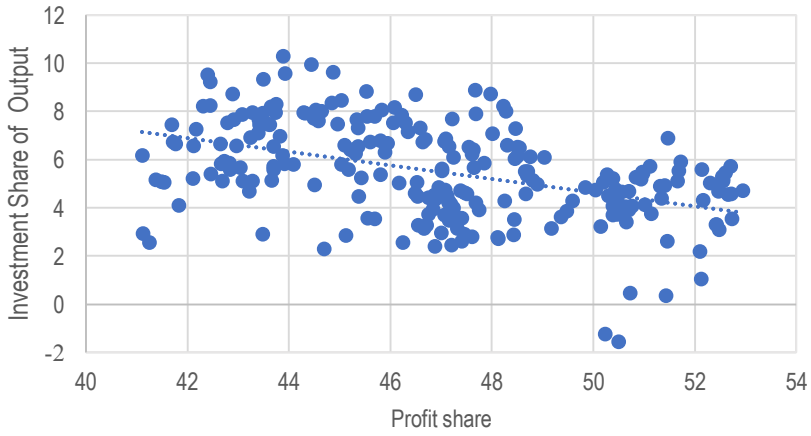
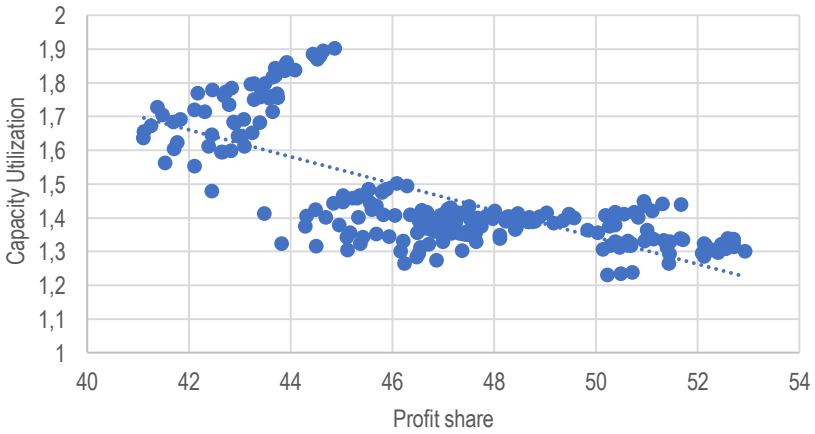


Figure 6. Scatter plot of profit share and capacity utilization



2. The Econometric Test

The econometric strategy is to test whether the change in the investment share of output was driven by a change in profit share or capacity utilization or both.

The tested relation is the granger causality of Y/K and P/Y as independent variables on I/Y as the dependent variable. Where I is nonfinancial corporates net fixed investment, Y is nonfinancial corporates gross value-added level, K is nonfinancial corporates fixed assets equal to the sum of equipment+ intellectual property assets, and P is nonfinancial corporates profits measured as the gross value added minus employee's compensation, All data from BEA Integrated Macroeconomic Accounts.

Given the different order of integration of the three variables, Toda and Yamamoto Granger non-causality test is implemented. This method enables estimating a level vector autoregression for variables of different degrees of integration as long as "the order of integration of the process does not exceed the true lag length of the model".

First, we use the Augmented Dicky-Fuller unit root and Phillips–Perron tests to determine the degree of integration. We find that investment share of output is stationary, while profit share and capacity utilization variables are integrated at the first order. Next, we determine the appropriate lag length for the VAR test we find that both Akaike's information criterion (AIC), final prediction error (DPE) indicate the choice of two lags.

The estimated VAR model is stable and there is no serial correlation in the residuals.

When the Todda-Yamamoto modified Wald-test is implemented we find that we can reject the null hypothesis that capacity utilization does not Granger-cause investment, while we cannot reject the null hypothesis that profit share does not Granger-cause investment, Table 2.

Table 2. Toda -Yamamoto modified Granger non-causality Wald-test

Dependent variable: Corporate investment share of output			
Excluded	Chi-sq	df	Prob.
Corporate profit share	3.602556	2	0.16510
Corporate capacity Utilization	68.73873	2	0.00000
All	69.91833	4	0.00000
Dependent variable: Corporate profit share			
Excluded	Chi-sq	df	Prob.
Investment share of output	13.93098	2	0.00090
Corporate capacity Utilization	1.063104	2	0.58770
All	28.39037	4	0.00000
Dependent variable: Corporate capacity utilization			
Excluded	Chi-sq	df	Prob.
Investment share of output	22.64664	2	0.0000
Corporate profit share	2.478281	2	0.2896
All	23.66573	4	0.0001

Sample: 1960 Q1 - 2018 Q3. Included observations

The results suggest that at 5% significance level, capacity utilization granger cause investment share of output, which implies that capacity utilization could enhance the forecast of investment share of output, while there is no Granger causality from profit share to investment share of output. The test outcome is a confirmation of the Kaldorian model, which questions the feasibility of profit-led growth policy, and affirms its implication of investment being driven by capacity utilization.

Conclusion

The paper is an attempt to explain the recent phenomenon of high profits and relatively declining investment. The test is based on the demand regime models literature on the determinants of investment.

The econometric test shows that capacity utilization Granger- caused an investment share of output, while profit share did not granger-causes investment share of output. Although the test cannot be used as a proof of causality, the test results put into question the argument for a profit-led growth policy and suggest that investment could mainly be driven by capacity utilization. These results contribute to the explanation of the recent combination of booming profits with the weak investment growth performance of nonfinancial corporates.

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Price Setting Behavior in Nigeria: Some Stylized Facts

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Abstract:

This study analyzed the microeconomics of price setting behavior in Nigeria using micro-level retail price data underlying the computation of national indices of consumer prices in Nigeria. This data covers monthly price changes from January, 2011 to December, 2015. Descriptive statistics were used to align theories of price rigidities with data. The results revealed that prices were highly flexible, frequency of price changes is rigid downwards, degree of synchronization is low and the average size of individual price changes is quite small. Generally, the findings are consistent with literature in that state dependent pricing model explains the price setting behavior in the goods sector while time dependent pricing model explain that of service sector. The study advocated for stable macroeconomic environment to reduce the consequences of state dependent price setting in an economy that is prone to exogenous macroeconomic shocks.

Keywords: price setting; price rigidities; macroeconomic shock.

JEL Classification: E39; L16.

Introduction

Price signals manifest itself in the pricing behavior of firms. From the microeconomic perspective, it reflects the competitive behavior at sectoral level and how firms react to the economic environment within which they operate and its effects on their profitability. (Maharaj 2012). From the macroeconomic perspective, the nature of the price setting behavior has implications on welfare consequences of business cycles, the behavior of real exchange rates and optional monetary policy (Nakamura and Steinsson 2008, Parker 2014, Sheshinski and Weiss 1977). In spite of the importance of price setting behavior of firms, there are very limited studies of price setting behavior in the developing countries in general, and particularly in Africa. This is largely because the requisite disaggregated price data are unavailable in developing countries where economic shocks are frequent, inflation rates are high and market inefficient creates frictions to price adjustment. Price setting behavior in Africa may therefore challenge economic theories of price setting as well as empirical models used to stimulate the effects of policy and other shocks on the macroeconomic and microeconomic environment in the developed economies. This is because different types of price setting rules predict different relationship between inflation and the frequency of price change.

Aucremmane and Dhyne 2005, Herhouci, Michand and Morean 2008). It is important, therefore, to obtain direct and independent evidence on the price rigidity in order to find out which price setting rules can best explain actual price setting behavior in a particular country. This study focuses on Nigeria, African most populated country and one of the region two biggest economies (AfDB 2016). This study is unique in the sense that it fills the gap of limited literature on price setting behavior in Africa by using data from one of the most important countries in the region.

1. Literature Review

The theoretical basis for evaluating the role of price setting in economics has evolved overtime. For example, the rational expectations and real business cycle models that emerged in the 1980s and 1990s did not acknowledge the role of price rigidity in stimulating economic growth during periods of slack in demand. The recent models, on

the other hand, accept the role of price setting in stimulating growth and acknowledge its outstanding consequences on business cycles, its effects on behavior of real exchange rates and its impacts on inflation (Amirault, Kwan and Wilkinson 2005). These recent models are broadly divided into two; the time dependent model and the state dependent model. Both models imply the presence of certain degree of stickiness but their aggregate implications on economic outcomes differ (Nakamura and Steinson 2008, Caplin and Spulber 1987).

According to the time dependent pricing model, price change, which is determined by the passage of calendar time, is the outcome of optimization process by the firm (Small and Yates 1999). There is thus an exogenous staggering of price changes across firms in the economy in which a fixed fraction of the number of firms alter their prices in each period (Nchake 2013, Klenow and Kryvtsov 2008). But which firms can or cannot adjust their prices are exogenously determined (Small and Yates 1999).

The state dependent pricing model, on the other hand, assumes that firms adjust their prices as a result of the outcome of an optimization problem with timing of price change being when the result of cost benefit analysis indicates that the benefits outweigh the fixed costs of adjustment (Caplin Leahy 1991). The assumption of endogenous timing of price changes in which the frequency of price change is dependent on macroeconomic conditions is considered to be more realistic although more difficult to incorporate into macroeconomic models (Bakhshi, Khan and Rudolf 2007). Price changes depend on observable economic factors such as inflation (Fabian *et al.* 2006) and firm will decide when it is worth paying the adjustment costs (Neimen 2009).

The empirical literature on the subject of price setting behavior is almost entirely dominated by studies conducted for developed countries such as United Kingdom, (Parker and Greenslade 2012) the euro area (Fabiani, Gattulli, Sabbatini and Veronese 2006), Portugal (Martin 2005) and Canada (De-Munik and Xu 2007). Some of these studies focused on relatively narrow sets of products or single product (Cecchetti 1986, Verboven 2001), single firm or a single market (Kashyap 1995) which tended to be too narrow to permit implications to be drawn for price stickiness on the broad economy. To overcome this shortcoming a number of studies have used the micro data that examined individual retail price level data to offer insight into the characteristic of price setting behavior. These include Small and Yates (1999) for the United Kingdom, Bils and Klenow (2004), Nahamura and Steinson (2008) for the United States, Parker (2014) for New Zealand, Gouvea (2007) for Brazil, Nchake (2013) for Lesotho, and Balchin (2014) for Southern African Development Community. These studies have provided comprehensive empirical microeconomic evidence on price setting behavior using micro data across different regions.

The empirical findings on price setting suggest that pricing strategies differ across industries and countries. For example, Almirault e*t al.* (2005) suggest that Canadian firms have asymmetrical response of prices to changes in economic conditions while Small and Yates (1999) find that market structure affects nominal rigidity. Martin (2005) finds that the degree of nominal rigidity is higher in the service sector than goods sector. (Kovanen 2006, Auccramanne and Dhyne 2004) discover a great variability in the degree of synchronization across product categories. Also, hazard rates have been found to differ across countries and industries (Nchake 2013; Creamer, Tarrelli and Rankin 2012; Nakamura and Steinson 2008; Klenow and Kryrtsor 2008).

In summary the literature reveals that the degree of price rigidity in terms of frequency, duration and size of price changes vary across industries, countries and time. This means that no theoretical pricing model exactly matches the empirical features found in the data and fitting country specific data will enrich the literature.

2. Methodology

2.1 Methods and analytical techniques

Recent studies on price setting behavior have concentrate on the use of micro level datasets underlying official CPI and PPI complied by national statistical agencies (Nchake 2013). Studies with microeconomic data have used the frequency based approach (Balchin 2014). This approach is appropriate because in order to gain insight into the quantitative nature of the price setting process, the duration of a price spell needs to be estimated. The frequency approach also allows the use of the full data and avoids the potential bias from censored data. This study adopts the frequency approach following the work of Nchake (2013). The study also adopts descriptive statistics as analytical technique.

2.2. Empirical specifications

Frequency of price changes

An indicator variable is first created as:

$$X_{ijt} = \begin{Bmatrix} 1\ if P_{ij} \neq P_{ijt-1} \\ 0\ if P_{ij} = P_{ijt-1} \end{Bmatrix} \quad (1)$$

where: i = refers to product, *j* = market, *t* = time, P_{ijt} = log price of product *i* in market *j* and in month *t*.

This indicator is now used to compute the average frequency of price changes for product *i* in retail market *j*, over the period t as:

$$Fr_{ij} = \left(\frac{1}{T_{ij}-1}\right)\sum_{t=2}^{T_{ij}} X_{ijt} \quad (2)$$

where: Fr_{ij} is the frequency of price changes of product *i* in market *j*; T_{ij} is the number of observations of the price of product *i* sold by market *j*; p_{ijt} is the price of product *i* charged by market *j* in period *t*, x_{ijt} is as defined in equation (1).

Duration of price spells

Duration of price spell $= \frac{1}{Fr_{ij}}$, for all *i* = 1….i, j = 1,…….*j* (3)

Direction of price changes

A two-step procedure is used to compute the number of price increases and decreases which are indicators that capture the direction of price changes. An indicator variable for price changes is defined as follows:

$$\left.\begin{aligned} X_{ijt}^{+} &= \begin{Bmatrix} 1\ if P_{ijt} > P_{ijt-1} \\ 0\ if otherwise \end{Bmatrix} \\ X_{ijt}^{-} &= \begin{Bmatrix} 1\ if P_{ijt} < P_{ijt-1} \\ 0\ if otherwise \end{Bmatrix} \end{aligned}\right\} \quad (4)$$

where: $P_{ijt} = P_{ijt-1}$ is not considered because there is no price change in the situation. The indicator variable in equation (4) captures the average frequency of price increase and decrease for product *i* in market *j* over the period *t* as follows:

$$Fr_{ij}^{+} = X_{ijt}^{+} \quad (5)$$

$$Fr_{ij}^{-} = X_{ijt}^{-} \quad (6)$$

where: Fr_{ij}^{+}= the frequency of price increases in market *j* for product *i;* Fr_{ij}^{-} = the frequency of price decreases for product *i* in market *j*. T_{ij}= Numbers of observation of the price product *i* sold in market *j* P_{ijt}= price of product *i* charged by market *j* in period *t*.

Average size of price changes

The mean absolute size of price change for product *i* in market *j* over a defined period as:

$$S_{ijt} = \frac{1}{N}\sum_{i}^{N} I_{ijt} \times \left|dp_{ijt}\right| \quad (7)$$

where: S_{ijt}= mean absolute size of price change for product *i* in market *j;* N = number of observations of non-zero price changes; *I* = indicator variable which is equal to 1 if *dp*≠ 0 (0 otherwise); dp_{ijt} = change in the log price of product.

Hazard rates for individual products

It is also known as failure rate or force of mortality and can be expressed as:

$$h_{\tau} = lim_{r\to 0} P_r\left(P_{t+r} \neq \frac{P_{t+r}}{P_{t+r-1}} = P_{t+r-2} = \ldots = P_t\right) \quad (8)$$

where price is assumed to reset at date *t.*

Synchronization of price setting

Synchronization measures the degree of co-movements in product price changes in markets. Fisher and Koniezny (2001), the FK index, is a relative measure of synchronization is computed as:

$$Fk_i = \sqrt{\frac{\frac{1}{\tau-1}\sum_{t=2}^{r}(F_{it}-F_i)^2}{F_i(1-F_i)}} = \frac{\sqrt{S_{Fit}^2}}{\sqrt{F_i(1-F_i)}} \quad (9)$$

where: Fk_i is the measure of the degree of synchronization for products category *i*; τ = number of observation for which the ratio is computed; F_{it} = frequency of price changes for the product category *i* for all periods *t*; $F_i = \frac{1}{\tau-1}\sum_{t=2}^{r} F_{it}$; $S_{F_{it}}^2$ = Standard deviation of F_{it}, and $1 \geq Fk_i \geq 0$

2.3. Data and sources of data

The price database consists of unique highly disaggregated micro-level retail price data underlying the computation of the National Index of Consumer Prices (CPI) Nigeria. The data which is not published is obtainable directly from the National Bureau of Statistics, Lagos, Nigeria. It provides observations for prices of a range of narrowly defined product.

The monthly data covered a period of five years from January 2011 to December 2015. Month-to-month prices are used because they allow for investigation of the dynamics of price setting behavior to be influenced by seasonal factors or temporary promotions as these can cause price fluctuations in particular locations. Retail price level data used for this study enables the direct measurement of the direction and magnitude frequency of price changes in each month.

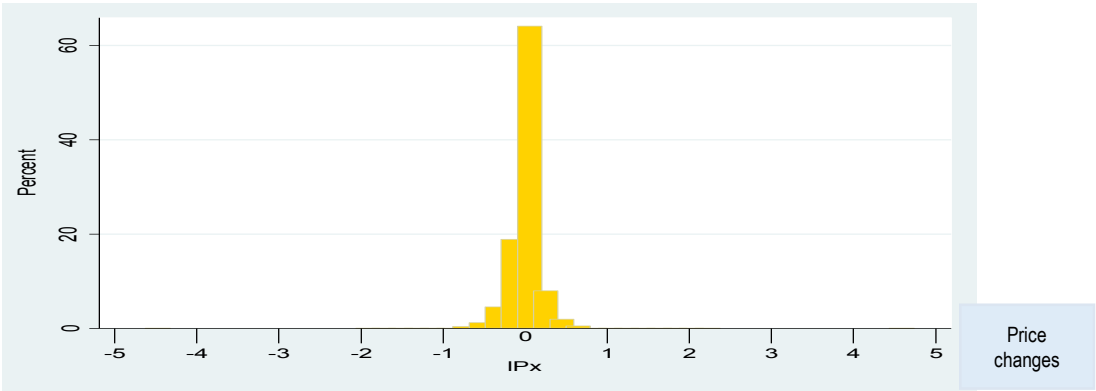
The narrowly defined products for the objectives are: Food (Banana, Beans, Melon seed, Okro, Onion, Pawpaw, Plantain, Rice (Local), Sweet Potaoes, Orange); Clothing and Footwear (Bath Towel, Blanket, Brassier, Girl dress, Men shoe, Shirt (boys), Women dress; Household Equipment (Electric Iron, Electric Kettle); Beverages (Coca cola) and Services (Education).

3. Results and Discussions

3.1. Distribution of direction price changes (2011-2015)

Figure 1 presents a histogram showing the distribution of price changes across products and states over the period January 2011 and December 2015 in Nigeria. The distribution appears to be unimodal with symmetrical shape and centered at zero unit.

Figure 1. Distribution of direction price changes (2011-2015)



Source: Authors' computation, underlying data for CPI from National Bureau of Statistics, Lagos, Nigeria (2018)

Overall, the figure shows that the price changes are close to zero with 10% below zero (negative) and about 20% above zero (positive) indicating that there are many price changes, though small in sizes, during the period. According to Loupias and Ricart (2004), it is state dependent pricing model that leads to frequent small price changes while time dependent pricing model leads to periodic infrequent large price changes. This means Nigerian data fits state dependence pricing model.

3.2. Frequency of price changes for each product

Generally, food has the highest frequency of price change (Table 1). This is partly because food is perishable and seasonal. Food perishes much more quickly than others, and has to be disposed much more quickly.

Table 1. Frequency of price changes across CPI product category

Category	Mean price frequency	Median price frequency
Food and NAB	0.948	0.986
Clothing FW	0.952	0.964
Furnishing, HhE	0.847	0.847
Education	0.317	0.317
Total	0.912	0.971

Source: Authors' Computation, underlying data for CPI from National Bureau of Statistics (NBS), Lagos, Nigeria 2018

Note: Food and NAB = Food and non-alcoholic beverages, Clothing FW = Clothing and footwear, Furnishing, HhE = Furnishings, household equipment and Education = Education are CPI Product Category based on COICOP (Classification of Individual Consumption by Purpose).

Food items are typically unprocessed goods and therefore have little value added beyond their primary input costs to absorb cost shocks since primary inputs are not diversified, their prices are likely to change more frequently in response to cost changes because firms and individual sellers would want to ensure that retail prices don't fall below their marginal costs. Also, clothing and leather products have high frequency because they are affected by fashion, while prices of household equipment are not flexible because they are not perishables like food.

3.3. Frequencies of price increases and decreases across

In Table 2, average price increase and decrease is shown across different categories of products. The frequency at which prices increase is more than the frequency at which they decrease. This simply shows that when goods and services increase in price either as a result of inflation or for other reasons, their prices hardly reduced, that's prices tend to be rigid downward.

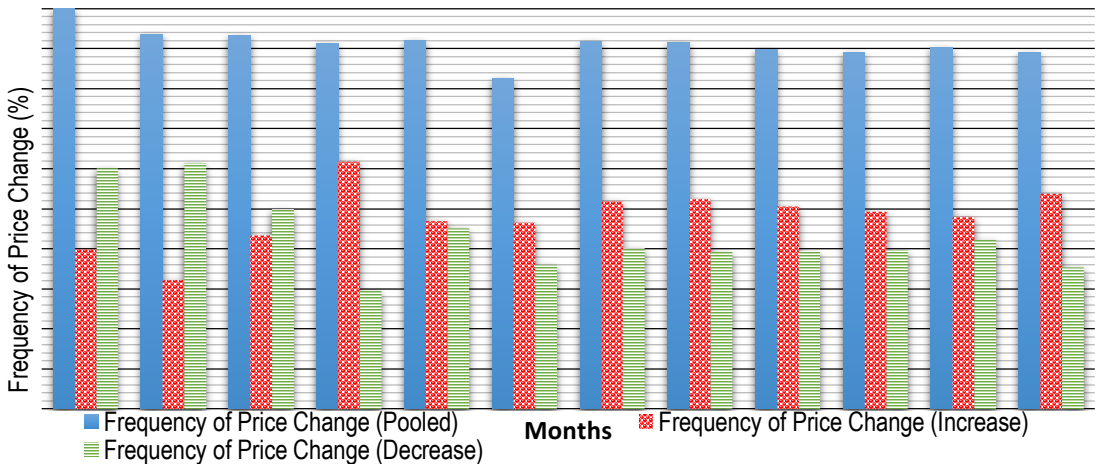
Table 2. Frequencies of price increases and decreases across sub-product categories

Category	Mean price increase	Mean price decrease	Median price increase	Median price decrease
Aggregate	0.331	0.298	0.334	0.3105
Goods	0.496	0.444	0.502	0.470
Services	0.165	0.151	0.165	0.151
Food	0.487	0.442	0.502	0.472
Perishable	0.523	0.443	0.509	0.473
Non-Perishable	0.450	0.441	0.494	0.471
Non-Food	0.465	0.427	0.463	0.443
Durable	0.428	0.451	0.428	0.419
Non-Durable	0.501	0.402	0.497	0.466

Source: Authors'' computation, underlying data for CPI from National Bureau of Statistics (NBS), Lagos, Nigeria 2018

In Figure 2, it can be seen that the relative proportions of changes due to price increases are generally more than price decreases across the months under consideration. In general price increases are more pronounced in the last three (3) quarters of the calendar year (between the months of April and December), while price decreases are more noticeable in the first quarter of the calendar year (between the month of January and March).

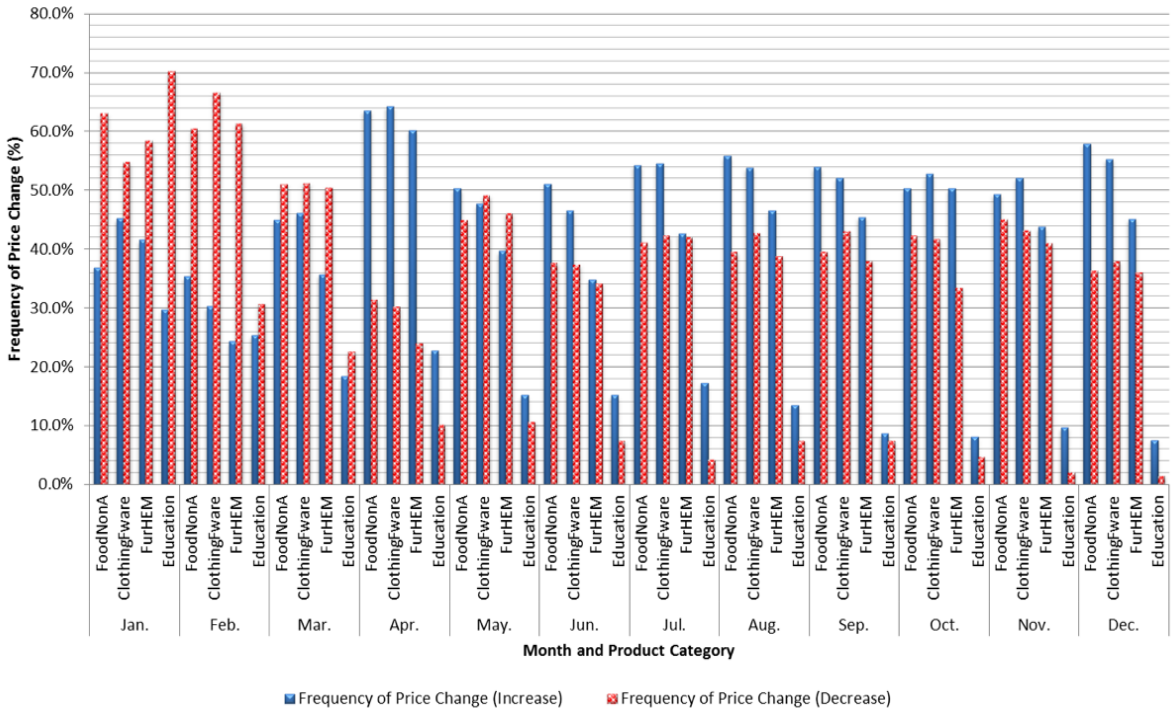
Figure 2. Frequency of price change by month



Source: Authors' Computations, underlying data for CPI from National Bureau of Statistics, Lagos, Nigeria (2018)

Particularly price increases are far more than decreases in April and December while decreases are far more than increases in January and February. This indicates that the price changes are seasonal. Figure 3 plots the frequency of price increases or decreases by CPI product group and month. The chart shows that for most product groups the frequency of price increases is relatively higher than that for price decreases. However, the products that have more price increase in the last three (3) quarters of the calendar year (between the months of April and December) are Food and non-alcoholic beverages while they have more price decreases in the first quarter of the calendar year (between the month of January and March). In addition, the only product that reported very low price decrease during the period other than January is Education.

Figure 3. Direction of frequency price change by CPI products category and month



Source: Authors' Computation, underlying data for CPI from National Bureau of Statistics, Lagos, Nigeria (2018)

It shows the monthly frequency of price changes of different products. Education has the lowest frequency of price decreases and increases whereas food and clothing have high frequency of price decreases and increases on monthly basis.

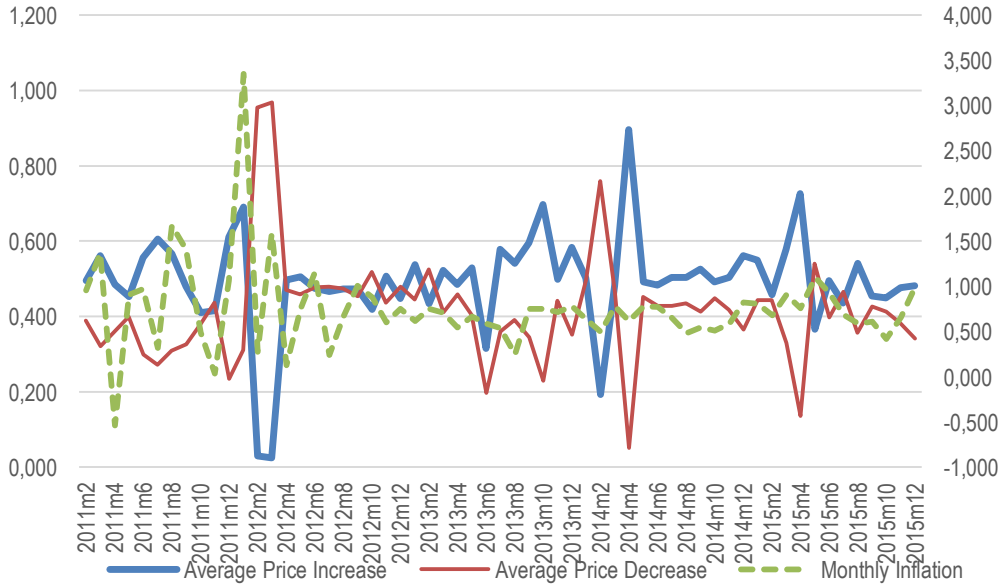
The seasonal frequency of price increases and price decreases can be explained by fact that consumers demand is higher in these periods with high frequency of price increases. On the contrary consumer demand is low in January and February every year resulting in low frequency of price increases. The low demand at this period is probably due to excessive spending in festive of November and December. The fact that frequency of price increases dominates the frequency of price decreases suggest in general, that retailers are less likely to reduce prices than to increase them because of increasing inflation.

3.4 Average frequency of price increases and price decreases with Inflation

In order to better compare the relationship between price expansion and contraction, the study plotted the series in Figure 4 with inflation rate. Overall, the figure shows that the price increases and decreases relatively moved in opposite direction. The figure also shows that the prices of commodities tend to increase more in December whereas price reduction appeared more frequent in January and February. Further, the figure shows that price increases and inflation largely follow the same pattern. That is, prices increase co-move with inflation. This implies that for the period of high inflation, prices of the selected products change more frequently.

Retail prices appear to be much more responsive to events' (inflation in this case), reflecting in part economic uncertainties. Thus, this analysis shows that inflation can be explained, by and large, by the volatility in the frequency of price changes. This is an evidence of state dependence pricing rule (Kovanen 2006).

Figure 4. Average frequency of price increases and price decreases with inflation



Source: Authors' Computation, underlying data for CPI from National Bureau of Statistics, Lagos, Nigeria (2018)

3.5. Average size of price changes across product categories

Table 3 shows that the size of price changes are small reflecting a wide range of small menu cost across products and or time (Dotsey *et al*. 1999). Small idiosyncratic shocks therefore result in many firms changing prices. The sizes of prices changes are concentrated between range of (3.2%) and (18.8%).

Table 3. Average size of price changes across product categories

Category	Mean price size	Median price size
Aggregate	0.102	0.098
Goods	0.105	0.101
Services	0.033	0.032
Food	0.116	0.122
Perishable	0.129	0.133
Non-Perishable	0.077	0.073
Non-Food	0.092	0.091
Durable	0.091	0.090
Non-Durable	0.092	0.092

Source: Authors' Computation, underlying data for CPI from National Bureau of Statistics (NBS), Lagos, Nigeria, 2018

Overall, these results reveal heterogeneity in the magnitude of price change across products in Nigeria. The combination of some large price changes and many small price changes suggest that idiosyncratic shocks are important in price setting in Nigeria.

3.6. Duration of price spells for each product

In Table 4, the estimated mean duration of price changes for each product are reported. The results typically indicate that the average duration of price changes for the full sample is 1.194 months and the average duration of the products ranges between 1.001 and 3.723 months.

Importantly, these figures imply that the average duration of price changes in Nigeria is about one month.

More specifically, the products with the longest duration is Education (School fee, 3.723 months) and this is followed by Can coke ((1.463 months), Electric kettle (1.253 months), Frozen chicken (1.219 months), Electric iron (1.156 months).

Table 4. Duration of price spells for each product

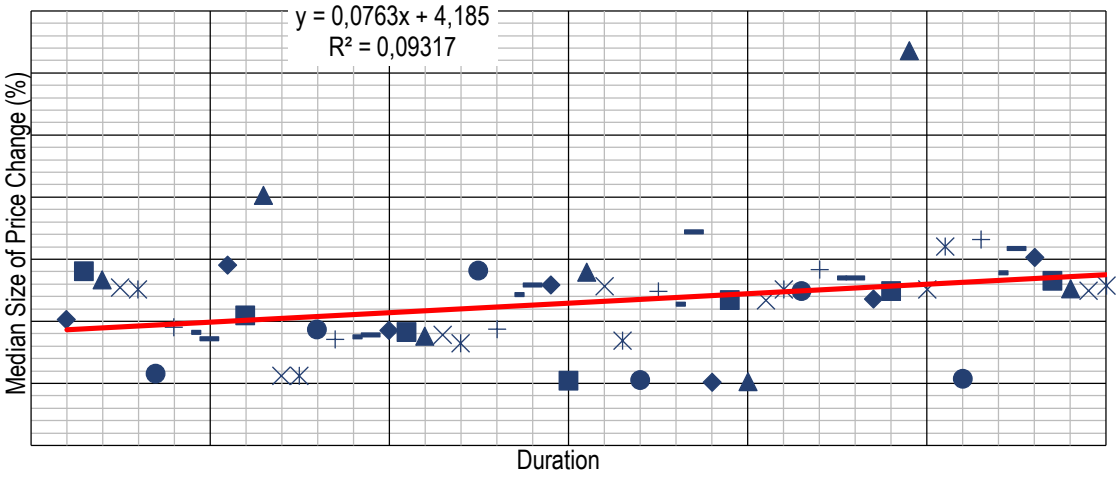
Product Category	Mean DURATION(MONTHS)
Banana	1.018
Bath Towel	1.028
Beans Brown	1.024
Blanket	1.037
Brassiere	1.031
Can Coke	1.463
Electric Iron	1.156
Electric Kettle	1.253
Frozen Chicken	1.219
Girl Dresses	1.043
Mellon Seed	1.029
Men Shoe	1.104
Okro	1.002
Onion Bulb	1.001
Orange	1.001
Pawpaw	1.010
Plantain	1.092
Local Rice	1.008
Shirt Boys	1.010
Shoe Polish	1.113
Sweet Potato	1.012
School Fee	3.723
Women Shoe	1.086
Total	1.194

Source: Researcher's computation, underlying data for CPI from National Bureau of Statistics (NBS), Lagos, Nigeria, 2018

3.7. The size and duration of price changes

The plots of the average size of price changes with the duration of price spell for Nigeria data is presented in Figure 5. Overall, the figure depicts a positive relationship between the size of price changes and the duration of price spells.

Figure 5. The size and duration of price changes



Source: Authors' Computation, underlying data for CPI from National Bureau of Statistics, Lagos, Nigeria (2018)

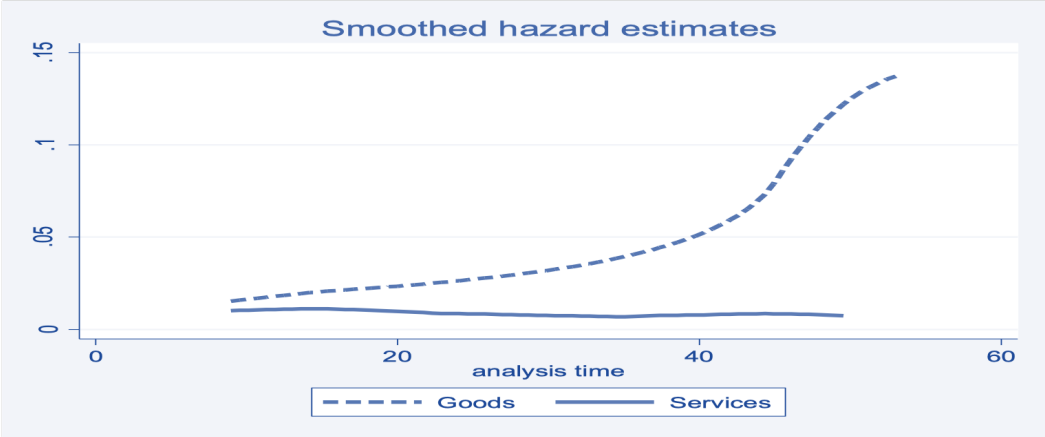
Figure 5 explains the relationship between duration of price change and the size of price changes. According to state dependent pricing theory, there is a little association between the size of price changes and duration as the length of price spell is endogenous to accumulated shocks. This is contrary to the prediction of time-dependent pricing theory that a positive relationship exists between the size and duration of price changes. A positive relationship is observed between the size of price changes and the duration of price spells. This is a very important observation that can be used to identify the appropriate pricing rule and it is consistent with time-dependent pricing

behavior (Klenow and Kryvtsov 2008, Creamer *et al.* 2012) We should, however, be very cautious about the interpretation of this graph because of low R2.

3.8. Aggregate hazard function for the Nigeria price data

Figure 6 plots the pooled hazard functions for goods and services products across states in Nigeria. The pooled hazard function for services is flat. This flat pattern in longer period reflects lack of competition for prices of services.

Figure 6. Aggregate hazard function for the Nigeria price data



Source: Authors' computation, underlying data for CPI from National Bureau of Statistics, Lagos Nigeria(2018)

This pattern could also be an evidence of tine dependent price setting behavior in the service sector as predicted by Calvo (1983). The flat pattern could also be a reflection of regulated prices or combining heterogeneous price setters. The hazard function for services is generally flat indicating time dependent behavior.

3.9. Synchronization of average size of price change, increase and decrease across product categories

In Table 5, comparison is made across the product categories. The results clearly show that the prices of the products are not highly synchronized since food and non-food products are synchronized only to the average values of 0.178 and 0.236 respectively.

Table 5. Synchronization of average size of price increase and decrease across product categories

Aggregate	0.200	0.192	0.197
Goods	0.198	0.198	0.188
Services	0.201	0.185	0.205
Food	0.178	0.177	0.168
Perishable	0.192	0.192	0.177
Non-Perishable	0.164	0.162	0.159
Non-Food	0.236	0.235	0.236
Durable	0.274	0.285	0.281
Non-Durable	0.197	0.185	0.190

Source: Authors' Computation, underlying data for CPI from National Bureau of Statistics (NBS), Lagos, Nigeria, (2018)

Conclusion

This study shows that for Nigerian data, prices are flexible, and the size of the price changes is very small. The frequency of price changes is known to be high with the majority being close to 100%. The duration of price spell in Nigeria is about one month whereas it is 2.6 months, 2.7 months and 10.2 months in Sierra Leone (Kovanen 2006), Lesotho (Nchake 2013), and Belgium (Aucremanne and Druant 2005) respectively. In accordance with theory, state dependent pricing model fits the data for Nigeria. Theoretically, in the state dependent pricing world, firms would want to be aware of shocks in order to respond as fast as possible, price reviews must be a lot frequent than price changes (Loupias and Ricart 2004). As a consequence, this pricing model leads to frequent small price changes, while time dependent pricing leads to periodic infrequent large price changes. The Nigerian data therefore fits into the state dependent pricing model because it changes very frequently but the size of the changes is small.

Generally, that the frequency of price increase dominates the frequency of price decrease suggests that retailers are less likely to reduce prices than to increase them especially in the inflationary environment like Nigeria

implying that prices are rigid downward. Average frequency of price increase and decrease move in opposite direction. That is, when frequency of price increase is high, the frequency of price decrease will be low for the same period. Generally, as expected, the frequency of price increase increases with inflation. This findings support state dependent pricing model and show that the Nigerian economy is vulnerable to exogenous macroeconomic shocks.

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Debt Policy in Manufacturing Companies: Evidence from Indonesia

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Abstract:

This study aims to determine the impact of liquidity, company size, profitability, and managerial ownership on debt policy in manufacturing companies on the Indonesia Stock Exchange. This research was conducted at the Indonesia Stock Exchange. The research object in the manufacturing company's financial statements in the form of financial statements for the period 2011 - 2017 published in the Indonesian Capital Market Directory and other data sourced from IDX. To test the hypothesis between variable X and Y variables simultaneously using the F test, while partially using the t-test. The data used is secondary data. This research using the data time series and cross-section (pooling data), and based on the criteria, then the number of samples that meet the criteria of 46 companies. The results showed that simultaneous liquidity, company size, profitability, managerial ownership significantly influence the debt policy. Partially liquidity and significant negative impact on policy debt, profitability, and managerial ownership has a positive and significant impact on debt policy, while the company size influence is not significant to debt policy.

Keywords: liquidity; company size; profitability; managerial ownership; debt policy.

JEL Classification: G3; G32.

Introduction

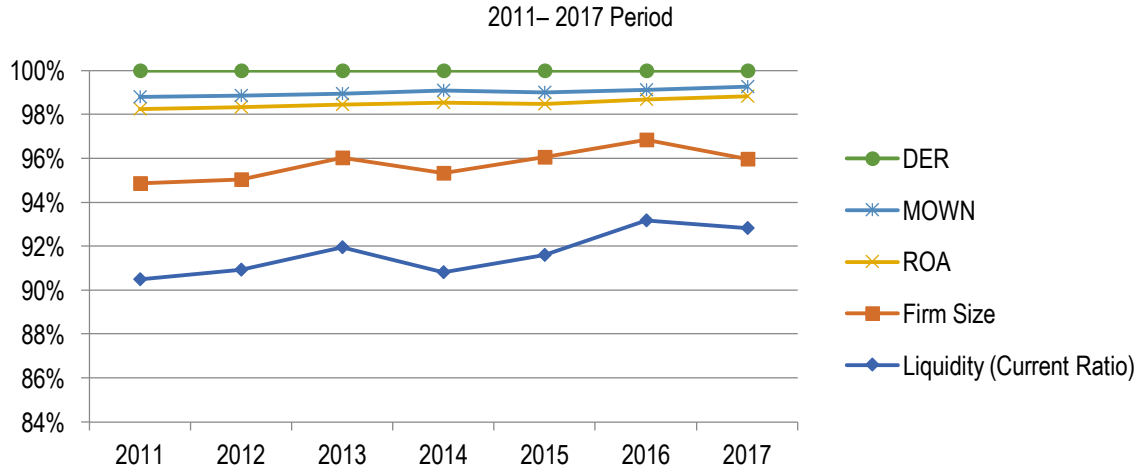
Basically, companies need funds to carry out operational activities. The funding decision must be in accordance with the main objective of the company, which is to maximize the prosperity of the company owner. In determining funding decisions closely related to debt policy, there are several factors considered by companies in debt policy, in general, among others, profitability, liquidity, sales growth, company growth, and company size. According to Hanafi (2014), there are several factors that have an influence on debt policy, including NDT (non-debt tax shield), Asset Structure, Profitability, Business Risk, Company Size, Internal Conditions of the Company. Consideration will be debt policy to be taken by the company is also related to the size of a company. The size of the company directly reflects the level of operations of a company. In general, the larger a company then will be greater activity. Thus, the size of the company can also be related to the amount of wealth owned by the company. Company size is one of the things that companies consider in determining their debt policies. Large companies have the advantage of activity and are better known by the public compared to small companies so that the need for large corporate debt will be higher than smaller companies (Jogiyanto 2015). In addition, the

larger the size of the company, the more transparent the company is in disclosing the performance of the company to outsiders, thus the company is getting easier to get a loan because it is increasingly trusted by creditors, therefore, the larger the size of the company, the assets funded with debt will be increasingly great too.

Brigham and Houston (2011) say that companies with high rates of return on investment use relatively small debt. High return (profitability) makes it possible to finance most of the funding needs with funds generated internally.

Managerial ownership is the number of shares owned by management from all of the capital of the company that is managed. Managerial ownership shows the dual role of a manager, the manager acts also as a shareholder. A manager and shareholder do not want the company in a state of financial difficulties and even bankruptcy. This situation will harm either as a manager or as a shareholder. A manager will lose incentives and as a shareholder will lose the return or the funds invested.

Figure 1. Average development of factors affecting debt policy



Source: Data processed, 2019

The graphic shows that the average liquidity, the size of company (*firm size), profitability*, and managerial ownership *(*MOWN*)* and *debt to equity ratio*, since the year 2011 to 2017 indicate the change. If seen from liquidity, during the last 3 years there has been an increase, but in contrast to the company's debt policy, fluctuating from year to year, this is contrary to the theory that the better the company's liquidity, then the greater the use of debt the company will do. Purwanti's research results (2017) states that liquidity has a positive impact on debt policy, in contrast to research conducted by Ismail Anas *et al*. (2015), that liquidity has a negative impact on debt policy.

Company Size (*Firm Size)* in recent years has increased, while the policy Debt fluctuating, those things is not in accordance with the theory that the larger the company, the level of debt that is in use it is getting higher as well, and vice versa. Company size is a factor that needs to be considered in determining debt policy. The research result from Ni Komang Ayu (2016), and Dita Novita Sari (2015) states that the size of the Company's positive impact towards Debt Policy, Trisnawati (2016) states that company size has no impact on the policy debt, results of research Reji Hendria (2015) states that the size of the Company's negative impact on the policy debt.

Profitability for 3 years last fluctuate, and Policies debt occurred rise, the theory states that higher profits are achieved, the less use of debt used in financing the company because the company can use the internal equity derived from retained earnings. Trisnawati (2016), Novita Sari (2015), states that the profitability of a negative impact on debt policy. However, Purwanti's research (2016) states that profitability has a positive impact on debt policy.

Managerial Ownership (MOWN) does not change, but at DER experiencing fluctuations of each year her. This is different from the theory that the higher managerial ownership, the lower the use of corporate debt. Hardiana *et al.* (2016) found a positive impact Managerial Owners towards debt policy, research Ni Komang Ayu (2016), Dita Novita Sari (2015) that the impact of managerial ownership towards debt policy is negative.

Research Questions:

- Does Liquidity, Company Size, Profitability, Managerial Ownership partially influence the Debt Policy on manufacturing companies on the Indonesia Stock Exchange?

- Does Liquidity, Company Size, Profitability, Managerial Ownership simultaneously influence the Debt Policy on manufacturing companies in Indonesia Stock Exchange?

1. Literature Review

Debt policy

Companies that experience rapid growth, capital requirements also increase in line with the growth rate. Basically, capital needs are obtained from two sources, namely internal and external capital sources, if internal capital is not sufficient to mee the funding needs, then capital needs must be met from external sources. Debt policy is a policy taken by management in order to obtain sources of financing for the company so that it can be used to finance the company's operational activities. In addition, the company's debt policy also functions as a monitoring tool for the actions of managers taken in managing the company. The policy of debt is the Decree of the use of debt by considering the fixed costs arising from debt in the form of interest, which will lead to increasing financial leverage and an increasingly uncertain rate of return for holders of ordinary shares. The debt policy is related to management's decision to increase or decrease the proportion of long-term debt and equity used to finance the company's operations.

According to Graflund (2000) in Suripto (2015), Debt Policy Theory can be divided into. *Trade-off models* such as the *bankruptcy cost-tax hypothesis* (Kim 1978.) This theory leads to conditions where companies will balance the benefits of funding with debt (favorable tax treatment) with higher interest rates and bankruptcy costs. In this theory it is also explained that before reaching a maximum point, debt will be cheaper than stock sales because of the *tax shield*. The implication is that the higher the debt will be higher the value of the company. However, after reaching the maximum point, the use of debt by the company becomes unattractive, because the company must bear agency costs, bankruptcy and interest costs that cause the value of the stock to fall.

Pecking order theory

Pecking Order Theory which was first discovered by Myers and Majluf (1984) said that companies are more likely to choose funding that comes from internal rather than external to the company. The use of internal funds takes precedence over the use of funds sourced from external sources. The sequences put forward by this theory in terms of funding are the first retained earnings followed by the use of debt and the last is the issuance of new equity (Myers and Majluf 1984). This theory establishes a sequence of funding decisions in which managers will first choose to use retained earnings, debt and issuance of shares as a last resort (Hanafi 2014). The use of debt is preferred because the costs incurred for debt are cheaper than the cost of issuing shares.

Signaling models of asymmetric information (Myers and Majluf 1984)

Signal is an action taken by company management that provides instructions for investors about how management views the company's prospects. Companies with favorable prospects will try to avoid selling shares and seeking new capital in other ways such as by using debt. Companies with less favorable prospects will tend to sell their shares (Brigham and Houston 2011). According to Brigham and Houston (2011), the announcement of share issuance by a company is generally a signal that management views the company's prospects as bleak. If a company offers to sell new shares more often than usual, then the share price will decrease, because issuing new shares means giving negative signals which can then suppress the stock price even though the company's prospects are bright.

Liquidity

Harjito and Martono (2012), stated that liquidity is a ratio that shows the relationship between current assets and current debt. Liquidity ratios are used to measure a company's ability to meet financial obligations that must be met immediately or short-term obligations. Liquidity is an indicator of the life of a company to pay all short-term financial obligations at maturity using available current assets (Husnan 2015).

In theory, company liquidity also be per the scales for investors in their funds because they can be associated with the company's ability to meet debt short term, where the higher liquidity it will be the higher return that will be earned by the investor and the lower the risk that must be borne. The number of payment tools (tools liquid) which is owned by a company at a time is the strength of the company paying the air plugs. Specifically, liquidity reflects the availability of funds owned by the company to meet all debts that are due (Hanafi 2014). Liquidity is measured as the *current ratio* that is current assets divided by current debt (Jogiyanto 2015).

Company size

Company size is measured as a logarithm of total assets. Asset size is used as a proxy for the size of the company (Jogiyanto 2015). The size of the company is a proxy for operational volatility and *inventory controllability* that should be economically large in size as the company shows the achievement of smooth operations and inventory control (Hardiana *et al*. 2016). The size of the company describes the size of a company that is indicated by total assets, total sales, average total sales, and average total assets. So, the size of the company is the size or size of the assets owned by the company.

The size of the company can be stated in total assets, sales and market capitalization, the greater the total assets, sales, and market capitalization, the greater the size of the company (Tangiduk 2017).

The size of the company is seen from the total assets owned by the company that can be used for company operations. If the company has a large of total assets, the management is more flexible in using existing assets in the company. This freedom of management is proportional to the concern felt by the owner of his assets. Companies that have a large total assets show that the company has reached the maturity stage in which at this stage the company's cash flow is positive and is considered to have good prospects in a relatively long period of time, while also reflecting that the company is relatively more stable and more able to generate profits compared to companies with small total assets.

Profitability

According to Harjito and Martono (2012) profitability shows the company's ability to obtain profits from the use of its capital. Hanafi (2014) argues that profitability illustrates the ability of companies to earn profits through all capabilities, and existing sources such as sales activities, capital, number of employees, number of branches, and so on. Profitability is the company's ability to generate profits or profits that will be the basis for dividend distribution. According to Husnan and Pudjiastuti (2015) profitability shows the ability of a company to generate profits from its sales, from its assets, or from the equity it owns. The ability to generate profits from sales can be different for companies with different businesses. Profitability is a tool to measure management success shown by profits generated by sales and investments (Riyanto 2010).

Managerial ownership

Managerial ownership is an important issue in the agency's theory since it was published by Jensen and Meckling (1976) stating that the greater proportion of management ownership in a company is that management will try harder to fulfill the interests of shareholders who are also themselves. Understanding of company ownership is crucial because it relates to the operational control of the company. From the point of view of accounting theory, profit management is determined by the motivation of the company. Different motivations will result in a different kind of profit management, such as the manager who is also the shareholder and the manager who is not a shareholder. This corresponds to the company's management system in two criteria:

- The company is led by managers and owners (owner-manager);
- The company is led by managers and non-owners (non-owners-managers).

Managerial ownership has the ability to reduce the incentives of self-seeking managers through intense levels of scrutiny. Managerial parties are actively involved in making the decision to run the company. Managerial ownership means shareholding by the manager. With this managerial ownership, the manager will feel directly due to decision making. Managers are unlikely to act recklessly in decision making. High managerial ownership will make management more cautious in managing the company's debt policy. The manager personal richness is indirectly related to the company's wealth. So, in making a funding decision the manager will minimize the use of debt to fund the company (Dennys and Deasy 2012).

Liquidity and debt policy

Liquidity is closely connected with the company's ability to fulfill obligations immediately to be fulfilled. Liquidity is proscribed into current ratio which measures the company's ability to fulfill its short term debt by using current assets. Companies that have a great current ratio, then demonstrate the ability of the company in fulfilling the short-term obligations are also large. The placement of funds that are too large on the side of the assets means that the liquidity of the company is better. The better of liquidity of the company, the better the company in paying the debt because the company's ability to pay the debt is quite high so the brave company decided to use debt financing (Novita and Prasetiono 2015), Pulpit Purwanti (2017), Watung *et al.* (2016) states that liquidity is influential in debt policy.

Company size and debt policy

Large companies can access capital markets, meaning the company has the flexibility and ability to earn funds. The larger the company, the more funds are used to operate the company's operations. One source of funding is debt. The size of the company is a factor to consider in determining the company's debt level. The research of Ni Komang Ayu Purnianti and I Wayan Putra (2016) shows that the larger the size of the company needs to be larger. The company will further expand its business to be larger, thus the required funds will be even greater. Large size companies are utilized by the company to attract third parties in providing loan funds because the company is already known by many parties and the company can use the guarantee of assets to obtain funding. (Purwasih *et al.* 2014), Tarus *et al*. (2014), Indaswary *et al*. (2016), Tangkulung *et al.* (2019) In his research, found that the company's size was positively influential towards debt policy.

Profitability and debt policy

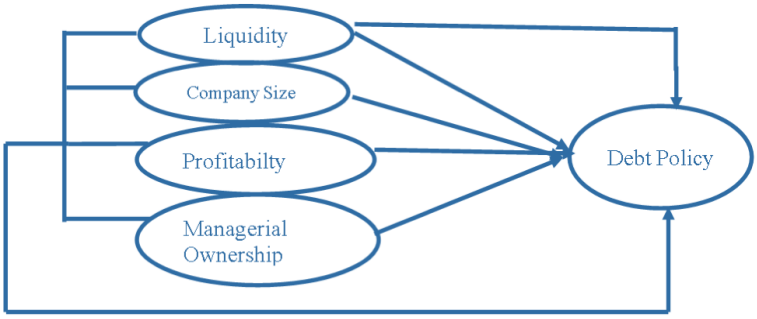
Profitability contributes to the debt policy because in high profitability conditions the company will tend to rely on the source of funds and vice versa in low profitability conditions the business will rely on external sources. The higher the profit gained, the smaller the use of the debt used in the company's funding because the company can use the internal equity derived from the retained profit. Weka Natasia and Wahidawati (2015), Trisnawati (2016), Dennis Surya with Deasy A. Rahayuningsih (2012) expressed profitability having a negative influence on debt policy. The higher the profitability level of the company then the lower the debt used in funding activities.

Managerial ownership and debt policy

The managers who acted are not in accordance with the company's main objectives, making the agency cost increase. Shareholders must control the funding decisions made by the management. The increased managerial ownership will make management more cautious in managing debt policy. This is due to the personal wealth of managers indirectly related to the company's wealth, so in taking funding decisions through debt becomes smaller. It is in accordance with the research of Dita Novita Sari (2015) that the higher the managerial ownership, the lower the use of the company's debt, and vice versa. Management will be cautious in determining funding decisions because indirectly the wealth of managers is closely related to the company's wealth.

The results of Purwasih *et al*. (2014), Trisnawati (2016), stating managerial ownership affects the debt policy. Based on previous theories and studies, the variables in this study include liquidity, company size, profitability, managerial ownership as independent variables and debt policy as dependent variables. On the basis of the thinking, then to support this research, developed a framework of thought that can be seen in the following figure.

Figure 2. Research framework



Source: Research model, 2019

2. Hypothesis and Methodology

Based on the background and research objectives, the concepts of previous theories and studies, the hypotheses proposed in this study are:

H1: Due to liquidity, company size, profitability, managerial ownership has partially affected the debt policy of manufacturing companies on the Indonesia Stock Exchange;

H2: Alleged liquidity, company size, profitability, managerial ownership simultaneously affects the debt policy on manufacturing companies in the Indonesia Stock Exchange.

This research uses associative research, which is a research method to know the relationship between two or more variables in a model of research (equation), while the form of approach is to use the approach quantitative.

Population and sampling techniques

The population is the entire company in the manufacturing industry category that has been listed on the Indonesia Stock Exchange. The sampling techniques in this study were, using the purposive method of sampling. This technique is used due to the evaluation or specific requirements of the researcher, as the basis for determining the company that deserves the sample.

In this research the company that became the samples must have a requirement:

- registered in the IDX continuous interval of 2011-2017 period;
- audit report data from independent auditors' available interval research period;
- the company is actively paying the dividend;
- has no profit and total negative equity in the year 2011-2017.

The research uses time series and cross section data, and based on these side technique criteria, the number of samples that meet the criteria of 46 companies in the interval 2011 to 2017. In addition, the company is not used as a sample because the data is insufficient or the data is not disclosed in detail or perfect. The data used is secondary data obtained from the Indonesian Capital Market Directory 2011 – 2017 and the Jakarta Stock Exchange Website, and other sources relevant to the research.

Location, object and research subjects

Research site at the Indonesia Stock Exchange. The research object in manufacturing Company's financial statement in the form of financial report period 2011 – 2017 which was published in the Indonesian Capital Market Directory, the subject of research is a manufacturing company listed on the Indonesia Stock Exchange.

Data analysis techniques

The data analysis technique used in this research is the quantitative analysis technique, which is a data analysis technique that uses numbers to make problem solving can be calculated with mathematical calculations. The study used multiple-rate analysis using Excel spreadsheets and the SPSS 22 for Windows software. This analysis is used to analyzing the influence of several variables independent of dependent variables. The equation of the research model is as follows:

$$Y1 = a + b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + E \quad (1)$$

Hypothesis testing

To determine whether the influence of the variable is independent of the dependent variable both simultaneously and partially, it is done with F test and t test. Simultaneous hypothesis testing (together) using Test-F. This test is done to prove whether the simultaneous independent variables have significant influence or not with the dependent variable. Partial hypothesis testing using t-test. This test is done to prove whether partial independent variables have significant or no influence over the dependent variables.

Coefficient of determination (R^2)

The coefficient of determination at its core measures how far the ability of the model (liquidity, company size, profitability, and managerial ownership) describes the variation of the dependent variable (debt policy).

Operational definitions and variable measurements:

- *Debt policy (Y)*

Debt to Equity Ratio (DER) is a policy that shows the comparison between total debt and total equity or total capital, measured by percent units, with formula: Total Debt / Total Equity.

- *Liquidity (X1)*

Liquidity is the ability of a company to fulfill obligations or pay off short-term debts that are immediately due or at the time of being billed. In this research the liquidity is measured by the Current Ratio (CR), *i.e.* the comparison

between current assets with current debt is measured by percent units. With the formula: Current Assets / Current liabilities

- *Firm size (X2)*

Size of company is large size of a company that can be seen from equity value, company value, or value of total assets. The company size is used as a proxy representative of the company. Firm size is measured as a logarithm of total assets (Log total assets).

- *Profitability (X3)*

Profitability is a tool to measure the ability and success of a company in generating profit gained through sales and investments over a certain period by using the source of the company's resources. Profitability is reflected in Return on Asset, which is the comparison of after tax profit (Earning after Tax) with total company assets, measured in percent units with the formula: Earning after Tax/Total assets.

- *Managerial ownership (X4)*

Managerial ownership, which is the proportion of shareholding owned by the managerial parties. To calculate managerial ownership can use the formula of comparison between the numbers of managerial stock holdings, with the number of shares in circulation, measured by percent units.

4. Result and Discussion

4.1 Multiple regression analysis results

Multiple regression analyses are used to determine the influence between independent variables and dependent variables. Data analysis results can be seen in the following table.

Table 1. Multiple linear regression test results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.969	3.535		-.274	.784
Liquidity	-1.008	.003	-.151	-3.418	.027
Company size	.395	.463	.017	.205	.838
Profitability	.905	.041	.216	3.594	.012
Managerial ownership	.494	.837	.222	2.169	.048

Source: output data SPSS 23, 2019
Note: a. Dependent variable Y _Debt Policy

According to Table 1, in the obtaining equations of multiple linear regression from debt policy, liquidity, company size, sales growth, profitability, and managerial ownership. The equation can be written as follows:

$$Y = (-0969)-1{,}008\ X1 + 0.395\ X2 + 0.905\ X3 + 0494\ X4 + E \quad (2)$$

From the equation of Multiple Linear Regression above can be interpreted as follows:

- Constants of the equation of double linear regression of -.969, and marked negative, it is explained that if liquidity, company size, sales growth, profitability, managerial ownership value 0, then the value of debt policy amounting to -.969;
- The liquidity variable regression coefficient, amounting to -1.008 and marked negatively it explains that any change of one unit to the liquidity, while the company size, profitability, managerial ownership is assumed to remain, then the debt policy will undergo a change of 1.008 units;
- Variable regression coefficient of enterprise size, amounting to .395 and marked positively this explains that any change of one unit at company size, while liquidity, profitability, managerial ownership is assumed to remain, then the debt policy will be changed by a hike of .395 units;
- Variable regression coefficient of profitability of .905 and marked positively this explains that any change of one unit to profitability, while liquidity, company size, managerial ownership is assumed to remain, then the debt policy will be changed by a hike of .905 units;
- Variable of managerial ownership variables of .409 and marked positively this explains that any change of one unit on managerial ownership while liquidity, company size, profitability, is assumed to remain, the debt policy will be changed to a hike of .409 units.

4.2. Coefficient of determination (Adjusted R2)

Analysis of determinations is used in this study to determine the percentage of donation influence of free variables (X) Together towards bonded variables (Y). Results analysis determinations can be seen in the output of the Summary Model of multiple regression analysis results. According to Santoso in Duwi Priyatno (2002) that for regression with more than two variables free used Adjusted R2 as a coefficient of determination. Adjusted R Square is a customized R square value. Based on the output achieved the Adjusted R square number of .570 or 57%. This indicates that the percentage of contributions to the variable influence is free to be bound by 57%. Or variable-free variations used in models capable of describing 57% of the free variables and the remaining 43% are influenced by other variables not included in the model of this research.

Table 2. Model summary

Model	R	R Square	Adjusted R	Std Error of the Estimate
1	.799[a]	.638	.570	7.661

Source: data processed

4.3. Hypothesis testing

Simultaneous test results (test F)

To find out if the regression model in the research is correct, it is necessary to do the hypothesis testing, in this case do the test F. Test F is used to test the impact of free variables (liquidity, company size, profitability, and ownership (Debt policy) is to compare the value of significance with a trust rate of 95% (0.05).

Table 3. F Test results

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	114.171	4	19.029	12.579	.000[b]
	Residual	903.786	317	2.049		
	Total	1017.957	321			

Note: a. Dependent variable: Debt policy; b. Predictors: (Constant), Liquidity, Company Size, Profitability, Managerial Ownership.

Source: output data SPSS 23, 2019

Based on Table 3., that the analysis results in the result of the F count value of 12.579 while F table amounted to 2,322 this means the F count value of > F table or 12,579 > 2,322 so that H0 is rejected and Ha is accepted. It is explained that in this research independent variables *i.e*. liquidity, company size, profitability and managerial ownership jointly or simultaneous Have a significant influence on the dependent variables of the policy Debts and if viewed from significance are 0.000 < 0.05. This means that the liquidity variable, company size, profitability and managerial ownership in tandem or a significant impact on the dependent variables are the debt policy.

Partial test results (t Test)

To test the impact of the liquidity variable, company size, profitability and managerial ownership in partial to the debt policy, based on table it appears that

- Liquidity variables obtained by the number of *t* count-3,418 > *t* table at α = 0.05 of 1,987 and the level of significance < of α = 0.05 of 0.027, thus Ha accepted, meaning there is a negative and significant influence of the liquidity variable to Debt policy;
- Variable company size is obtained by *t* count number 0205 < *t* table at α = 0.05 by 1,987 and the equivalent significance > of α = 0.05 which is 0838, thus Ha is rejected, meaning there is no positive and significant influence from Variable size of company to debt policy;
- Profitability variable obtained *t* count number of 3,594 > *t* table at α = 0.05 of 1,987 and the level of significance < of α = 0.05 of 0.012, thus Ha accepted, meaning there is a positive and significant influence of the variable Profitability towards debt policy;
- The variable of managerial ownership obtained the number *t* count of 2,169 > *t* table at α = 0.05 of 1,987 and the level of significance < of α = 0.05 of 0048, thus Ha accepted, meaning there is a positive and significant influence of the variable Managerial ownership of the debt policy.

5. Discussion

Liquidity Impact on debt policy

Variable liquidity has negative and significant impact on the debt policy. This means that the increase in liquidity will be followed by a decline in debt policy. Conversely lowering liquidity will be followed by a debt policy increase. The test results statistic indicated that liquidity is negative and significant to the debt policy. Thus the hypothesis states that the liquidity affects the debt policy received. The results of this study provide a empiric understanding for management that if liquidity rises, the debt policy is decreasing, this condition illustrates that the acquisition of liquidity increased impacts on the decline in debt policy.

The results of this research are consistent with the theory that the more liquid the company represents the company's ability to fulfill its obligations (Kasmir 2010). Husnan and Pudjiastuti (2015) stated in the packing order theory, the company likes internal funds, the higher the liquidity, the debt will be less because the liquid company has the ability to pay its obligations. With companies that are liquid companies will fund operational activities with internal funds compared with the funds sourced from outside. The results of this study were supported by the research conducted by Prasetiono (2015), Tarus and Nehemiah (2014), Triyono and Achyani (2015), Natasia (2015), Lasut *et al*. (2018) Watung *et al*. (2016), Ghasemi and Razak (2016), stating that partially Liquidity affects the debt. But the results of this study were inconsistent with the research of Purwanti (2017) stating that liquidity has a positive and significant impact on the debt policy, the reason that companies with high liquidity rates will be likely to gain debt.

Influence of Company Size towards Debt Policy

The size company affects the debt policy. This means that an increase in company size will be followed by the debt policy. In contrast, company size decline will be followed by declining debt policy. Test results statistic show the company size variable in partial impact is not significant to the debt policy. The positive value in the statistic test explains that the greater the value of the company's assets, the level of debt he has contributed to increase, and vice versa. The total value of large assets makes the company can invest for assets. Companies with large assets tend to use debts in large proportion to fund their investments, because these large assets that the company uses as collateral for their debts. The results of this study were consistent with the research of Dita Novita Sari and Prasetiono (2015), Reji Hendria *et al.* (2015), Tangiduk *et al*. (2017), Trisnawati (2016), Lasut *et al*. (2016) stating that the company size is not significant to the policy Debt. However, the results of the study differed from the research results of Indaswari *et al*. (2016), Tangkulung *et al.* (2019), Anas Ismail *et al.* (2015), Denny Surya and Rahayuningsih (2012), Purwasih *et al*. (2014), stating that the company size has an influence on Debt policy reason that a large and stable company will be easier to the capital market.

The ease of getting to the capital market means flexibility for larger corporations as well as the ability to acquire funds also outweigh smaller companies. Ni Komang Ayu (2016) stated the reason that the larger size of the company need to fund the bigger, so that the necessary funds will be greater also. Large size companies are utilized by the company to attract third parties to give loans, because the company is already known by many parties and the company can use the guarantee of assets to obtain funding sourced from outside the company.

Profitability Impact on Debt Policy

Variable profitability is influential and significant to the debt policy. This means that increased profitability will be followed by a debt policy increase. In contrast, profitability will be followed by a decline in debt policy. The test results statistic shows that profitability has a positive and significant impact on the debt policy. Thus the hypothesis states that liquidity affects the debt policy received. Theoretically, while management is able to manage the company well and can make a maximum profit, it affects the decline of the company's debt. In accordance with Duck order theory, the company will use internal funding first before using the source of debt financing (Suripto 2015).

The results of this research are consistent with the research results of Watung *et al.* (2016), Purwanti (2017), Purwasih (2014) stating that profitability has a positive impact on debt policy, the reason the company with a high return rate of Investments in debt are relatively small because high returns allow the company to finance most internal funding. Tangkulung Research *et al*. (2019), Surya Dennys (2012), Trisnawati (2016), Dita Novita Sari and Prasetiono, Tarus *et al.* (2014) said profitability has negative and significant impact on debt policy, the reason if profitability increases, Companies are likely to reduce debt. The company will use the funds sourced from profit to finance its operational activities before deciding to use the funds sourced from outside the

company. Instead Shahid *et al*. (2016), Firmanullah and Darsono (2017), Tangiduk *et al.* (2017), Indaswari *et al.* (2016) said the profitability has no impact on the debt policy.

Influence of Managerial Ownership to Debt Policy

Variable liquidity is influential and significant to the debt policy. This means that the increase in managerial ownership will be followed by the increase in debt policy. In contrast, managerial ownership will be followed by a decline in debt policy. The test results statistic indicated that managerial ownership has a positive and significant impact on the debt policy. Thus the hypothesis that managerial ownership affects the debt policy is acceptable. In the structure of ownership where the company owner of the party has great power to do debt policy. The higher the level of managerial ownership, the higher the policy of utilizing debt. This is because the great control of the manager causes them to be better managed to invest so it requires additional funds through debt.

The results of this research are consistent with the results of Purwasih *et al*. (2014), Peilouw (2017) that managerial ownership has positive and significant impact on debt policy, why increased managerial ownership will align The interest between the owner and the manager. Increasing managerial ownership will make managers more cautious to use debts and minimize the risks caused by the manager feeling the company has. However, the results of the study were inconsistent with the research results, Indraswary *et al.* (2016), Reji Hendria *et al.* (2015), Purniati and Putra (2016), Sari and Prasetiono (2015), Cristine Susilawati *et al.* (2012), stating that managerial ownership did not Of debt policy, the reason that the company's manufacturing managers in Indonesia is not as a deciding factor in the funding policy of the debt because the manager's share ownership in the manufacturing company is still lacking.

Liquidity Influence, Company Size, Profitability and Managerial Ownership of Debt Policy

The independent Variable liquidity, company size, profitability and managerial ownership simultaneously have a significant impact on the debt policy. It is known from the test F results as seen in Table 3, f value obtained from the calculation that has been done is 12,579 and this value is greater than the Strong Swan F table of 2,322. And the significance value is smaller than 0.05 0.000. These results meet the hypothesis that liquidity, company size, sales growth, profitability and managerial ownership have significant impact on the debt policies. This result was also supported by Research Indraswari *et al.* (2016), Tangiduk *et al.* (2017), Lasut *et al.* (2018), Purwanti (2017).

6. Implications

Based on the results of analysis and discussion of the research is expected to contribute to the theoretical development of investments are as follows:

- The implications of the theory that can be expressed in this study that for the company's debt policy decision in the capital market can use a model factor that affects the debt policy;
- The results of this study found that the decision on the debt policies as a result of increased liquidity, and profitability.

In this study, the proposed model was the internal factor model of the debt policy where the model in the study emphasized the importance of assessing internal factors in determining debt policy. There are still many variables that have not been accommodated on this model, such as profit management, good corporate governance, corporate cash flow, dividend and corporate and other behavior for internal factors while for external factors such as policy Economic growth, inter-company competition and technological developments so that researchers interested in researching debt policies can add these variables. In addition to that another limitation lies in the object of research. Preferably not only in the manufacturing industry, but other such banking, the company entered on the LQ45.

Conclusion and Recommendation

Based on the results of this study, the conclusions that can be given in this study are as follows:

- Liquidity is negative and significant to the debt policy, so that the hypothesis stating the liquidity is negative and significant is acceptable;
- The size of the company has no significant impact on the debt policy, so that the hypothesis stating the company size was positively and significantly rejected;
- Profitability is influential and significant to the debt policy, so that the hypothesis stating liquidity is influential and significant received;

- Managerial ownership is influential and significant to the debt policy, so that the hypothesis stating managerial ownership is influential and significant, acceptable;
- Liquidity, company size, profitability, managerial ownership simultaneously affects the debt policy. So that the hypothesis stating liquidity, company size, profitability, managerial holdings are simultaneously influential and significantly acceptable.

Based on the results of this study, it is hoped to provide an overview of factors factor affecting the debt policy of y manufacturing companies listed on the Indonesia Stock Exchange. However, the research still has limitations. Therefore, it is hoped that this research can be a reference for further research, to make it even better. As for suggestions-suggestions that can be given, namely:

- Further research is expected to increase the number of independent variables, such as institutional ownership, asset structure, *etc*.;
- Subsequent studies are expected to increase the number of years of observation, not only 7 years and the number of research samples, not only on the manufacturing sector alone;
- For investors if you want to invest, should consider the capital structure of the company, so that the capital structure used is the optimal capital structure, which can increase the EPS of the shareholders;
- Company management should pay more attention to the company's funding composition, so that the use of debt can use optimum capital structure.

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Institutional Ownership, Firm Size Effect, Corporate Finance and Firm Value

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Abstract:

The direct effect of institutional ownership and company size does not significantly affect company value. The value of the company does not respond to changes in institutional ownership and company size significantly, it means that the signaling theory is not proven. Institutional investors do not affect corporate finance except dividend decisions, this is consistent with the characteristics of "transient investors", the same thing happens to firm size, which also does not affect corporate finance except dividend decisions. Only dividend decisions affect company value while investment decisions and financing patterns do not affect.

Keywords: investment; institution investor; dividend; funding; firm value.

JEL Classification: G11; G31; G32; H54.

Introduction

There are two main issues examined in this study, namely institutional investors and firm size effects. The issue of institutional investors is based on theoretical thinking that besides the founder, theoretically, the institution as the owner has a significant role in a company compared to individuals or founders. Investor Institutions have a significant role because of two main things, namely the significant amount of Share ownership and information. They have the ability to gather information and use information to pressure management so that it can improve market efficiency and asset valuation (Borochin and Yang 2017), related to economic and financial performance, Dyck *et al.* (2019), corporate governance (Ferreira and Matos (2008) and Aggarwal *et al.* (2011), stock prices (Chan and Lakonishok 1993), corporate finance (Gillan and Starks 2000, 2003) and firm value and firm performance (Appel *et al.* 2016).

The orientation of institutional investors in investing in companies can be different, depending on the group or type. This difference in patterns will affect their patterns of behavior, decisions and monitoring of management. Bushee (1998) classifies institutional investors into three major groups, namely dedicated, quasi-indexer, and transient. He said that small transient institutions attempt to influence managers through monitoring, in contrast to dedicated institutions (actively gathering information and influencing management). Whereas quasi-indexers only focus on the performance of the monitoring function. Our research does not classify institutional investors based on investment patterns, but looks at total ownership. This is based on the reality in the field, that on the Indonesia Stock Exchange, the number of institutional investors in one company is very small because the regulation on the Indonesia Stock Exchange allows one institutional investor to own shares above 50%.

The second issue raised was the issue of firm size effect. Firm size effect issues are important because they are considered to represent cost of risk capital (Lo and Mackinlay (1990), Black (1992) and Berk (1995). They explain that large companies have a smaller risk of capital than small companies. Large companies have

many advantages in terms of management, access to sumbeer financing, better ability to solve financial problems and be able to get more professional (hiring) management and employees than small companies, which causes large companies to have lower risks than small companies. If frm size or size effect is associated with stock prices, the impact is still anomalous. Berk (1995) argues that Firm size or size effect is better able to explain cross-section variation in asset returns than other CAPM and multifactor models, as the most prominent contradiction of the paradigm (Fama and French 1997), and as evidence of misspecification of the CAPM compared to evidence from inefficient capital markets and size effects can be used as a proxy for opportunity cost of risk capital. This is supported by theoretical thinking and early empirical research which found that the impact of stock prices on a stock trading is caused by firm size (Loeb (1983), Stoll and Whaley (1983), and Keim and Madhavan (1991). Even though the issue of firm seze effect faded in the 1980s but it is still relevant in the Indonesian capital market, which many investors see in terms of market capitalization (bluechip or not, large or small capitalization and aspects of whether the company is part of the business group or single company).

The main problem in this study is whether institutional ownership and firm size effects still influence corporate finance and firm value. The problem in this study is based on two big arguments, namely the empirical gap and the characteristics of the Indonesian stock market. Many studies on the effect of institutional ownership (institutional investors) and firm size effects on corporate finance and firm value, still provide mixed results (mix). Then from the characteristic aspects of the Indonesian stock exchange that allows one institutional investor to have shares above 50%, so the number of institutional investors in a company becomes very small (average 2-3 institutions). Also the strength of the perception of investors in the Indonesian capital market that owning bluechip or large capitalized shares is still better than small capitalized companies. Based on these two arguments, the focus of the problem in this study is whether or not the role of institutional ownership and firm size effect is still relevant or influencing corporate finance and firm value? The argument of Grinstein and Michaely (2005) that how institutional investors influence corporate financial policies, which consequently affect the value of the company, is a question that gets the attention of both academics and practitioners. To answer this problem, the solution we offer is to see the direct and indirect effect of institutional ownership and firm size effect on corporate finance (financial, investment and dividend decisions) and firm value in manufacturing companies in the Indonesia Stock Exchange.

This model contributes to the testing of signaling and agency theory and empirical evidence about the role of institutional ownership and firm size effect on corporate financial decisions and firm value. The use of path analysis (with amos software) can detect direct, indirect or total relationships. So that it is possible if the direct relationship to the value of the company is not significant then it can be compared further with its indirect relationship (through corporate finance decisions). In this study, we do not distinguish institutional investors based on trading behaviors, investment styles, and trade motivations from institutional investors. We also do not control the firm size effect based on the type of ownership of the company (private, domestic, foreign, government or mix).

Empirical evidence related to the impact of institutional investors and firm size on financial decisions, stock prices and company values still mix (mix result) or puzzle. On the one hand, institutional investors have the advantage of information, are able to improve the performance and governance of the company, so as to increase company value (Gillian and Starks (2000), Hartzell and Starks (2003), Barber and Odean (2008), Nesbitt (1994), Sias and Starks (1997), Nagel, (2005) and Lakonishok, *et al.(*1992), but on the other hand, empirical evidence shows institutional investors are short-term and opportunistic behavior (opportunism) so that short-term benefits are pursued and will have an impact on declining firm value (Smith (1996), Barton and Wiseman (2014), Karpoff, et al (1996), Gillian, (1995) and Wermers (1999). And it doesn't even affect (no effect) (Karpoff *et al.* (1996) or only has a small effect (Chan and Lakonishok, (1993). The difference in empirical results from the impact of institutional investors on the value, performance or governance of the company is caused many factors, namely differences in pattern or investment behavior, size of investment, time or investment period, holding concentration, trading patterns (buying and selling positions), motivation and benefits to be achieved, types of institutions and legal aspects of the capital market. make the market give a different response or signal (overvalued or undervalued) to the impact of institutional investors on the value of the company.

Bushee (1998, 2001) and Borochin and Yang (2017), classify institutional investors (institutional investors) into transient and dedicated investors. According to them each of these classifications has different behaviors and will have a different impact on the company. Low concentration has a short-term nature, myopic corporate decision making by managers (potentially reducing company value), short-term profit-oriented, sensitive or overreacting to trade from new information (Yan and Zhang (2009), likes low risk, higher average and median

executive com pensation, worse accruals quality, and like lower payout ratios. While the behavior of dedicated investors goes back to transient investors.

Firm size effect is a classic phenomenon. There is a tendency, institutional investors prefer (prefer) to invest in large companies than small (Sias and Starks (1997) and Gompers and Metrick (2001). Large companies, have a number of advantages that are able to get professional management, easier access to financing sources, lower price risk, and stronger good corporate governance, making firm size still a factor in the selection of investments in the capital market, even today. For countries with developing capital markets (such as in Indonesia), the shares of large companies or bluechip companies (as in LQ 45) are more in demand. This condition makes the Firm size effect aspect still important to be investigated further, especially the impact on the corporate finance decision and firm value. However, there is a lot of empirical evidence (research in the capital markets outside Indonesia) which considers firm size effects no longer relevant, since the 1980s. Research studies since that era have proven it, such as the results of research from: Chan *et al.* (2000), Horowitz *et al.* (2000), Dichev (1998), Hirshleifer (2001), and Amihud (2002).

To prove the hypothesis, we use the path model with intervening variables is a component of corporate finance (investment, dividend and financing decision). The rationale of the model built is institutional investors and firm size can directly influence firm value and also indirectly influence firm value through its influence on corporate finance. For that we use the Amos program with path analysis techniques. The model that we developed is expected to provide an explanation of the direct role (signal) of institutional investors and firm value in the capital market (related to market prices) and their role in influencing managers in making financial decisions in companies. The model tested does not use control variables or classifications for both institutional investors and firm size variables.

Empirical evidence shows that institutional ownership and company size directly do not significantly affect company value. The value of the company does not provide a response to changes in institutional ownership and company size significantly. That means the signaling theory is not proven. Institutional investors do not affect corporate finance except dividend decisions, this is consistent with the characteristics of "transient investors" from Borocin and Yang (2017), the same thing happens to firm size, which also does not affect corporate finance except dividend decisions. The significance of the role of dividends as an effect of institutional investors as well as their influence on firm value, proves the basic principles of agency theories, which represent lower monitoring costs, by making dividend decisions that provide profits to investors (Grinstein and Michaely (2005) and Jensen (1986). The Indonesia Stock Exchange, which is dominated by family firms, dividend aspects are important in company decisions because they are related to aspects of free cash flow and very important internal funding sources. Many samples in our study, companies do not divide dividends at all or do not routinely divide, very few are routinely distributing dividends. Only dividend decisions affect company value while investment decisions and funding patterns do not affect. One of the weaknesses in this study is the short research period.The time of the study will affect research performance (performance studies) (Rooma *et al.* (2016); Chaud-huri and Lo (2016).

1. Literature Review

1.1. Institution investor, firm size, and corporate finance

There are many empirical evidence and theoretical thinking on the role of institutional investors in corporate dicision (corporate finance). Institutional investors have an impact (effects) on financing or leverage (Michaely *et al.* 2015), dividends (Grinstein and Michaely (2005), Brav *et al.* (2005), firm value or firm performance (Appel *et al.* (2016), McConnell and Servaes (1990), Borochin and Yang (2017), risk (Borochin and Yang (2017)), returns (Both *et al.* (2010), and valuation and governance (Borochin and Yang (2017). This because institutional investors have the ability or excellence in improving market efficiency and valuing company assets through their ability to gather information, process and influence management (Barber and Odean 2008).

Many firm size affects research is based on the amount of information disclosure that is contained between large and small companies. Large firms are more efficient in producing and disseminating information than large companies (Verrechia (1980) and Eddy and Seifert (1988). Financial information disclosures (financial information) have a positive relationship with firm size, which means that smaller companies have asymmetrical (asymmetry) information that is more substantial than large companies (Buzby 1975). This causes investors to have more information access to large companies than small companies. This fundamental thing causes the importance of firm size effect. Asymmetrical information on variations in firm size, causes variations in response or market price signals or firm firm value. Firm size affects, also can be explained by the cost of information acquisition. Large companies have lower costs than small companies (Bhushan 1989). He argues that the amount of information available before earnings announcements has a positive relationship with firm size.

Another aspect of Firm size effect is risk-adjusted security returns, which are greater for smaller companies than for large companies (Eddy and Seifert 1988).

Firm size affects can also cause differences in corporate finance decisions or policies (investment decisions, dividends and financing). Many studies have tried to prove the phenomenon of firm size effect on dividend decisions. One model that underlies empirical testing is firm life-cycle models. The life cycle model states that the company will distribute its assets until it reaches an efficient size. This model can answer why large companies prefer to pay dividends compared to small companies. Research from Eddy and Seifert (1988), found that the reaction of abnormal stock prices to dividends increased more in small companies. Large companies have greater control over payout policies (Baker *et al.* (2007), Jakob and Johannes (2008). Small companies tend not to be interested in paying dividends (Holder *et al.* (1998).

Firm Size can also have an effect (effect or determinant) on financing (leverage or capital structure) (Schoubben and van Hulle 2004), Schwartz and van Tassel (1950), Titman and Wessels (1988), Coleman and Cohn (1999), Rajan and Zingales (1995), Barbosa and Moraes (2003), Frank and Goyal (2003), Gaud *et al.* (2005), and López-Iturriaga and Rodríguez-Sanz, (2008). For arguments for the impact of firm size on leverage, can be explained by the argument that large companies are more diversified (Titman and Wessels 1988) and have a higher capacity to pay interest (Pandey (2004), Cardone-Riportella and Cazorla-Papis (2001), have a higher degree of information disclosure (Fama and Jensen (1983) and Rajan and Zingales (1995), have higher collateral values and have a smaller risk of bankruptcy (King (1977), Warner (1977) and Ang *et al.* (1982), have access to equity financing compared to small companies (Drobetz and Fix (2003), Faulkender and Petersen (2006), Li (2005) Bevan and Danbolt (2002), Titman and Wessels (1988), and Marsh (1982).

For firm size relationships with investment decisions, large companies have more investment opportunities than small companies (Gonenc (2005) and Dittmar (2004), large companies have more debt ability so they are able to provide a greater source of funding for investment, and Quandrini (2001), finding small companies or new companies, paying a little dividend, getting more debt and investing more than big companies.

1.2. Corporate Finance and firm value

Corporate finance decisions (financing, investment and dividend) have an impact on company value. Financing (leverage) has an effect (effect) on Firm value, (Martin (1996), Nash *et al*. (2003), Berger *et al.* (1997), Harris and Raviv (1990,1991), and Khaled and Nazneen (2017) Investment decisions have an impact on firm value, (Fama (1978), Fama and Miller (1972), Tobin (1969), Grazzi *et al.* (2016), Kaplan and Zingales (1997), Ye and Yuan (2008). Dividend decisions have an impact on solid firm value, Bhattacharya (1979), John and Williams (1985), Miller and Rock (1985), (Walter (1956), Friend and Puckett (1964), Asquith and Mullins (1983), Baskin (1989).

2. Methodology

This study uses secondary data obtained from the Indonesian Capital Market Directory 2008-2017 and the Indonesia Stock Exchange Website. The research sample was 51 manufacturing companies, with purposive sampling technique. This research uses Path Analysis Technique with Amos software. The variable used is Institutional Ownership (X1). measured by total share ownership by institutions within the company. Company size (X2), measured by total sales. Decision of dividend (Y1) is measured by dividend payout ratio. Investment decision (Y2) is measured by total assets. Funding pattern (Y3) is measured by DER. Market value (Y4), measured by market to book value.

3. Research Result

3.1. Variable description

The variable description can be seen on the Table 1 below:

Table 1. Descriptive statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
x1	510	.22	.99	.7486	.00692	.15619	.024
x2	510	.00	123765608.0	6511074.610	695308.6241	15702279.52	2.466E+14
y1	510	.00	8142.00	54.3090	23.54432	531.70569	282710.946
y2	510	.00	174353000.0	2628077.702	494243.5781	11161591.48	1.246E+14
y3	510	.00	9931.00	28.9287	19.58303	442.24715	195582.539
y4	510	.00	29733640.00	105834.7583	63933.73677	1443827.059	2.085E+12
Valid N (listwise)	510						

Source: processed data

Institutional ownership variables (X1) the minimum ownership is 22%, a maximum of 99% and an average of 74.89%. From this data shows that most companies in the manufacturing industry are owned by institutional ownership. Institutional ownership that is on average 75% in theory will have a positive impact on the value of the company. This is because institutional shareholders have more resources and expertise in controlling management policies so that management does not make decisions or behaviors that conflict with the interests of shareholders. For company size variables (X2), the average has 6.5 trillion rupiah total assets. This shows that companies in the manufacturing industry have a sizeable company size. This is due to manufacturing companies going public in Indonesia, the dominant being the parent company. This shows that large entrepreneurs in Indonesia, mostly starting their businesses from manufacturing industries, then spread to other industries. For investment decision variables (Y1), the average has total sales of 54 billion rupiah. This value is still included in the low category when compared to the total assets it has. This is due to the scope of manufacturing companies in Indonesia which are mostly oriented to the domestic market.

For the dividend decision variable (Y2), the average dividend distributed is an average of 2 trillion rupiah each year. This dividend is quite large, the amount of dividends is very much related to institutional ownership, the greater the ownership of the institution, the greater the dividends distributed. The amount of dividend distributed will give a lot of meaning. First, the greater the dividend distributed, the smaller the retained earnings and the lower the chance to buy shares again (to strengthen stock prices). Second, the amount of dividends will increase external use if the company needs funds to expand or finance investment in fixed assets in the future. Third, the amount of dividends distributed shows the low agency costs, because the owner is better off receiving cash (dividends) than the stock repurchase or reinvestment which is usually chosen by management. For the funding pattern variable (Y3), the average debt ratio is quite low. This shows that the average manufacturing industry in Indonesia has a low financing decision. Whereas for the market value variable (Y4) shows that almost all companies in the manufacturing industry in Indonesia have a market value higher than par or nominal value. This shows that the company is rated higher than its par value.

3.2. Path analysis

There are eleven (11) paths in the model. This path reflects the potesis to be tested. These eleven lines include: institution ownership (X1) to investation decision (Y1), institution ownership (X1) to dividend decision (Y2), Institution ownership (X1) to funding pattern (Y3), Institution ownership (X1) to market value (Y4), company size (X2) to investation decision (Y1), Company size (X2) to dividend decision (Y2), company size (X2) to funding pattern (Y3), company size (X2) to market value (Y4), investation decision (Y1) to market value (Y4), dividend decision (Y2) to market value (Y4) and funding pattern (Y3) to marker value (Y4).

Table 2. Regression coefficient and probability level

			Estimate	S.E.	C.R.	P	Label
y1	<---	x1	68.851	153.610	.448	.654	par_1
y2	<---	x1	-11,730,124.371	3,154,865.426	-3.718	***	par_7
y3	<---	x1	-117.181	127.726	-.917	.359	par_8
y1	<---	x2	.000	.000	-.592	.554	par_9
y2	<---	x2	.073	.031	2.338	.019	par_10
y3	<---	x2	.000	.000	.206	.837	par_11
y4	<---	x1	450,422.895	421,050.200	1.070	.285	par_2
y4	<---	y1	-16.912	119.770	-.141	.888	par_3
y4	<---	y2	.013	.006	2.277	.023	par_4
y4	<---	y3	-11.081	144.031	-.077	.939	par_5
y4	<---	x2	.001	.004	.153	.878	par_6

Source: Processed data

Regression coefficients that are positively marked are institutional ownership of investment decisions (positive: 68.85), Institutional ownership of market value (positive: 450,422), Firm size against investment decisions (positive: 0,000), Firm size for dividend decisions (positive: 0.073), The size of the company against the pattern of funding (positive: 0,000), the size of the company against the market value (positive: 0.001), and the decision on dividends to market value (positive: 0.013). While the regression coefficient marked negative is institutional ownership of dividend decisions (negative: 11,730,124), institutional ownership of funding patterns

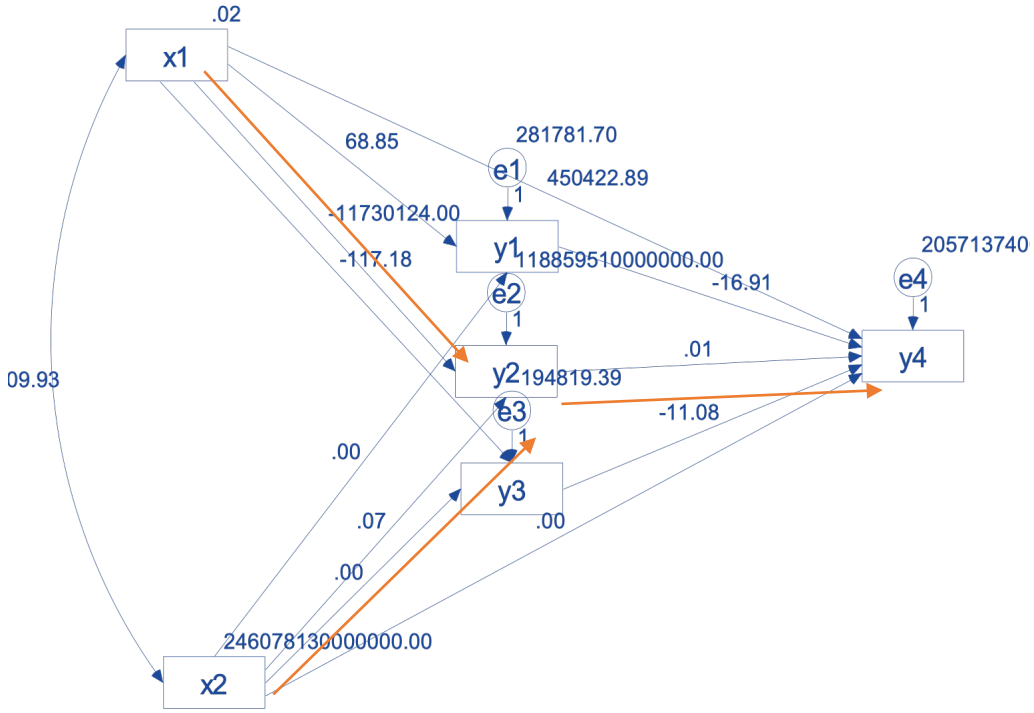
(negative: 117), investment decisions on market value (negative: 16.90 and funding patterns on market value (negative: 11).

To test the hypothesis, we found that relationships that did not have a significant effect (above 0.05) were institutional ownership of investment decisions, funding patterns and firm value, and firm size of investment decisions, funding patterns and firm value. The findings also show that corporate finance decisions (investment and funding patterns) do not affect the value of the company. Whereas the effect is institutional ownership on dividend decisions, firm size on dividends and dividends on firm value. This finding shows that institutional ownership (institutional investors) plays a major role in adopting dividend decisions in companies.

3.3. Path analysis: Direct effect, indirect and total

Direct path is the direct effect of one free variable on one variable not free, or in the path model drawn with one arrow. While the indirect path through one variable intervening or intermediate variable. Intervening variables or in financial tennology are called "control variables". These are variables that have the ability to change the direction, coefficient or significant level of an update or relationship when there are one or more variables included in the model. The model analyzed has 11 direct paths and 6 indirect lines. But because only 2 significant indirect paths are first, Institution ownership (X1) to dividend decision (X2) to market value (Y4) and firm size (X2) to dividend decision (X2) to market value (Y4).

Figure 1. Research model



For the value of direct, indirect and total relationships can be seen in the Table 3, below.

Table 3. Indirect and direct effect

Indirect effects (Group number 1 - Default model)					
	x2	x1	y3	y2	y1
y3	.000	.000	.000	.000	.000
y2	.000	.000	.000	.000	.000
y1	.000	.000	.000	.000	.000
y4	.001	-155,622.129	.000	.000	.000
Standardized indirect Effects (Group number 1 - Default model)					
	x2	x1	y3	y2	y1
y3	.000	.000	.000	.000	.000
y2	.000	.000	.000	.000	.000
y1	.000	.000	.000	.000	.000
y4	.011	-.017	.000	.000	.000

Source: Processed data

Based on the Table 2 above, it can be seen that the indirect effect from X1 to Y4 passes Y2 at -155,622.129 and from X2 to Y4 through Y2 at -001. This figure shows that the Y2 variable has a stronger effect than the direct relationship. This shows two things: first, the greater the Institutional Ownership (X1) will reduce the dividend decision (X2) of the company and then it will affect the market value (Y4). Then second, the larger the size of the company (X2) will reduce the dividend decision (X2) and then affect the market value (Y4).

Then, because the direct relationship between Institutional Ownership (X1) and Company Size (X2) to market value (Y4), is not significant, the condition of indirect relations cannot be compared. But it can be said that institutional ownership (X1) and company size (X2) will have a significant effect on market value (Y4) if through a dividend decision (Y2). So dividend decisions are crucial decisions that are influenced by institutional ownership (X1) and company size (X2) and will have an influence on market value (Y4). In theory this is logical, because returns from shareholders are dividends and capital gains but preferably receive dividends (bird in the hand theory).

3.4. Fit model

The results of the analysis show that the model proved to be an overidentified model or a model worth estimating. This is also supported by the positive degree of freedom value 3 (not negative). The low chy-square value produces a significantly greater level and 5%, which indicates there is no significance between the "covariance matrix of the data and the covariance matrix estimated" (Hair *et al.* 1995). So the goal is to see that Ho is accepted (meaning: chy-square must be insignificant or above 0.05 (above 5%).The results of the analysis show that the chi-square value counts at 0.075 whereas for the significant level it can be seen in the probability value of 0.995 (99.5%) so that Ho accepted (model = empirical data, meaning: good model).

If there is multicollinearity or singularity, then the data cannot be used for research (Ghozali 2004, 109). Multicolinerity tests can be seen in the value of the "determinant of sample covariance matrix". The value of "determinant uf sample covariance matrix"> 0 then there is no multicol. Whereas if the value of the "covariance determinant of sample matrix" is <0 then there is multicol. The findings show that the value of the "determinant of sample covariance matrix"> 0), so there is no multicol. The model must meet several fit-test models (in addition to the Chy-square test). There are several imlikators that can be used. The results of the analysis show that the indicators or parameters used to test the suitability of the model are met. That means the model is fit or good or good.

Table 4. Model Fit Testing

Goodness of fit indices	Cut-off value	Finding	Information
CHI-SQUARE	Not significant	Not significant (0.995)	Fulfilled
RMSEA	<0.08	0.067	Fulfilled
GFI	>0.90	0.967	Fulfilled
AGFI	>0.90	0.954	Fulfilled
CMIN/DF	<>2	3.2	Marginal
TLI	>0.95	1.427	Fulfilled
CFI	>0.94	1.000	Fulfilled

Source: Processed data.

4. Discussion

The significance of the variables related to dividends shows that both institutional and firm size ownership only affects dividends and dividends will affect the firm's value or the company's market price. Institutional investors influence dividend decisions (Grinstein and Michaely 2005). They find that institutional investors will avoid companies that do not pay dividends. This finding supports agency theory, which suggests that companies with low monitoring costs will make managers prefer to pay dividends to shareholders (Jensen 1986, Bhattacharya 1979, Kose and Williams 1985, Miller and Rock 19850, Rozeff 1982). Firm size effects are also partially proven, especially regarding variations in dividend decisions. firm life-cycle models.

Conclusion

We find that relationships that have no significant effect (above 0.05) are institutional ownership of investment decisions, funding patterns and company value, and firm size of investment decisions, funding patterns and firm value. The findings also show that corporate finance decisions (investment and funding patterns) do not affect the value of the company. Whereas the effect is institutional ownership on dividend decisions, firm size on dividends

and dividends on firm value. This finding shows that institutional ownership (institutional investors) plays a major role in adopting dividend decisions in companies.

The significance of the variables related to dividends shows that both institutional and firm size ownership only affects dividends and dividends will affect the firm's value or the company's market price. This finding supports the agency theory, which suggests that companies with low monitoring costs will make managers prefer to pay dividends to shareholders. Firm size effects are also partially proven, especially related to variations in dividend decisions. This supports firm life-cycle models.

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Financial Statement Fraud: An Investigation into its Prevalence in Cross Sector Industries in Indonesia

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Abstract:

This study investigates the tendency level of companies in Indonesia performing Financial Statement Fraud (FSF). This research also investigates which industries are indicated on practicing so. This research explores grey area indices that shows types of FSF techniques applied by those companies. This study empirically examined 352 companies listed on the Indonesia Stock Exchange, included in five major industries.

This research is an exploratory research that applies Beneish M-Score Model in calculating the manipulation score, calculates the statistic of frequency to find the overall manipulation index, and utilizes the descriptive statistics to explore the result data. The result shows that 132 of 352 companies or 37.50% are included as companies with indications of performing FSF in 2016. The indicated number of 132 is much higher compared to number of sanctions issued by Financial Service Authoritative to only three companies in 2016. The research result also shows that manufacturing industry has the biggest number of 35 companies indicated as practicing financial statement fraud. The research concludes that Beneish M-Score Model can be used as an additional analytical procedure to detect the indication of FSF.

Keywords: financial statement fraud; Beneish M-score; manipulation index.

JEL Classification: G10; M40; M42; M49.

Introduction

Financial Statement Fraud (FSF) is a global phenomenon. Previous global cases such as Lucent, Xerox, Rite Aid, Cendant, Sunbeam, Waste Management, Enron Corporation, Global Crossing, WorldCom, Adelphia, and Tyco strongly describe how FSF strongly affect investors and capital market worldwide. This phenomenon also occurred widely in Asia region. Hasan *et al.* (2017) investigated financial report manipulation in Asia and stated that 34% of samples of selected companies in Asian countries were involved in financial manipulation with an overall manipulation index of 72%. Similarly, FSF in Indonesia is an example of an iceberg phenomenon that looks small with only the peak is seen. Revealed fraud was relatively small compared to actual fraud in Indonesia (Tuanakota 2007). Indonesian fraud surveys by Association of Certified Fraud Examiner chapter Jakarta (ACFE 2016) support that statement, stating that not many FSF in Indonesia are revealed. The difficulty in disclosing the FSF is assumed due to the facts that FSF is done by companies' executives which make it more difficult for others to reports the

incidents when there is no clear legal protection mechanism for reporting FSF actions. There has been variance on the type of industry that largely involved in exercising the FSF. ACFE (2016) states that the industry most affected by fraud is government institutions namely State-Owned Enterprises (SOEs) of 58.8 whereas Report to Nation (2016) stated that banking industry has the greatest disadvantage caused by fraud. Therefore, it is interesting to find out which industry is most indicated to be involved in financial statement fraud.

Previous studies have been conducted in Indonesia to examine the factors that affect FSF. Several researches examined FSF factors in the *perspective of* fraud triangle theory (Hanifa and Laksito 2015, Tiffani and Marfuah 2015, Iqbal and Murtanto 2016). While several other researches examined FSF factors in the perspective of fraud diamond model theory (Sihombing and Rahardjo 2014, Manurung and Hardika 2015, Maghfiroh and Ardiyani 2015, Yesiarini and Rahayu 2017). Moreover, researches on FSF in the perspective of fraud pentagon theory has been widely done in several industries in Indonesia (Aprilia 2017, Nindito 2018, Bawekes and Daat 2018, Setiawati and Baningrum 2018, Jaya and Poerwono 2019). However, those researches have not discussed on the how widely FSF occur in Indonesia. Therefore, a specific investigation is needed to produce data and information that are useful in building awareness and becoming a wake-up call for all stakeholders regarding the FSF in the case of developing countries such Indonesia.

Various forms related to financial reporting that can be categorized as FSF (Rezaee 2005, Hogan 2008, Repousis 2015, Hasan 2017). This study provides an overview on which forms of FSF is most prevalent in the case of public companies in Indonesia. Furthermore, as previous studies concluded, financial statement information can be used in detecting FSF (Persons 1995). He states that accounting data can be used to predict FSF. Characteristics of companies that misrepresent their financial statements, namely having the occurrence of misstatements, having low accrual quality and a decreased measure of company's financial and non-financial performance and a high sensitivity of the company's share price (Dechow 2011). Therefore, this study applies the Beneish model in identifying companies indicated to exercise FSF. Beneish model applied a statistical model that would distinguish manipulator companies from non-manipulator ones (Beneish 1999). This model identifies companies that are indicated as exercising in the manipulation earnings.

This study refers to Hasan *et al.* (2017) in investigating the indication of companies listed on the Indonesia Stock Exchange (IDX). This research will produce information and understanding on the practice FSF indicated on companies listed on the IDX. This research also further investigates the industries that are most indicated in exercising FSF in Indonesia, the grey-area index, and manipulation techniques that often applied.

The main motivation for this research is to reveal indications of FSF in across industries in Indonesia. This research will contribute in the form of information and reviews of understanding related to the FSF indication map that can be used by various parties in the decision making process especially it for capital market stakeholders in addressing the potential cases of FSF in companies and industries in developing countries such as Indonesia. This research is expected to contribute to scientific development related to the topic of the FSF and can also provide practical contributions to the government, company management, *those charged with governance* (TCWG) and investors in handling cases related to fraud and making investment decisions.

1. Literature Review

1.1. Agency theory and financial statement fraud

Agency relations is a cooperation contract between the *principal* and the *agent* to carry out company activities (Jensen and Meckling 1976). In practice there are often conflicts between company owners and management. This conflict was caused by differences in objectives of the two parties. Shareholders as capital owners expect a high return on the capital they invest, while company management desire for a maximum bonus for the business they do in managing the company. Managers as agent are under pressures of the principals to show good financial performance in the advantage of the owners. On the other hand, the manager also rationalizes that with the increase in the company's financial performance then managers will get their maximum compensation. Therefore, with the presence of moral hazard, managers as parties who have more information than the owners (the absentee owners) will try to do certain activities to meet the expectations of the principals, to always display good financial performance of the company, which can lead to the occurrence of FSF.

Financial statement fraud is a deliberate attempt by a company to deceive or mislead users of published financial statements, especially investors and creditors, by preparing and distributing company financial statements containing material misstatements (Rezaee 2005). He also states that FSF involves a form of fraud committed by highly knowledgeable teams such as company executives and auditors with a series of well-planned and well-done schemes. FSF can be done in these following schemes such as:

- falsification, change, or manipulation of material financial records, supporting documents, or business transactions;
- reasons for misstatements, omissions, or misrepresentations, transactions, accounts or other significant information where financial statements are prepared;
- intentional misuse, misunderstanding, and the application of wrong accounting standards, principles, policies and methods used to measure, recognize and report economic and business transactions;
- transition;
- the use of aggressive accounting techniques through unauthorized revenue management;
- manipulation of accounting practices based on existing accounting standards based on regulations that have been too detailed and too easy to avoid and contain gaps that allow companies to hide the economic substance of actual performance.

Various forms of those FSF can be done in forms of overstatements and understatements on certain accounts presented in the company's financial report. The possibility of the FSF occurring is even greater for companies whose management with opportunities coupled with the ability to manipulate the company's true financial performance to gain certain personal or group benefits. The absence of effective internal controls in company management, ineffective governance and lack of supervision by the company's principal provides a greater opportunity for management to take FSF actions.

Some manipulation techniques carried out as follows: 1) recording of fictional journals, usually very close to the end of an accounting period, to manipulate the results of operations or achieve other goals; 2) evaluation of incorrect assumptions and changes in the value used to estimate account balances; 3) delays or delays or actions advance the recognition of events and transactions that occur during the financial reporting period; 4) concealment or not disclosing matters or facts that could affect the amount recorded in the financial statements; 5) conduct complex transactions that are structured to describe the financial position or financial performance of the entity; 6) changing notes and terms related to significant and unusual transactions (Repousis 2015). FSF can also be in the form of following schemes: 1) falsification, change, or manipulation of material financial records, supporting documents, or business transactions; 2) intentional misrepresentations of events, transactions, accounts, or other important information from which financial statements are prepared; 3) application of intentional errors on accounting principles, policies and procedures used to measure, recognize, report and disclose economic events and business transactions; 4) negligence in disclosure or deliberate presentation of inadequate disclosure of principles and accounting policies and financial amounts related to the method or technique used when conducting FSF (Wells 2017).

Furthermore, there are more specific techniques of FSF (Lau *et al.* 2016). They are*:* 1) Revenue recognition; done by overstating revenue, namely by making a fictitious sale with a fictitious buyer; and by recognizing future revenue earlier; 2) expense recognition; by exceeding inventory balances; manipulating values of property, plant and equipment (PPE); not making a write-down of financial assets such as derivatives, loans and other investments; 3) through business combinations and consolidation reports; and 4) through other methods such as misclassifying exceptional items to extraordinary items that are not permitted in the IAS; do not make disclosures; does not disclose related party transactions as required by IAS 24; and fail to reveal the contingency as required by IAS 37.

Moreover, ACFE (2018) with its taxonomy of fraud (fraud tree) states that scheme of FSF can be either overstated or understated *net income* of the company, which can be done by timing difference, understated revenue, fictitious revenue), concealed liabilities and expenses or overstated liabilities and expenses, improper asset valuation, improper disclosures. Some schemes of FSF often involve more than one technique at a time (Rezaee 2005). The report of COSO (1999) as mentioned in Beasley *et al.* (1999) show that the majority of financial report fraud (around 90%) involves the manipulation, change, and falsification of reported financial information and carried out together with a small (10%) scheme of asset misappropriations. The majority (around 80%) of misstatements or FSF *are* carried out by overstating income and assets and around 20% involves liabilities and expenses. The fraudulent income schemes that are often used by companies are including in (1) bills and sales transactions; (2) side agreements; (3) conditional sales; (4) improper recognition of consignment sales as finished sales; (6) unauthorized shipments; and (7) invalid cut-off sales transactions at the end of the reporting period. FSF usually combines five schemes, namely: 1) fictitious income; 2) *improper timing*; 3) reduce the liability; 4) inadequate disclosure; 5) inadequate asset valuation (Hasan *et al.* 2017).

1.2. Beneish's Model: A reliable model to detect financial statement fraud in Indonesia

Beneish Model is an alternative analysis procedure that can be used by auditors to detect the possibility of financial report manipulation Hogan (2008). In other countries, Beneish model is applied as a tool to detect the indication of

FSF in Greece (Repousis 2015). Kamal (2016) tested the application of Beneish models to Malaysian public companies that were involved in FSF and concluded that Beneish models can be relied upon to identify companies involved in FSF in Malaysia. Similarities background of Malaysia and Indonesia as developing countries is one strong reason to conclude that the Beneish model can be used as a dependable tool to measure the FSF indications in Indonesia. This is also supported by Tarjo and Herawati (2015) who also concluded that Beneish models can be used to detect FSF in Indonesia.

The two main studies in the development of a model for detecting earnings manipulation in financial statements are conducted by Beneish (1997) and Beneish (1999). Beneish (1997) developed a model and found that the model was able to distinguish companies that manipulated earnings that violated US GAAP against companies that applied earnings management with high discretionary accruals. Furthermore, the model estimates that potential earnings manipulators have the potential to be four to five times greater to violate accounting rules compared to companies involved in earnings management with aggressive accruals (high discretionary accruals). Beneish (1999) developed a model to distinguish manipulators from non-manipulators by utilizing financial report variables. Beneish (1999) matched 74 companies that manipulated income with 2,332 non-manipulator companies. There are two alternative models that can be used to detect FSF, namely by applying five or eight variable dimensions (Beneish and Nichols 2009). According to the Beneish M-Score model, if the total results of the calculation exceed -2.22, the company is categorized as a fraud company. Whereas if it is less than -2.22, the company is categorized as a non-fraud company. The equation M-Score Beneish model approach applying eight dimensions of variables is as follows:

$$\text{M-Score} = -4.84 + 0.92 * \text{DSRI} + 0.528 * \text{GMI} + 0.404 * \text{AQI} + 0.892 * \text{SGI} + 0.115 * \text{DEPI} - 0.172 * \text{SGAI} + 4{,}679 * \text{TATA} - 0.327 * \text{LGVI} \quad (1)$$

Value -4.84 is a constant value in the formula equation M-Score, and eight other variables will be multiplied by the prescribed coefficients. An index for each of eight variables in the M-Score Beneish Model is used to determine the grey-area involved, which can be seen in Table 1 below. Furthermore, for the purpose of further analysis, this study refers to Hasan *et al.* (2017), to investigate further grey-area index of each variable in the M-Score Beneish Values of indexes that exceed the grey-area index will reflect the potential of related variables contributing to the occurrence of the FSF.

Table 1. Variables, formulas, and benchmark of M-Score Beneish model

Variable	Particulars	Benchmark
Days Sales in Receivable Index (DSRI)	▪ DSRI shows the change in receivables at current time by comparing them at the previous time according to sales. This index is expected to have a linear structure unless there is extreme change in credit policy	1.001
Gross Margin Index (GMI)	▪ The diminishing GMI index is a negative signal of company's future prospect. Such companies more prone to manipulate earnings	1.014
Asset Quality Index (AQI)	▪ AQI measures the quality of a company's assets. A greater value of AQI indicates a reduction in assets quality and a greater possibility of earnings manipulation.	1.039
Sales Growth Index (SGI)	▪ Growth companies which shown by higher SGI would be more likely to commit earning manipulation	1.134
Depreciation Index (DEPI)	▪ The greater DEPI indicates the upward revision of estimated lives of PPE which will also increase company's revenue	1.001
Sales, General and Administrative Expense Index (SGAI)	▪ SGAI Measures the proportion of SGAI expense to company's sales. a disproportionate value of SGAI index shows negative indication on the future prospect of the company.	1.054
Leverage Index (LVGI)	▪ A greater ratio of LVGI indicates a greater debt that can be backed by company's assets which can contribute to potential occurrence of earning manipulation	1.037
Total Accruals to Total Assets Index (TATA)	▪ TATA measure the opportunity of the company to exercise fraud. Higher ratio of TATA will relate to higher potential of earnings manipulation.	0.018

Source: Hasan *et al.* (2017)

2. Methodology

2.1. Research design

This study will explore descriptively indications of FSF in publicly listed companies in IDX specifically in Manufacturing Sector, Service Sector (Property Sector, Real estate, Construction sector; Infrastructure, Utilities, and Transportation sector; and Trade, Service, Investment sector) and Main Sectors (Agriculture and Mining sectors) by applying the *M-Score Beneish Model.* This research will also reveal manipulation techniques are most applied by companies when conducting FSF.

Stages of this research refers to the research design of Hasan *et al.* (2017) with some necessary adjustments in order to answer the established research questions and objectives. The stages of the study are as follows:

- Stage 1- Firstly, the researcher collects all financial statement data of 352 sample companies from 5 industrial sectors. All is non-financial companies listed on the Indonesia Stock Exchange.
- Stage 2 - At this stage, the study will apply *the M-Score Beneish Model 8* variable dimension which better represent the forms of manipulation techniques used by the FSF. Beneish (1999) uses eight financial statement ratios to calculate index values that indicate potential earnings manipulation. This model is then developed in the form of a probit model with a probability of a cut-off value of 1 if the index score is above -2.22. Beneish (1999) found that Beneish M-score model accurately identified potential earnings manipulators at the level of 76% of publicly listed companies that were proven to have committed illegal acts by the Securities and Exchange Commission (SEC). Below is the equation model (Beneish model):

M-Score = -4.84 + 0.92 * DSRI + 0.528 * GMI + 0.404 * AQI + 0.892 * SGI + 0.115 * DEPI - 0.172 * SGAI + 4,679 * TATA - 0.327 * LGVI (2)

where: DSRI: day's sales in receivable index (CY AR/sales)/(PY AR/sales); GMI: gross margin index ((PY sales - PY cost of sales)/PY sales)/((CY sales - CY cost of sales)/CY sales); AQI: asset quality index (1– (CY CA CY + Net FA)/CY TA))/(1– (PY CA + PY Net FA)/PY TA)); SGI: sales growth index (CY Sales/PY Sales); DEPI: depreciation index (PY DE / (PY DE + PY Net PPE))/(CY DE/(CY DE + CY Net PPE)); SGAI: selling, general and administrative expenses index (CY SG & A/CY Sales) / (PY SG & A/PY Sales); LI: leverage index ((CY LTD + CY CL)/CY TA))/((PY LTD + PY CL)/PY TA)); TATA: total accruals to total assets index ((CY CY - PY WC) - (CY Cash - PY Cash) + (CY Income Tax payable - PY Income Tax payable) + (CY Current LTD - PY Current LTD) - CY DE))/CY TA; CA = current assets; CY = current year or current period; DE = depreciation expense; FA = fixed assets; GM = gross margin; LTD = long-term debt; PPE = property, plant and equipment; PY = prior year or prior period; SG & A = selling, general and administrative; TA = total assets; WC = working capital (current assets - current liabilities).

- Stage 3 - In this third stage, the researcher detects FSF indications in the sample companies, analyze the manipulation index obtained by each Sample Company and separate between companies indicated as companies that commit FSF and non FSF. Companies that score above-0.22 will be separated as companies indicated as exercising FSF.
- Stage 4 - In this fourth stage all companies indicated as FSF companies in each industry sector will be further examined to find out the overall manipulation index and identify in detail the grey-area index to determine the manipulation techniques often used in certain industries in determined research year.

3. Results and Discussion

3.1. Calculation of Beneish M-score

Statistic shows that of a total of 352 companies selected as sample, the Beneish M Score maximum value is 146.99 and the minimum value is -47.62 (see Table 2 below) Meanwhile, the mean value of the M-Score Beneish is -1,7808, which is slightly greater than -2.22. Therefore, the scores indicate that at average companies in the study is at the categorized score as a company indicated as exercising FSF.

Table 2. Descriptive statistics of all sample companies

Variable	N	Minimum	Maximum	Mean	Std.Deviation
DSRI	352	-. 74	221.14	2.04	11.93
GMI	352	-83.19	63.45	.81	6.15
AQI	352	.00	10.19	1.01	.53
SGI	352	-1.96	34.98	1.14	1.90

Variable	N	Minimum	Maximum	Mean	Std.Deviation
DEPI	352	.07	26.73	1.17	1.86
SGAI	352	-1.45	296.95	2.19	15.89
LEVI	352	.00	10.78	1.04	.65
ACC	352	-1.47	2.55	-.019	.22
BENEISH	352	-47.62	146.99	-1.78	9.02
Valid N (listwise)	352				

Source: calculated by researcher (2018)

Companies that have Beneish M-Score is lower than -2.22 is categorized Non-FSF companies. Table 3 below shows that there are 220 non-FSF companies with minimum M-Score Beneish is -47.62 and the maximum score of 24.87, and the mean value of -3.1744.

Table 3. Descriptive statistics of non-FSF companies

Variable	N	Minimum	Maximum	Mean	Std. Deviation
DSRI	220	-.74	29.77	1.09	2.01
GMI	220	-83.19	5.29	.215	6.34
AQI	220	.00	10.19	1.02	.65
SGI	220	-1.96	3.50	1.01	.39
DEPI	220	.14	2.59	.98	.29
SGAI	220	-1.45	16.47	1.27	1.48
LEVI	220	.00	10.78	1.05	.70
ACC	220	-1.47	.14	-.07	.16
BENEISH	220	-47.62	24.87	-3.19	3.94
Valid N (listwise)	220				

Source: calculated by researcher (2018)

Companies with Beneish M-Score greater than -2.22 are categorized as companies indicated FSF companies seen in Table 4 below. There are 132 companies that are included in this category with a score maximum Beneish M-Score of 146.99 and a minimum score of -2.21. The average value of M-Score is 0.55.

Table 4. Descriptive statistics of indicated FSF companies

Variable	N	Minimum	Maximum	Mean	Std. Deviation
DSRI	132	.02	221.14	3.62	19.25
GMI	132	-.15	63.45	1.79	5.72
AQI	132	.02	1.74	.99	.161
SGI	132	.01	34.98	1.37	3.06
DEPI	132	.07	26.73	1.47	2.99
SGAI	132	.05	296.95	3.71	25.86
LEVI	132	.02	5.99	1.03	.56
ACC	132	-.15	2.55	.06	.27
BENEISH	132	-2.21	146.99	.55	13.54
Valid N (listwise)	132				

Source: calculated by researcher (2018)

3.2. Manipulation Score Index

The Manipulation Score Index (MSI) shows the company has an indication of doing FSF. As shown in Table 5. below, there are 132 companies of a total of 352 companies included in the study sample, or as many as 38.5% are categorized as companies that are indicated in practicing FSF. The remaining 225 companies or 61.5% are categorized as companies that are not indicated to conduct FSF with M-Scores smaller than -2.22. This value is slightly smaller compared to Hasan *et al.* (2017), stating as much as 44% percent of companies in Indonesia in the year 2010-2013 categorized as manipulators. In comparison, Repousis (2016) reveals that as much as 33% of the whole sample of public companies in Greece are determined as manipulators.

Table 5. Manipulation score index

Industry sectors	Total	FSF	%	NON FSF	%
Infrastructure, Utility, and Telecommunication	42	16	38.10%	26	61.90%
Property, Real Estate, dan Construction	128	35	27.34%	93	72.66%
Manufacturing	79	30	37.97%	49	62.03%
Trade, Service and Investment	49	29	59.18%	20	40.82%
Main Sector	54	22	40.74%	32	59.26%
SUMMARY	352	132	37.50%	220	62.50%

Source: calculated by researcher (2018)

Sequentially, the manufacturing sector is accounted for the largest number of companies that they are exercising FSF, with several 35 companies. The second and the third largest were the property, real estate and construction sector and the trade, services and investment sector, with the amounts of 30 and 29 companies respectively. The total number of 132 companies that exercising FSF in the year 2016 is accounted as massive comparing to only three companies sanctioned by Indonesia Financial Service Authoritative due to violation of Bapepam Regulation VIII.G7 in the year of 2016. This violation of this regulation is in form of cases such as misstatements of financial statements results in monetary sanction and written warnings. However, when the calculation is assigned specifically in each industry, the property, real estate and construction sectors have the highest percentage of companies with FSF occurrence, with a percentage of 59.18%, or 29 of 49 companies in the sector. The main sector comes in second with 22 of 54 companies or 40.74% involved in FSF. The third is telecommunications, utilities and infrastructure sector, namely 16 of 42 companies or 38.10% are involved in FSF. Then the fourth trade, services and investment sector: 30 of 79 or 37.97% of companies in this sector are indicates to be involved in FSF activity.

3.3. Overall Manipulation Index

The Overall Manipulation Index (OMI) index is calculated to identify the gray area of FSF for each sector. The gray areas indicate the manipulation techniques used in each sector. Research results as presented in Table 6 show that the score of OMI on each of the five sectors is 100%. It means that all five sectors in Indonesia apply all techniques of manipulation as indicated in eight dimensions indices of Beneish M-Score Model; which are days of sales receivable index, gross margin index, assets quality index, sales growth index, depreciation index, sales, general, and administration index, leverage index and total accruals to total assets index.

Table 6. Overall manipulation index

No	Industry sectors	OMI	Technique
1	Infrastructure, Utility, and Telecommunication	1.000	8
2	Property, Real Estate, dan Construction	1.000	8
3	Manufacturing	1.000	8
4	Trade, Service and Investment	1.000	8
5	Main Sectors	1.000	8

Source: calculated by researcher (2018)

3.4. Financial statement fraud techniques

This research applies the frequency method of statistics (Hasan 2017) to measure the contribution of each generated index in the Beneish M-Score. The highest score indicates indices most used. The calculation results of the frequency method of statistics research as follows.

The research reveals that the three indices most often applied as techniques of FSF are DSRI of 74.24%, TATA as much as of 65.91%, and GMI with an average of 42.42%. DSRI index shows changes in the company's current year receivables compared to the previous one. Thus, if there are no significant changes in the policy, the value of the company's DSRI index is predicted to be linear. The mean score of DSRI index on FSF companies is 3.6214, which is much greater than the benchmark of 1,031. This shows a big difference between days of sales receivable in two different years of 2015 and 2016 which indicate the application of earning manipulation. This result supports Repousis (2016); that this DSRI scheme is recognized as the most often scheme of FSF happened in Egypt.

Table 7. Contribution of each index per industry

No	Industry Sectors	DSRI	%	GMI	%	AQI	%	SGI	%	DEP	%	SGAI	%	LEVI	%	ACC	%
1	Infrastructure, Utility, and Telecommunication	9	56.25%	12	75.00%	6	37.50%	4	25.00%	7	43.75%	10	62.50%	6	37.50%	9	56.25%
2	Property, Real Estate, dan Construction	27	77.14%	11	31.43%	1	2.78%	9	25.71%	17	47.37%	11	31.58%	12	36.84%	27	78.95%
3	Manufacturing	21	70.00%	7	23.33%	7	23.33%	11	36.67%	14	46.67%	8	26.67%	10	33.33%	14	46.67%
4	Trade, Service and Investment	22	75.86%	18	62.07%	9	31.03%	11	37.93%	8	27.59%	13	44.83%	5	17.24%	22	75.86%
5	Main Sector	19	86.36%	7	31.82%	3	13.64%	5	22.73%	6	27.27%	6	27.27%	10	45.45%	8	36.36%
SUMMARY		98	74.24%	56	42.42%	27	20.45%	44	33.33%	53	40.15%	50	37.88%	45	34.09%	87	65.91%

Source: calculated by researcher (2018)

Furthermore, the results show that the mean index of the TATA in the FSF companies is 0.0627 which is also above the benchmark value of 0.018. This indicates that these companies are indicated as applying some accruals techniques based on companies' assets. Public companies in Indonesia uses the TATA dimension mostly by overstating revenue in a form of fictitious revenue recognition, timing differences, and not exercising the accounts receivable write-off, which further contribute to the high potential earnings management.

As for GMI, the mean value of the FSF companies is 1.7852 which is also higher than the benchmark of 1,014. This shows that the gross margin or the level of corporate profits last year is greater by 1,7852 times compared to this current year. This indicates the existence of a negative signal on companies' gains. This can lead to the condition where the company becoming vulnerable to FSF.

The result of this research also shows that infrastructure, utilities and telecommunications sector, the property, real estate, and construction sector, and the manufacturing sector have the most grey-areas as many as 4 grey areas of GMI, SGAI, TATA and DSRI occur most of the time. This is relevant to the nature of accounts and the operations of companies in those sectors. These are companies that own high value of capital expenditures and major contracts, which prone to potentials of inflated revenue activities. Many business activities of in this sector related to large projects which also vulnerable to unexpected additional expenses which may inflate the original budget estimation. Business with high value of capital assets also become susceptible the issue of capitalization of assets and recognition of depreciation expenses in their financial statement. However, in the manufacturing company LEV dimension comes out as specific indices of FSF related to this sector.

This relate to fixed assets needed in companies' operation. Companies in manufacturing sectors require the greater needs for major funding from the third parties which make leverage become one critical factor for companies in the sector.

The results of this research also comply with Beneish *et al.* (1997) which identifies that methods used by the FSF company can be either revenue realization principle, namely in the form of recording fictitious revenue, recording unearned revenue, not recording the sales return, the percentage of completion method of work, and to report one-time gains as ordinary income. These techniques can be shown by grey area indices of GMI, DSRI, and SGI. Beneish *et al.* (1997) also explains that the matching principle is also a technique that is often done in the form of fictitious inventory, not writing off receivables and obsolete inventory, capitalizing R&D cost, understating marketing and pre-opening cost, liability, and understating other expenses. This is relevant to areas of grey indices of ACC and SGAI. The other technique is a fictitious asset, lease transaction related fraud schemes, undisclosed technical default, and misleading report on intercompany transactions. These techniques are relevant to the grey area index DEPI and AQI.

Furthermore, the results show that there are 132 public companies in Indonesia indicated as FSF companies. This number is much greater compare to the number of three public companies being sanctioned by Financial Services Authority (OJK) due to violations of regulations of Bapepam No. G7. VII in 2016. In a case of developing countries, this research result can represent the general description on conditions of the reliability of financial statements which widely used in investment decision making process. Therefore, referring to the agency theory, the role of external auditors becomes very significant in the relationship between management and the owner of the company, as they will provide additional credibility to financial statements prepared by management for stakeholders especially in a case of public ownership.

Based on discussion above, Beneish M-Score Model can be used as an additional procedure of analysis by the auditor to detect whether there are indications of FSF as audit risk consideration. It supports Beneish (1997) which states that the model can be used to detect a company they do opportunistic reporting by implementing aggressive discretionary accruals and can also measure in timely corporate manipulation and may be used by regulators and external auditors to identify also the possibility of financial statement fraud. Beneish M-Score can be relied upon to perform additional testing over the transaction and the account balance.

Conclusion

The results of research conclude that 132 companies from a total of 352 or 38.5% of sample companies are indicated as FSF companies. Industries detected as exercising FSF are:

- 35 companies in manufacturing companies;
- 30 companies in the trade, services and investment sector;
- 29 companies in property, real estate and construction sector.

The study also revealed that all five sectors in the sample, namely the manufacturing sector, the property sector, real estate and construction, sectors of infrastructure, utilities and telecommunications, trade, services and investment exercised all eight techniques when manipulating the financial statements. This research result strongly

suggests for the auditors to consider applying additional analytical procedure using the Beneish M-Score model in the audit risk assessment procedures. However, this research only observed data of the year 2015-2016 for the calculation of the M-Score of 2016, it is advisable for the next research to expand the research time frame to further see the condition of FSF in Indonesia comparing to the real data of companies being sanctioned by Financial Service Authoritative.

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Effects of Human Capital, Structural Capital, Relations Capital on Business Performance with Intervening Competitiveness in the Meetings, Incentives, Conferences and Exhibitions (MICE) Industry in North Sulawesi Province

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Abstract:

The concept of intellectual capital began to be used by companies that apply knowledge-based management. Intellectual capital which is the sum of what is produced by three elements: human capital, structural capital, customer capital related to knowledge and technology can provide more value for the company in the form of high competitiveness and increased business performance.

This study aims to examine the effect of human capital, structural capital and relation capital on competitiveness as intervening and towards the business performance of the North Sulawesi Province MICE industry. Based on data analysis with Structural Equation Modeling (SEM) it was found that human capital has a significant effect on competitiveness, but it has no significant effect on business performance. Structural capital has no significant effect on competitiveness, it also has no significant effect on business performance. Relation capital has a significant effect on competitiveness and has a significant effect on business performance.

Finally it was also found that competitiveness as intervening significantly affected business performance. Conclusions: character/ability, ability to learn and motivation to share information and knowledge as human capital concepts have been implemented by MICE companies so that they have an impact on the competitiveness of companies. The company's operations, work processes and organizational culture have not run well so that it has no impact on improving the competitiveness and business performance of the MICE industry. Relations/customer capital, namely: Customer profile, customer duration, customer roles and customer support have been well implemented by hotel companies and convention buildings that hold MICE events that have an impact on improving the competitiveness and business performance of the MICE industry.

Keywords: intellectual capital; business performance; competitiveness.

JEL Classification: J24; M12.

Introduction

The development of the MICE industry in the era of globalization and industrial revolution 4.0 created an increasingly competitive atmosphere for business people to manage the company to have competitiveness. As an industry that has the character of multiplayer effects, MICE certainly can improve the economic level of the surrounding community, because in an event, all stakeholders will be involved. In addition, the unemployment rate can also be reduced through the MICE industry (Murdopo 2011). North Sulawesi Province (Sulut) is one of the

potential destinations in MICE activities because it has the potential for the development of the MICE industry, such as natural resources, MICE supporting elements, human resources, stakeholders in the MICE industry and local government programs in tourism.

The North Sulawesi provincial government program in tourism has an impact on increasing the number of foreign tourist visits by an average of 13.86% and national tourist visits by an average of 13.10% every year in the last five years. The increase in the number of tourist visits in the province of North Sulawesi was not followed by an increase in the number of meetings, incentives, conferences and exhibitions held by companies as the MICE industry. Related to human resource management, the concept of intellectual capital began to be used by companies that apply knowledge-based management. Intellectual capital which is the sum of what is produced by three elements: human capital, structural capital, customer capital related to knowledge and technology can provide more value for the company in the form of high competitiveness and increased business performance.

From a business perspective, MICE activities that are professionally pursued by both professional convention organizers (PCO), hotel companies and conventions and event organizer companies in the MICE industry, must consider the Intellectual Capital factor in human resource management. In an increasingly competitive era, human resource needs that are seen as human capital have increased significantly but are not yet available according to the needs of MICE organizers in the North Sulawesi region. Bunaken Indonesia tourism in 2018 has conducted MICE competency tests for 98 employees in North Sulawesi province. This shows that there are still many MICE company employees who do not yet have the skills and competencies in the MICE field that meet the competency standards needed by the industry. The organizational performance of MICE organizing companies in North Sulawesi Province has not shown results that support MICE development such as bidding, promotion, delegate boosting, site visits and creative programs when implementing MICE activities that lead to satisfaction of MICE participants. The concept of intellectual capital in the MICE industry implemented by MICE companies is expected to create competitiveness in the MICE industry. According to Abidin (2000), intellectual capital is still not widely known in Indonesia, and companies in Indonesia will be able to compete if they use the competitive advantage gained through creative innovations produced by the company's intellectual capital. This will encourage the creation of products that are increasingly favorable in the eyes of consumers. Based on the phenomenon of the development of the MICE industry above, the strategic issues related to the use of the intellectual capital concept in the MICE industry in North Sulawesi province will be examined in this study to examine the relationship between human capital, structural capital and relational/customer capital with competitiveness and business performance in the MICE industry.

Research problem formulation:

- Does human capital significantly influence competitiveness?
- Does structural capital significantly influence competitiveness?
- Does relational capital significantly influence competitiveness
- Does Human Capital significantly influence the business performance of the MICE industry in North Sulawesi Province?
- Does structural capital significantly influence the business performance of the MICE industry in North Sulawesi province?
- Does Relational capital significantly influence the business performance of the MICE industry in North Sulawesi province?
- Does competitiveness as intervening significantly influence the business performance of the MICE industry in North Sulawesi province?

Research purposes

The purpose of this study is:

- To examine the effect of human capital on competitiveness;
- To examine the effect of structural capital on competitiveness;
- To test the effect of relational capital on competitiveness;
- To examine the influence of Human Capital on business performance of the MICE industry in North Sulawesi Province;
- To examine the effect of structural capital on the business performance of the MICE industry in North Sulawesi Province;
- To test the effect of Relational Capital on the business performance of the MICE industry in North Sulawesi Province;
- To test the effect of competitiveness as intervening on the business performance of the MICE industry.

1. Literature Review

1.1. Resource-based theory

Initial thinking about the view that the company is a collection of various resources pioneered by Penrose in 1959. Company resources are heterogeneous, not homogeneous, available productive services come from company resources that provide unique characteristics for each company (Pensrose 1959). This idea of heterogeneity of resources is then the basis of Resource-Based Theory. Wernerfeld (1984) rebuilt Penrose's thinking by suggesting that strategic action requires a specific set of physical, financial, human or organizational resources, and thus competitive advantage is determined by its ability to obtain and maintain resources. Barney (1991) shows a more concrete and comprehensive framework to identify the needs of the characteristics of company resources to produce possible competitive advantages. These characteristics include what resources are valuable (in the sense that companies take advantage of opportunities and / or neutralize threats in a corporate environment), these resources are scarce among current corporate competitors and potential competitors, cannot be replicated, and cannot be replaced (Barney 1991). So that the basic assumption of the view of resource-based theory is that organizations can succeed if they achieve and maintain competitive advantage.

Competitive advantage is achieved by implementing a value creation strategy where competitors cannot easily replicate and there is no substitute (Barney 1991). The Resources Based Theory is widely used as a reference theory of the management of Intellectual Capital (IC) (Wernerfelt 1984, Barney 1991), companies will gain competitive advantage and superior performance through acquisition, acquiring and using strategic assets. (Wernerfelt 1984, Barney 1991). Both tangible and intangible assets are perceived as potential strategic assets, a positive result between company resources and performance measurement. By having an IC, it means that special and valuable knowledge has been owned by the company. The qualification of IC as a strategic asset lies in the very potential relationship between IC and firm performance (Belkaoui 2003).

1.2. Concept of intellectual capital

According to Steward (1998), Sveiby (1997), Saint-Onge (1996), and Bontis (2000) in Sawarjuwono and Kadir (2003), intellectual capital consists of three main components, namely: First, Human Capital. Human capital as a source of very useful knowledge, skills, and competencies in an organization or company. Human capital reflects the collective ability of companies to produce the best solutions based on the knowledge held by the people in the company.

Second, Structural Capital is the ability of an organization or company to fulfill the company's routine processes and structures that support employees' efforts to produce optimal intellectual performance and overall business performance, for example: the company's operational systems, manufacturing processes, organizational culture, management philosophy and all intellectual forms property owned by the company.

Third, Relational Capital is a component of intellectual capital that provides real value. This element is a harmonious relationship that the company has with its partners, both from reliable and quality suppliers, coming from loyal customers and satisfied with the services of the company concerned, coming from the company's relationship with the government and surrounding communities.

1.3. Concept of competitiveness

Competitiveness is the level of productivity which is defined as output produced by a workforce (Porter 1990). Company competitiveness is the degree to which an organization can create a position that can be maintained in comparison with its competitors (Singh *et al.* 2007). Furthermore, competitiveness is said to include the ability to enable an organization to differentiate itself from its competitors, this competitiveness is obtained through critical decision making by management. Hansen and Mowen (2000) argue that competitiveness is creating better customer value at a cost that is equal or lower than competitors or creates an equivalent value at the same cost lower than competitors.Kotler (1996) defines competitiveness as an advantage of competitors that is obtained by offering greater value to customers, either through lower prices or by providing greater use so that consumers feel appropriate to pay a higher price. Kotler further defines value as the consumer's assessment of the capacity of the product to satisfy its needs, the total value for the consumer is the total of all the values of the product the buyer gets from a marketing offer.

1.4. Business performance concepts

Business performance which is defined as business performance is the result of work or work performance in quality and quantity carried out by human resources who have the ability, competence, motivation and interests in the

activities of production, purchase, sale and exchange of goods and services involving people or companies. (Wibowo 2007, 4).

Fairoz *et al.* (2010) states that business performance has been reported as a result of organizational goals achieved through the effectiveness of strategies and techniques. In formal control systems, performance measures include financial and non-financial measures (Fisher 1998).

1.5. Concept of meeting, incentive, conferences and exhibition (MICE)

MICE is an acronym for meetings, incentives, conferences and exhibitions. MICE is a meeting, inventive, conference and exhibition activity. MICE tourism is one of the sectors in the tourism industry which is growing very rapidly (Dwyer and Forsyth 1997, Hing *et al.* 1998), and MICE tourism has also been growing rapidly in Indonesia in recent years. MICE meetings can be defined as a structured event that can bring together a group of people collectively to discuss topics of mutual interest (Seebaluck *et al.* 2013).

Incentive travel in MICE is a travel activity where all costs of the trip are borne by the organization so that it can be used as a factor that motivates employees to increase productivity and performance in meeting the desired goals of the organization, such as sales targets (Rogers 2003, Campiranon and Arcodia 2008 in Seebaluck *et al.* 2013). Conferences are the third element of MICE tourism which can be interpreted as a participatory meeting designed primarily for the purpose of discussion, seeking and sharing information, solving problems and consulting. (Seebaluck *et al.* 2013). The term exhibitions is used to describe events designed to bring together suppliers of products, industrial equipment and services in a place where participants can demonstrate and promote the products and services they offer (Montgomery and Strick 1995 in Hall 2003).

1.6. Previous research

The empirical study in this study refers to some of the results of previous relevant studies. Research by Bontis *et al.* (2000) in Divianto (2010) show that structural capital is a critical link that allows intellectual capital to be measured at the level of organizational analysis. If an organization has a system and procedure that is poor in carrying out its activities, the overall intellectual capital will not reach its full potential. Judging from the level of organizational analysis, structural capital will be related to business performance. If an organization can codify organizational knowledge and develop structural capital, it will be able to produce long-standing competitive advantages.

Bontis's research (1998) in Canada, concluded that human capital is positively and significantly related to customer capital. The same conclusion was found in the research of Bontis *et al.* (2000) in Malaysia for the service and non-service industries. Bontis (1998) shows that human capital is positively and significantly related to structural capital. Furthermore, Bontis *et al.'s* research (2000) succeeded in identifying that the relationship between human capital and structural capital depends on the industry sector. In the service industry, the relationship between human capital and structural capital is positive and not significant, whereas in the non-service industry the relationship is positive and significant. Bontis's (1998) exploratory study also shows that the relationship between customer capital and structural capital is negative and insignificant.

This is contrary to the results of Bontis *et. al's* research. (2000) which shows that the relationship between customer capital and structural capital in the service and non-service industries is the same, namely positive and significant. In his research, Bontis (1998) and Bontis *et al.* (2000) provide a conclusion that regardless of the type of industry, the relationship between structural capital and business performance is positive and significant.

The research of Memon *et al.* (2009) illustrates the significance of the relationship between human capital in organizational performance. Technology, globalization, and increasing competition among organizations have changed the traditional form of competitive advantage. Utilizing differentiation through alliances, cost advantages, availability of raw materials and diversification may no longer maintain actual competitive advantage Models and techniques of performance measurement are truly conceptual, which can guide organizational leadership to utilize human resources efficiently and effectively to create and maintain excellence competitive.

Divianto (2010) in his study found that testing hypotheses showed human capital, structural capital, relational capital had a positive and significant effect on business performance. Uadiale (2011) in her research shows that intellectual capital has a positive and significant relationship with the performance of business organizations in Nigeria. The results of this study strengthen the accumulation of empirical support for the positive impact of intellectual capital on business performance. Companies in Nigeria must invest in human, structural and customer capital to improve their performance. Rogers (2003) in his research related to the MICE industry believes that MICE business activities have opened up new jobs, not only creating seasonal workforce, but also have created permanent jobs for many people who have capabilities that are no different from the many created tourism businesses in developing countries.

1.7. The hypotheses in this study are as follows:

- H1: Human capital has a significant effect on competitiveness;
- H2: Structural capital or organizational capital has a significant effect on competitiveness;
- H3: Relational capital or customer capital has a significant effect on competitiveness;
- H4: Human capital has a significant effect on business performance;
- H5: Structural/organizational capital has a significant effect on business performance;
- H6: Relational capital/customer capital has a significant effect on business performance MICE;
- H7: Competitiveness has a significant effect on business performance.

The hypothesis in this study can be seen in Figure 1.

Figure 1. Research model

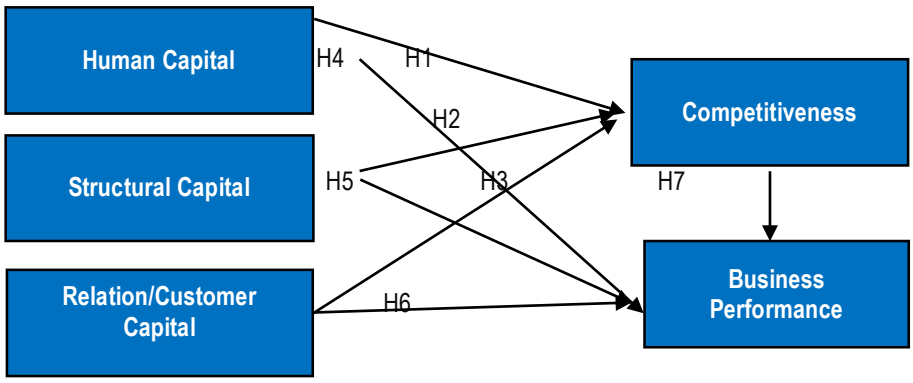


Figure 1 shows that human capital, structural capital, and relation/customer capital directly influence business performance and indirectly influence through competitiveness as intervening.

2. Research Methodology

Research approach

The paradigm underlying this study takes the form of a path paradigm, with statistical analysis techniques called structural equation modeling (SEM). According to Ghozali (2008) Structural Equation Modeling (SEM) is an evolution of multiple equation models developed from the principle of econometry and combined with the regulatory principles of psychology and sociology, SEM has emerged as an integral part of academic managerial research.

Population, sample size, and sampling technique

The population in this study are companies that have held MICE events namely: tour and travel companies, hospitality companies, convention building/restaurant companies, EO companies and Proffesional Convention Organizer (PCO). The sample in this study is the company that predominantly organizes MICE activities in North Sulawesi province, namely: 1. Hospitality companies, 2. Conventions and Restaurants. The number of respondents was 124 CEOs spread across 45 hospitality companies and convention buildings in North Sulawesi Province.

Sampling and data techniques

The sampling technique used was nonprobability sampling with a purposive technique (Sugiono 2014). Data collection techniques used in the study were: interviews and questionnaires (Questionnaire) that had been distributed to companies that had held MICE activities in North Sulawesi province namely hotel companies and convention buildings.

Testing of research instruments

This study uses a quantitative approach with a variable relationship model in the form of Structural Equation Model (SEM). This paradigm is the development of path analysis, which raises the manifest variable on each variable under study (Sugiyono 2014).

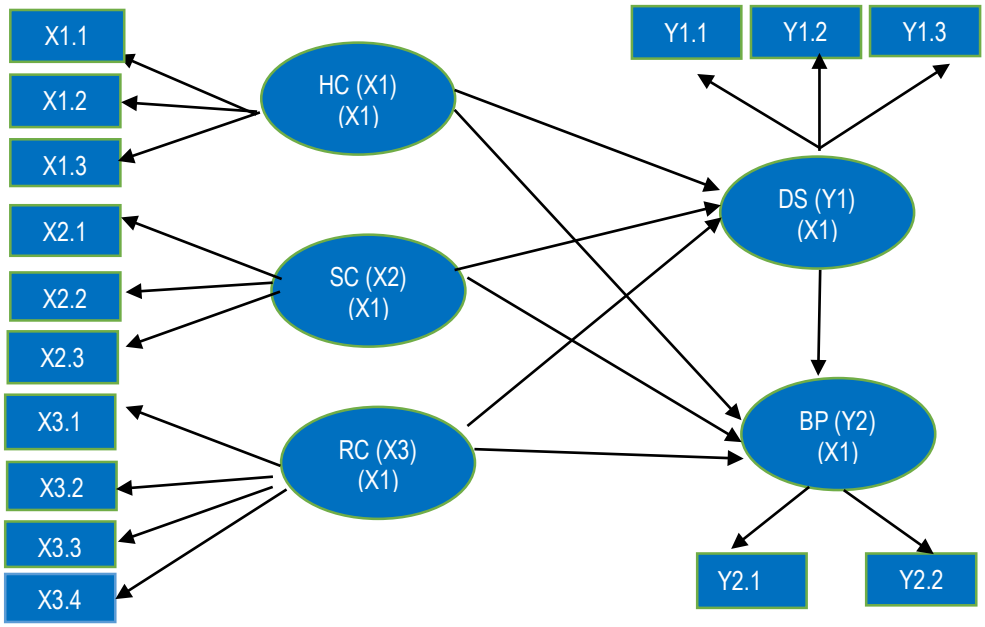
Analysis techniques

This research uses quantitative methods by conducting a series of hypothesis testing. Data processing using Partial Least Square (PLS) with Structural Equation Modeling (SEM) and using PLS-XLStat applications.Inferential statistical analysis is used to test management conceptions expressed in the form of research hypotheses (Ferdinand 2006). Data analysis that will be used in this research is Partial Least Square (PLS) to answer the hypothesis in this study.

Structural equation analysis model

The structural analysis model built in this study can be seen in Figure 2.

Figure 2. Model of structural analysis of relationship to research constructions



3. Research Results

The measurement model or outer model is evaluated using convergent validity and discriminant validity and composite reliability for block indicators. Structural or inner models are evaluated by looking at the R2 value for the latent dependent construct using the R Square test size. Factor analysis is also used to calculate construct factor scores of human capital (HC), structural capital (SC), and relational capital (RC).

3.1. Testing of structural models

The structural model is evaluated using R-square for the dependent construct. The interpretation is the same as the interpretation in regression (Ghozali 2008). Changes in the R-square value can be used to assess the effect of independent latent variables on dependent latent variables.

Based on Table 1 the value of R-Square competitiveness of 0.456 shows competitiveness explained by human capital, structural capital, relation capital, and destination attributes of 45.6%. Business performance is explained by human capital, structural capital, relation capital, destination attributes and competitiveness of 48.9%

Table 1. R-*Square*

Konstruk	R-Square
Daya Saing	0.456
Business Performance	0.489

Source: Processed primary data (2018)

Based on Table 2. Goodness of fit index (GoF) of 0.483 indicates that this research model is acceptable because the value of GoF > 0.3. (Ghozali 2008).

Table 2. Goodness of fit index

	GoF
Absolute	0.483
Relative	0.719
Outer Model	0.994
Inner Model	0.723

Source: Processed primary data (2018)

3.2. Hypothesis testing results

The results of the research hypothesis testing can be seen in Table 3.

Table 3. Hypothesis testing results

H	Effect		Koef path	T count	Information
H1	*Human capital* →	Competitiveness	0.489	6.640	Significant
H2	*Structural capital* →	Competitiveness	-0.033	-0.474	Not Significant
H3	*Relation capital* →	Competitiveness	0.308	4.185	Significant
H4	*Human capital* →	*Bussiness Performance*	-0.002	-0.026	Not Significant
H5	*Structural Capital* →	*Bussiness Performance*	0.077	1.134	Not Significant
H6	*Relation capital* →	*Bussiness Performance*	0.294	3.830	Significant
H7	Competitiveness →	*Bussiness Performance*	0.476	5.339	Significant

Significant at the 5% level, the t table value at the level of 5% = 1.984

Hypothesis 1

The calculation results show the value of CR *t* count > *t* table (6,640 > 1,984) and the path coefficient value is 0,489, so the null hypothesis can be rejected and alternative hypotheses accepted. then hypothesis 1 is accepted and it can be concluded that the relationship between the two is in the same direction and significant, that is, the higher the level of human capital, the higher the competitiveness of the MICE industry

Hypothesis 2

Testing calculation results show the value of CR *t* count < *t* table (-0.474 < 1.984) and the path coefficient of -0.033, so the null hypothesis can be accepted and the alternative hypothesis is rejected, then hypothesis 2 is rejected and it can be concluded that the relationship is not in the same direction, namely higher structural capital resulting in a decline in the competitiveness of the MICE industry, thus there is not enough empirical evidence to accept hypothesis 2.

Hypothesis 3

The calculation results show the value of CR *t* count > *t* table (4.185 > 1.984) and the path coefficient of 0.308, so that the null hypothesis can be rejected and alternative hypotheses accepted, then hypothesis 3 is accepted and it can be concluded that the relationship is both direct and significant, namely: higher relational capital hence the higher competitiveness of the MICE industry

Hypothesis 4

The calculation results show the value of CR *t* count < *t* table (-0.026 < 1.984) and the path coefficient of -0.002, so the null hypothesis can be accepted and the alternative hypothesis is rejected, then hypothesis 4 is rejected and it can be concluded that the relationship is not in the same direction, namely higher human capital resulting in a decrease in business performance, thus there is not enough empirical evidence to accept hypothesis 4.

Hypothesis 5

The calculation results show the value of CR *t* count < *t* table (1.134 < 1.984) and the path coefficient of 0.077, so that the null hypothesis can be accepted and the alternative hypothesis is rejected, then hypothesis 5 is rejected and it can be concluded that the relationship is unidirectional, thus there is not enough empirical evidence to accept hypothesis 5.

Hypothesis 6

The calculation results show the value of CR *t* count > *t* table (3,830 > 1,984) and the path coefficient of 0,294, so the null hypothesis can be rejected and alternative hypotheses accepted, then hypothesis 6 is accepted and it can be concluded that the relationship is the same, namely the higher human relational capital increasing business performance.

Hypothesis testing results 7

The calculation results show the value of CR *t* count > *t* table (5.339 > 1.984) and the path coefficient of 0.476, so that the null hypothesis can be rejected and alternative hypotheses accepted, then the hypothesis 7 is accepted and it can be concluded that the relationship is in the same direction, namely higher competitiveness business performance.

Based on Table 4, the structural equations in this study are:

$$DS\ (Y) = 0.489 * HC(X1) - 0.033 * SC(X2) + 0.308 * RC(X3) \quad (1)$$

$$BP\ (Z) = -0.002 * HC(X1) + 0.077 * SC(X2) + 0.294 * RC(X3) \quad (2)$$

3.3. Direct and indirect effects

Direct influence is the coefficient of all coefficient lines with one end arrows, while indirect effects are influences that arise through an intervening variable and the total influence is the influence of various influences (Ferdinand 2006). The amount of direct influence, indirect influence and total influence in this study can be seen in the Table. 4.

Table 4.Evaluation of direct and indirect effects

Exogenous Constructions	Endogenous Constructions	Direct (DE)	Indirect	Total effect (TE)	Comparison
Human capital →	Competitiveness	0.491		0.491	TE=DE
Structural capital →	Competitiveness	-0.044		-0.044	TE=DE
Relation capital →	Competitiveness	0.309		0.309	TE=DE
Human capital →	Bussiness performance	-0.004	0.234	0.230	TE>DE
Structural capital →	Bussiness performance	0.077	-0.021	0.056	TE<DE
Relation capital →	Bussiness performance	0.295	0.147	0.442	TE>DE
Competitiveness →	Bussiness performance			0.477	

Source: Processed primary data (2018)

Based on Table 4 it can be seen that the direct effect of human capital on competitiveness is significant at 0.491. The direct effect of human capital on business performance is -0.004 and the indirect effect of human capital on business performance is significant at 0.234 with a total effect of 0.230. The relationship between human capital and business performance will be better with the role of competitiveness as intervening.

4. Discussion

The results of the study show that the causal relationship between human capital, relational/customer capital to competitiveness has been proven. This is supported by the Resource-Based Theory view that strategic action requires a special set of physical, financial, human or organizational resources, and thus competitive advantage is determined by its ability to obtain and maintain resources. Some studies show a positive relationship between human capital and competitiveness, both directly and indirectly (Memon *et al.* 2009). Over time, the core of sustainable competitive advantage is human capital resources (Wright *et al.* 1994, Chadwick and Dabu 2009). The insignificant influence of human capital on business performance contradicts several previous studies, including Memon *et al.* (2009) describing a significant relationship between human capital and organizational performance or business performance. Divianto (2010) in his research found human capital, structural capital, relational capital had a positive and significant effect on business performance. In line with these findings it is said that the weak positive relationship between human capital and company performance along with concerns regarding the effectiveness of the mechanism of isolation of human capital (Campbell *et al.* 2012)

Structural capital has no significant effect on competitiveness with a value of -0.044 directly, it also has no direct significant effect on business performance of 0.077 with a total effect of 0.056, but structural capital has a positive relationship with business performance even though its value is small. The effect of structural capital on business performance will be better without intervening competitiveness. These findings are not consistent with the

results of previous studies, including Divianto (2010), finding structural capital has a positive and significant effect on business performance, Bontis *et al*. (2000) found that in terms of the level of organizational analysis, structural capital will be related to business performance. In Bontis's (1998) study, it was concluded that regardless of the type of industry, the relationship between structural capital and business performance is positive and significant. Maditinos and Sevic (2009) found that structural capital has a positive relationship with business performance in two types of industries: services and non-service.

Relational capital directly has a significant effect on competitiveness of 0.309 and has a significant effect on business performance of 0.295. The total effect of relational capital on a business performance is 0.442. This shows that the effect of relational capital on business performance is better by intervening competitiveness. This finding is consistent with observations in North Sulawesi's MICE industry which shows that there are good and harmonious relationships between hotel companies and convention buildings with customers/customers who participate in MICE activities. This is consistent with the view of intellectual capital theory that relational capital is a harmonious / association network relationship owned by the company and its partners, both from reliable and quality suppliers, coming from loyal customers and satisfied with the service of the company in question, comes from corporate relations with the government and with the community (Brinker 2000).

This finding is also supported by the results of previous research, Tamara Radenovic, Bojan Kristic (2017), explaining that intellectual capital enables efficient structures, a better work environment and supports an organizational culture, efficient business processes. Divianto (2010), relational capital has a positive and significant effect on business performance, Uadiale (2011) in her research shows that intellectual capital (including relational capital) has a positive and significant relationship with the performance of business organizations in Nigeria. Some previous studies including Maditinos *et al*. (2010) which are in line with the research of Bontis *et al.* (2000) found that relational/customer capital has a positive and significant influence on structural capital (structural capital). Finally, competitiveness was found to have a significant effect on the business performance of 0.477. The role of competitiveness as an intervening construct of the relationship of human capital, relation capital and business performance is positive with a total effect that is higher than the direct influence of human capital and relation capital on business performance.

5. Limitations of Research and Recommendations

The limitation of this study is that the sample is limited to hotel companies and convention buildings because companies holding other MICE activities such as Proffesional Convention Organizer (PCO), tour and travel companies, Event Organizer (EO) companies that have MICE permits in North Sulawesi province have not been known holding MICE activities. Another limitation is that there are other factors that can affect the business performance of hotel companies and convention buildings that hold MICE activities, such as: business strategies (Kock *et al*. 2002), branding (Hafeez *et al.* 2012), knowledge transfer (Alipour and Karimi 2011), the practice of total quality management (Hasan *et al.* 2012) and other factors that can be analyzed for its effect on business performance or business performance.

Recommendations for further research, should extend the research sample with other companies related to the implementation of MICE activities such as tour and travel companies, MICE companies and event organizer companies that have MICE businesses. Other recommendations can develop a research model by analyzing the relationship between elements in intellectual capital, such as human capital and structural capital, human capital and relational capital and its relationship to competitiveness and business performance of the MICE industry.

Implications of research results

For the MICE industry in North Sulawesi province, the application of the concepts of human capital and relation capital in the management of hotel companies and convention buildings can improve company competitiveness and business performance. The concept of structural capital can improve business performance through increasing the competitiveness of companies.

Conclusion

The character/nature, ability to learn and motivation to share information and knowledge as a human capital concept have been applied by the MICE industry so that it has an impact on the competitiveness of the company. This shows a significant influence on human capital towards the competitiveness of the MICE industry. The concept of human capital can improve company competitiveness and increase competitiveness can improve the business performance of the MICE industry because competitiveness has a positive relationship with business performance.

The company's operations, work processes and organizational culture have not run well so that it has no impact on improving the competitiveness and business performance of the MICE industry. This shows that structural capital does not affect the competitiveness and business performance of the MICE industry, but still has a better direct relationship with structural capital with the business performance of the MICE industry without the role of competitiveness as intervening.

Relations/customer capital, namely: customer profile, customer duration, customer roles and customer support have been well implemented by hotel companies and convention buildings that hold MICE events that have an impact on improving the competitiveness and business performance of the MICE industry. This is indicated by the significant influence of relational/customer capital on competitiveness and business performance.

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Impact of Population Ageing on the Italian Pension Expenditure

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Abstract:

The longevity improvements and low fertility rates experienced in Italy in the last decades are a largely acknowledged phenomenon. As a consequence, the Italian population experiences, and will experience in the long term, cohorts of elderly that are increasing in size and younger cohorts of active people that are declining. Hence, the population ageing, featured by a low time progression but persistent, considerably threatens, and will threaten over the next decades, the viability of the Italian public pension system that is pay-as-you-go financed. This paper aims to assess the implications of the population ageing on the sustainability of the Italian public pension scheme in the light of the demographic and economic projections provided by the 2018 Ageing Report for years 2016-2070, published by the European Commission in May 2018. Specifically, the level of the pension expenditure, measured as the ratio between the pension expenditure to the GDP, and its decomposition in the product of some specific factors - first of all the old-age dependency ratio or the benefit ratio - are analyzed.

Keywords: population ageing; pension schemes; pension expenditure; old-age dependency ratio; sustainability indicators.

JEL Classification: H55; J11.

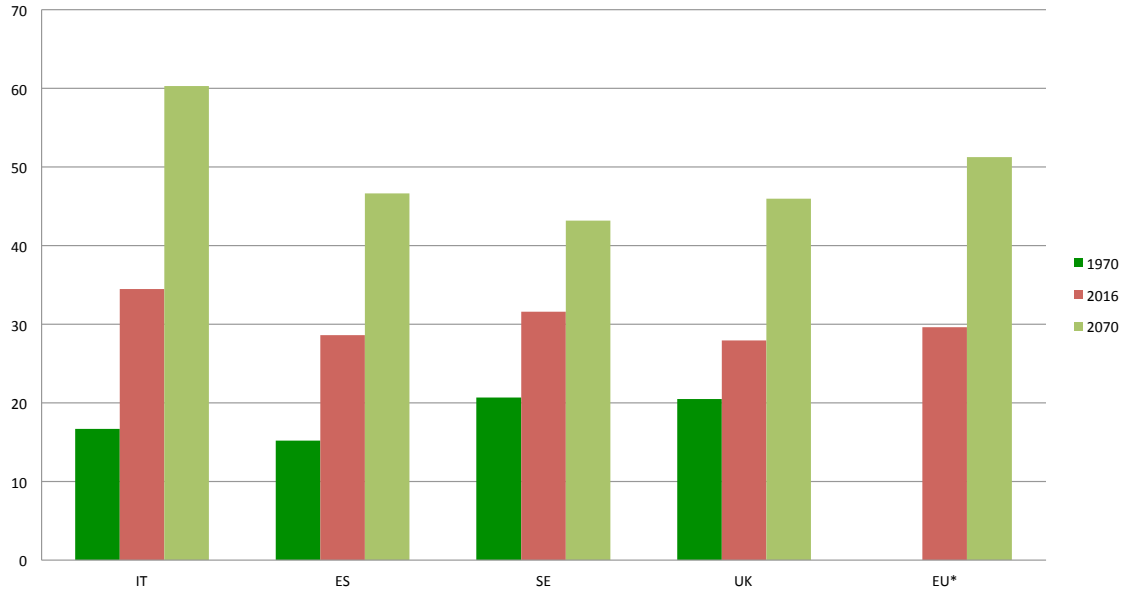
Introduction

In many industrialized worldwide countries, the phenomenon of the population ageing, resulting from specific combinations of declining fertility and increasing life expectancies, has undoubtedly clear evidence. Such a phenomenon seems to be a historical *unicum*: no evidence of precedents can be found in history. Projections suggest that ageing will continue throughout the century, with a speed that is likely to increase in the decades to come and to decelerate by mid-century (Lutz, Sanderson, and Scherbov, 2008).

The evidence can be provided by using, as a conventional measure, the old-age dependency ratio, defined as the ratio of the number of individuals aged over 65 over the number of individuals aged between 15 and 64, whose values are shown in Figure 1 for Europe as a whole for years 2016 and 2070, and for some selected countries, among which Italy, for years 1970, 2016 and 2070. The increase in the values of the old-age dependency ratio is very noticeable for all the displayed countries. The growth is particularly marked in Italy, where the ratio doubled from 16.7% in 1970 to 34.5% in 2016, that is the maximum level in Europe. According to projections, it will grow up to 60.3% by 2070 (European Commission, 2018a). Not by chance, Italy is labelled as one of the countries with the fastest population ageing. The consequent increase in the cohorts of elderly, jointly with the shrinking of the working population, has a negative effect on the financing of social security schemes. Therefore, the critical challenge that ageing poses to the financial sustainability of such schemes is manifest.

Such considerations are fundamental for pay-as-you-go (PAYG) pension systems, where current pension expenditures are financed by current contributions. Clearly, the system is not sustainable, that is becomes unable to pay the owing benefits to its participants, if the ratio of current pensioners over active contributors is too large. The baby boomers' retirement over the next decade is going to amplify such issue because of their retirement will not be supported by working generations of the same size. Thus, intergenerational equity would crumble down: disproportional economical burdens would be laid on the shoulders of future workers.

Figure 1. Old-age dependency ratios (%) – the number of people aged 65 and over as % of people aged 15-64 - in 1970, 2016 and 2070



Source: Our illustration from data provided by European Commission (2018a).

Therefore, though European pension systems widely vary in their structure and their relations among the different pillars, nonetheless their mandatory pension systems, PAYG financed, are strongly affected by ageing, whose effect is worsened by the global economic crisis. Such issues demand for the updating and adjustments due to economic or demographic alterations, but also require a change in the logical basics to evaluate the financial sustainability of pension systems.

This paper aims at illustrating how the population ageing affects the Italian pension expenditure using two basic indicators: the ratio of pensioners to working people, and the degree of PAYG covering of the pension disbursements. The demographic projections provided in European Commission (2018a, 2018b) are the basis for this analysis. Throughout the paper, a comparison among Italy, Europe as a whole and other European countries is exploited. In particular, reference is made to the following three countries: 1) Spain, which is one of the most populous European countries and had the largest increase in the pension expenditure-to-GDP costs between 2003 and 2016, just ahead Italy; 2) the United Kingdom, which is one of the major economies in Europe and underwent a strong increase in the pension expenditure during in the shorter period 2007-16; and 3) Sweden, which, as Italy, implemented the so-called Notional Defined Contribution (NDC) scheme and had the largest decrease in the pension expenditure between 2003 and 2016.

The paper is organized as follows. In the next section, the basic assumptions underlying the economic and budgetary projections provided in European Commission (2018a, 2018b) are presented. In addition, the basic features of the Italian pension system, as well as the main last reforms and their effects on the system, are briefly reviewed. Section 3 focuses on the Italian pension expenditure by analyzing the pension expenditure-to-GDP ratio and its decomposition in four specific ratios. Hence, the issue of the Italian pension system sustainability is assessed in Section 5. The final section presents some concluding remarks.

2. Research Background

2.1. Evolution of the population age structure in Italy

Assumptions about demographic developments are the starting point of every projection of pension expenditures. Any change in the assumptions determines a different demographic scenario and, consequently, a different projection. Three main variables determine the demographic scenario, they are fertility rates, life expectancy, and migration flows (Jimeno, Rojas, and Puente 2008).

During the last decades, Italy experienced a significative drop in fertility rates. This, together with the increase in life expectancy and the growing size of immigration inflows, led to a strong change in the Italian demographic scenario. Consequently, an alteration of the age structure of Italian population occurred.

In the following, the general trends of the above-mentioned key variables with reference to Italy are outlined. Data are acquired from the 2018 Ageing Report, Underlying Assumptions and Projection Methodologies prepared by the European Commission's Directorate-General for Economic and Financial Affairs, (European Commission (2018b)).

Fertility rate. The Total Fertility Rate (TFR) is defined as the average number of births per woman. This indicator suffered a sharp reduction in all the European countries after the post-war 'baby boom' phenomenon. In fact, the peak value, larger than 2.5, was registered in the second half of the 1960s. Then, TFR settled at values lower than the natural replacement level of 2.1.

In Italy, the post-war peak TFR value was slightly lower in comparison with other European countries (2.37 against the average value of 2.67 for Europe). The Italian TFR dropped down below the replacement level in 1975. In year 2016, this value was 1.33 that is lower than the European average of 1.58.

According to the projections in the time interval 2016-2070, the European countries TFR is expected to grow up from 1.58 in 2016 to 1.69 in 2030. The increase should continue up to 2070 to the value of 1.81, for a total change of 0.23 between 2016 and 2070. In Italy, an agreeing yet higher increase in the fertility rate is expected in the same projection period. The indicator should move from 1.33 in 2016 to 1.42 in 2030, up to 1.66 in 2070, for a total increase of 0.33 (higher than the European average value). Nonetheless, the Italian TFR values remain lower than the European average values, which are, however, expected to remain below the natural replacement rate of 2.1 in the period considered.

Life expectancy. Starting from 1960, the life expectancy at birth significantly grew up in all the Member States. In particular, an increase of around 10 years was observed for both males and females from 1960 to 2015. In Italy, life expectancy increased by about 13 years between 1960 and 2015 (13.1 for men and 12.6 for females). These values are higher than the average ones in Europe as a whole (9.9 and 10.3 for respectively males and females).

The prosecution of this growing trend is not given for granted. Actually, this is an open issue among demographers: there is no agreement on saying if such trend goes on over the next decades or if there is a natural biological limit to longevity (Oeppen, Vaupel, *et al.* (2002)). However, past population projections have generally underestimated the gains in life expectancy. This because the mortality rate was always assumed to reduce at a lower rate in the long run. Current projections still forecast a reduced pace of the increase in life expectancy with respect to past years. The reason is that mortality rates at younger ages are already very low and future gains in life expectancy would require improvements in mortality rates at older ages that have a smaller impact on life expectancy at birth. Projections for the European States expect an increase of life expectancy at birth from 78.3 years in 2016 to 86.1 in 2070 for males (total growth of 7.8 years). For females, life expectancy at birth shifts from 83.7 to 90.3 in the same time interval (total growth of 6.6 years). In Italy, the projected increase in life expectancy at birth is less marked (6.2 years and 5.6 years for males and females, respectively). However, Italy is expected to have one of the highest life expectancies in 2070 among the European States (86.9 years for males and 90.9 years for females).

Similar remarks can be made for life expectancy at 65 years. In Europe as a whole, the expected value grows up of 5.3 years for males and 5.1 years for females in the time interval 2016-2070. Again, a smaller increase and a higher final value of life expectancy at 65 are forecast in Italy (respectively, 4.6 years and 23.7 years for males, 4.5 years and 27 years for females).

Net migration. Net migration flows are the most difficult key-variable to be estimated, being them characterized by high variability over time and countries. Starting from 1965, net flows in the Euro area were substantially positive, increasing from around 78,000 (on average) before 1985 to 1.58 million (on average) in years 2013-15. A significative drop, from 1.27 million to 774,000 (average values) was registered in years 2009-12 due to the global economic and financial crisis, but recovery and overtaking of the pre-crisis level happened in the subsequent years. In time interval 1961-2015, Italy is recognized to have recorded, together with Germany, France, and UK, the largest number of net inflows in Europe. Thus, the Italian country shifted from being traditionally an emigration country to being an immigration destination. In interval 2001-15, the average annual net migration flow was of 287,192. However, in 2015, Italy saw a large decline in the net flow (down to 31,730) with respect to 2001-15.

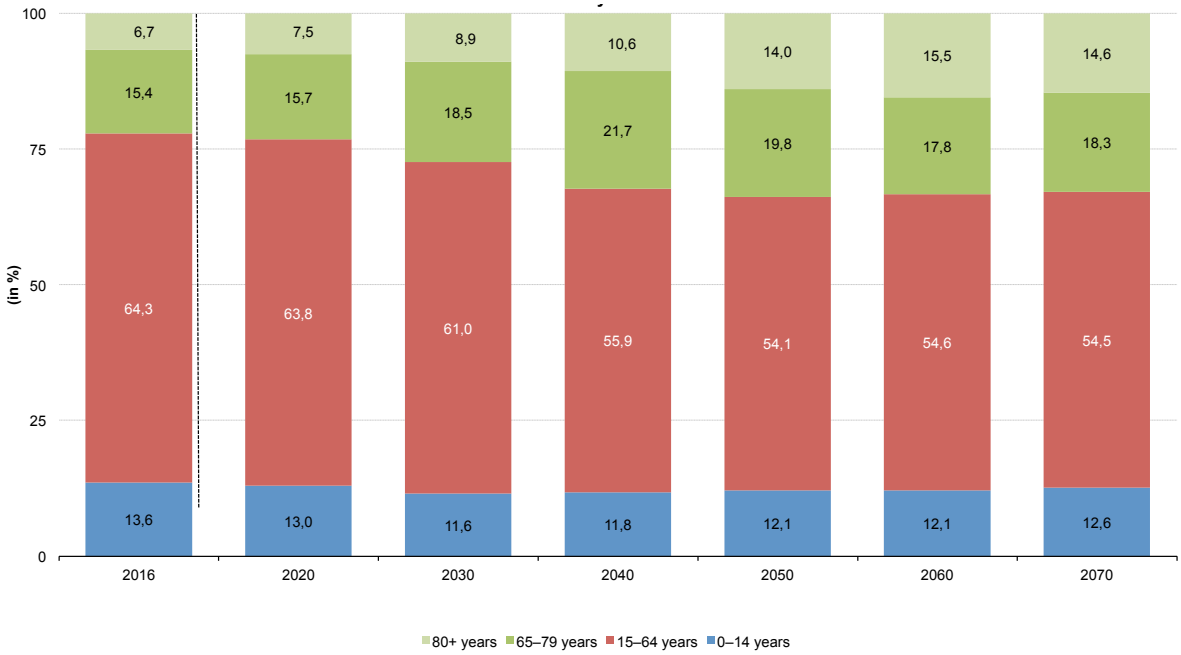
Projection of net migration flows in the time period 2016-70 expects that inflows towards Europe from the rest of the world will go on. However, a significant decrease of the annual net inflows with respect to the values registered in 2016 should occur. For Europe as a whole, annual net inflows are expected to decrease from about 1.5 million people in 2016 to 805,000 people in 2070 (that is, from 0.3% to 0.2% of the European population).

Italy is expected to be one of the countries with the highest cumulative net migration flows as a share of population, that should be at least 50% higher than the European average.

The simultaneous evolution over time of the three key-variables (fertility rate, life expectancy and net migration flows) determines the age structure of populations. The total population in Europe is expected to increase from 511 million in 2016 to 528.5 million in 2040, and then to reduce to 520 million in 2070, that is higher than the starting value in 2016. Differently, the Italian population is projected to continuously decrease from 60.8 million in 2016 to 54.9 million in 2070, with a total population loss of 9.7 million.

The outstanding aspect of this evolution is the severe ageing occurring in the same (2016-70) time period. In Europe as a whole, the age-group of people between 15 and 64 years is expected to fall (from the 65% of the total population in 2016 to the 56% in 2070), whereas a strong increase in the age-group 65+ is expected (from 19% to 29% of the total population between 2016-2070), with a particular growth of the group 80+ that is expected over to double. A very similar trend is expected in Italy, see Figure 2, where the population structure by major age groups is shown 2016-2070, manifesting the ageing evidence on the Italian population structure. The illustrated trends can be justified with different reasons. The increase in the elder population is due to the joint effect of the larger cohorts born in 1950's and 1960's and the projected gains in life expectancy. On the other hand, the shrinking of the age-group 15-64 derives from the fertility rates below natural replacement level, and from the cutback of cohorts of woman in childbearing ages. Net migration flows are not projected to act against the above-mentioned trends.

Figure 2. Population structure by major age groups for Italy in 2016-70 (% of total population)



Source: Our illustration from data provided by European Commission (2018a).

2.2. Overview of the Italian pension system

During the 90's, the Italian public pension system underwent an important season of reforms, which radically changed its nature. These reforms did not change the general PAYG financing scheme, but they did alter the mechanism for calculating pension benefits (Ferrera and Gualmini, 2000). The fundamental modification was put in act firstly in 1992 with the Amato reform (law 503/1992) that basically eliminated the indexation of benefits to real wages, and tightened the eligibility requirements for old age, early, and social assistance pensions. A year later, the process of pension reforms introduced a new regime to regulate private, supplementary, funded schemes (legislative decree 507/1993, which was followed by law 335/1995 two years later).

However, despite the cuts and measures made with the goal to put an end to a too generous mechanism of pension benefits, the persistent crisis in public finances and the growth in social expenditure moved the Italian government to approve in 1995 the so-called Dini reform. This actually represented a substantial innovation for the Italian pension system as it provided with the introduction of the NDC scheme, though with a very gradual phase in. With this provision, the NDC pension scheme was introduced. As a result, Italy changed the rules for

the determination of the benefits, moving from the defined benefit (DB) method (that is, pensions are linked to earnings) to the defined contribution (DC) method that establishes a tight link between contributions made and benefits received. Indeed, in agreement with the actuarial equity principle, the individual pension is calculated at the retirement on the basis of real paid contributions. In addition, for the NDC scheme the term 'Notional' means that individual contributions are only virtually accumulated into individual accounts, but they are actually exploited to pay the current pension benefits. For an exhaustive review of NDC pension systems and their features, along with details about their implementations in other countries, like Sweden, Latvia and Poland, reference can be made to Holzmann and Palmer (2006), whereas for a detailed analysis of the experience relative to the implementation of NDC schemes in the old or new pilot countries, see Holzmann, Palmer, and Robalino (2012, 2013).

The Italian Dini reform provided an extended transition period, which should have to come into effect gradually starting from 2013. During this time, the old DB scheme worked in parallel with the new DC one. This resulted in a significative delay of the reform effects. In fact, the NDC reform would be fully applied only for generations after the baby boom, that is, for individuals that stepped inside the labor market after 1996. Workers who accumulated at least 18 years of contributions at the end of 1995 kept the old DB regime. On the other side, workers with less than 18 years of contributions on the same date had their pension calculated partially with DB and partially with NDC.

The Dini reform also introduced a flexible retirement age, standardly allowed from 57 to 65 years. Over the last 25 years, a series of reforms subsequently increased the standard retirement age both for old-age pensions and for early retirements. Currently, the Italian pension system provides two ways for retirement: the old-age retirement, at the Statutory Retirement Age (SRA) together with at least 20 years of contribution, and the early retirement, at an age below the SRA and with higher contribution periods (MEF, 2018b). In 2016, the SRA is set at 66 years and 7 months for men (all sectors) and female employees in the public sector. For self-employed or private sector female employees the SRA was initially lower in 2016 (respectively, 66 years and 1 month, and, 65 years and 7 months), but it caught up the SRA of other workers at the beginning of 2018. The SRA is planned to be at least 67 in 2021, even if projections hint that this target may be achieved in advance. The early pension retirement, namely before the SRA, may be obtained by all workers on the basis of a minimum contribution requirement. Moreover, workers enrolled after 1995 may catch retirement no more than three years before the SRA, depending on a minimum amount of years of contributions and a minimum benefit value. Further details can be found in MEF (2018b).

In addition, since 2013 an indexation mechanism has been introduced to adjust the eligibility requirements to changes in the life expectancy at 65. The modifications are applied every three years until 2019 and every two years thereafter. Life expectancy at 65 is measured by the Italian National Institute of Statistics (ISTAT) over the three (two years from 2021) years previous to the time of application of the mechanism. The indexation is applied to the SRA, to the minimum contribution requirements for early pensions, and to the minimum age requirement for early pension.

In agreement with the NDC scheme, the pension is calculated as the total lifelong contributions multiplied by the transformation coefficient. Lifelong contributions are capitalized by the nominal GDP growth rate (measured on the previous five years by a geometric mobile average). The transformation coefficients are calculated using a specific actuarial formula, and depends on specific demographic and normative parameters. Among these, two elements are particularly relevant: the survival probabilities and the interest rate returned on pension benefits during the retirement phase. In the computation of the transformation coefficients, the survival probabilities are evaluated according to the current life tables. Hence, possible future imbalances could stem from attributing to the retired individual survival probabilities that are lower than the actual ones because they do not reflect the current improvements in longevity. Frequent revisions of the transformation coefficients can cope with this risk, because in this way they can include the effects of the increasing survival probabilities. In order to maintain transformation coefficients related to the actual demographic dynamics, as provided by law 247/2007, they are subjected to periodic revisions (every two years starting from 2019) according to changes in mortality rates. However, as during the retirement phase no revision of coefficients is provided, the progressive improvements in survival probabilities could be financially compensated through reduction of the rate of return on the pension liability to retirees (Angrisani and Di Palo, 2006; Di Palo, 2016). During the retirement phase, pensions are indexed only to prices, unlike the rule applied before 1992 (that provided the indexation of pensions to real wages). Note that in the transformation coefficients a real interest rate, equal to 1.5%, is recognized, and hence ensured in advance, to the retiree pension liability, in order to have more generous pensions in the initial

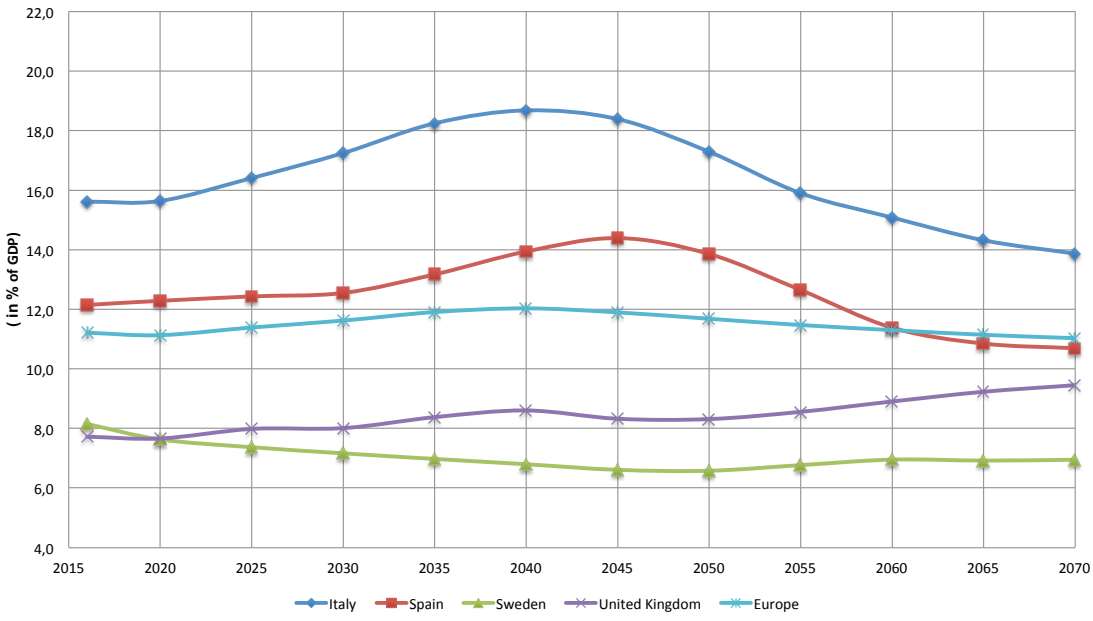
pay-out phase. However, systematic imbalances in the pension system could be caused if the rate of return on the pension liability should result different from that included in the coefficient.

To conclude, it is true that, in spite of the reforms, at the end of the 1990s Italy still displayed one of the highest ratios of pension expenditure/GDP in the whole OECD area and that the situation was likely to worsen. However, the significance of the 1992/95/97 reforms must be appreciated by contrast with the status quo ante. In the absence of reforms, the pension expenditure would have reached the impressive peak of 23.2% of GDP in the year 2040, before beginning to decline. After the reforms, the peak is expected to be 'only' 15.8% of GDP in the year 2032. The virtual stabilization of the pension expenditure may not have been enough to cure fully the long-standing disease of Italy's unbalanced welfare state, but it has certainly contained its fatal aggravation.

3. Methodology

According to the European Commission (2018a), in Italy the level of the gross public pension expenditure, measured as the ratio of the pension expenditure to GDP, is expected to increase by 3.1 pps. of GDP between 2016 and 2040, whereas it would decline by 4.8 pps. of GDP in the period 2040-2070, moving to a lower level (13.9 in 2070) than the initial one (15.6 in 2016). Note that the level of pension spending for Italy in 2016 is the second maximum level in all Europe (just after Greece), but it is projected to be the maximum one in 2040. In the period 2040-2070 Italy is the country that is projected to register the maximum reduction in the spending level. In Europe, dynamics follow a comparable pattern, though with a lower amplitude: public pension expenditure is projected to increase by 0.8 pps. of GDP between 2016 and 2040, and to decline thereafter by 1 pps. of GDP. Refer to Figure 3, where the projected dynamics in the level of the pension expenditure are graphically illustrated for Italy, for Europe and for the other countries considered. Although with a different degree of variation, either Italy or Spain will see a pension expenditure decline in the second part of the time period considered.

Figure 3. Projections of the gross public pension expenditure in Europe as a whole and in some selected countries, including Italy: time profile 2016-2070



Source: Our illustration from data provided in European Commission (2018a).

Such a decline will exceed the initial increase (the peak for Italy is projected in 2040, for Spain in 2045), with a fall in the 2070 value compared with that in 2016. Differently, according to projections, Sweden will experience a global decline of 1.2 pps. of the GDP, in particular in the first four years, whereas the United Kingdom appears to expect a total increase of 1.7 pps. of GDP. In any case, Sweden and the United Kingdom are both classified as countries with a stable time profile in the level of the pension expenditure-to-GDP, although the peak years vary notably: it is projected to be in 2016 for Sweden and in 2070 for the United Kingdom. As highlighted in Figure 3, the bell-shaped curve of the pension expenditure for Spain and Italy leads to classify them as up/down time-profile countries.

3.1. The four factors driving the change in the public pension expenditure

European Commission (2018a) uses a decomposition of the pension expenditure-to- GDP into four specific ratios in order to assess their impact on the pension expenditure. This decomposition considers the following equality

$$\frac{Pension\ exp.}{GDP} = \frac{number\ of\ pensioners}{hours\ worked\ 20-74} \cdot \frac{average\ pension\ income}{\frac{GDP}{hours\ worked\ 20-74}} \quad (1)$$

where term GDP per hours worked has to be considered as a proxy of the average wage. The first ratio in equality (1) can be further decomposed as

$$\frac{number\ of\ pensioners}{hours\ worked\ 20-74} = \\ = \frac{population\ +65}{population\ 20-64} \cdot \frac{number\ of\ pensioners}{population\ +65} \cdot \frac{population\ 20-64}{hours\ worked\ 20-74}, \quad (2)$$

where we consider the following ratios:

- the dependency ratio, denoted by x_1, is the ratio between the population over 65 years to the population aged 20-64 years, that is: $x_1 = \frac{population\ +65}{population\ 20-64}$;
- the coverage ratio, denoted by x_2, is the ratio of pensioners of all ages to the population over 65 years, that is: $x_2 = \frac{number\ of\ pensioners}{population\ +65}$;
- the labor market effect, denoted by x_3, is the population aged 20-64 years to the hours worked by the population 20-74, that is: $x_3 = \frac{population\ 20-64}{hours\ worked\ 20-74}$.

The second ratio in equality (1) is the benefit ratio; it is denoted by x_4, and is equal to the average pension (the public pension spending divided by the number of pensioners) to the average wage, which is approximated by the GDP per hours worked, a measure of labor productivity, OECD (2019), namely it is:

$$x_4 = \frac{average\ pension\ income}{\frac{GDP}{hours\ worked\ 20-74}}.$$

By means of the decomposition, as in (1) and (2), it follows that the pension expenditure-to-GDP ratio, indicated by y, can be expressed into the product of above-mentioned four ratios, x_1, x_2, x_3, and x_4 , that is $y = x_1 \cdot x_2 \cdot x_3 \cdot x_4$. In addition, through this decomposition, it follows that the change in the public pension expenditure-to-GDP ratio is given by the sum of the contributions produced by each of the four ratios above-mentioned[1].

In following Table 1 the contribution of each of the four factors is reported for Italy and for the other selected European countries, as in European Commission (2018a).

Dependency ratio. This indicator provides the measure of the demographic burden for working generations. As shown in Table 1, it produces the main contribution to the change in the levels of the pension expenditure. Its impact is positive for all European countries, and hence for the considered ones. This means that the demographic component leads to a significant increase in the pension expenditure, whose effect is counterbalanced from the other ratio contributions. This contribution amounts to 6.5 pps. of GDP for Europe on average. It ranges from 2.4 pps. of GDP in Sweden, see Table 1, to 11.7 pps. of GDP in Poland.

[1] Specifically, the relative change in y is given by $\frac{\Delta y}{y} = \frac{\Delta x_1}{x_1} + \frac{\Delta x_2}{x_2} + \frac{\Delta x_3}{x_3} + \frac{\Delta x_4}{x_4} + \varepsilon$, where ε measures the interaction effect of the explicative variables. Therefore, the change in function y can be decomposed as $\Delta y = \left(\frac{\Delta x_1}{x_1} + \frac{\Delta x_2}{x_2} + \frac{\Delta x_3}{x_3} + \frac{\Delta x_4}{x_4} + \varepsilon\right) \cdot y$, and the contribution of each one of the four ratios considered is given by $Contrib(x_i) = \frac{\Delta x_i}{x_i} \cdot y$, where $\frac{\Delta x_i}{x_i}$ is the percentage growth rate of x_i, with $i = 1,2,3,4$, see Dang, Antolin, and Oxley (2001) and MEF (2018b).

Table 1. Decomposition of change in gross public pension expenditure: 2016-2070 (pps. of GDP)

Country	2016 level	x_1	x_2	x_4	x_3	x_5	x_6	x_7	ε	2070 level
Italy	15.6	10.3	-4.5	-4.0	-2.8	-1.4	0.0	-1.4	-0.7	13.9
Spain	12.2	7.6	-0.4	-4.9	-2.8	-2.4	0.1	-0.5	-0.9	10.7
Sweden	8.2	2.4	0.6	-4.0	-0.1	-0.1	0.0	0.0	-0.1	7.0
The United Kingdom	7.7	3.1	-1.1	0.0	-0.3	-0.2	0.0	-0.1	-0.1	9.5
Europe*	11.2	6.5	-2.1	-3.3	-1.0	-0.7	0.1	-0.4	-0.3	11.0

Note: x_1 = Dependency ratio contribution, x_2 = Coverage ratio contribution, x_3 = Labor market effect contribution, x_4 = Benefit ratio contribution, x_5 = Employment rate effect, x_6 = Labor intensity effect, x_7 = Career prolongation, ε = Interaction effect; * Europe includes all 28 Member States

Source: Based on data extracted from Table II.1.11, provided by Commission services, EPC, (European Commission, 2018a, p. 78)

Note that Italy is one of the European countries with the highest dependency ratio, by far higher than the European average, the highest compared to the other countries shown in Table 1. According to projections in European Commission (2018a), in Italy the dependency ratio, x_1 in Table 1, is projected to increase from 37.2% in 2016 to 65.5% in 2070. This reflects an ageing society: Italy would move from having 2.7 working-age persons for each person aged over 65 years in 2016 to 1.5 working-age persons in 2070. This means that the contribution base is going to reduce in comparison with the number of retired people. From this evidence, one can easily understand the spirit that inspired the latest measures adopted since 2004 (Law 243/2004) in order to contain the pension expenditure in Italy. Specifically, the measures adopted with the reform in 2011 (art. 24 of Law 214/2011) included, among others, short term cuts to pension indexation and a reduction in the number of pensions stemming from higher eligibility requirements. Note that the interventions adopted with the Budget Law in 2017 are in contrast with the previous ones. Indeed, for the first time in more than 20 years, the measures adopted on the Italian pension system have provided for an increase in the pension expenditure and for facilitating earlier access to pension lowering the eligibility requirements, MEF (2018b) and MEF (2018a).

Coverage ratio. It provides the number of retirees to the number of individuals aged 65 and over. Generally, the number of retirees exceeds the number of people aged 65+, because pensions may be available even at ages lower than 65, which is the standard age for the retirement eligibility. Hence, the higher is the age at retirement the lower is the share of pensioners below age 65, and the lower is the coverage ratio. As a consequence, reforms that restrain earlier access to pension, or increase the statutory retirement age, so that the effective retirement age could be postponed, aim to reduce the coverage ratio, and hence the pension expenditure.

In all the European countries, the coverage ratio is projected to decrease between 2016 and 2070, with the only exception of Malta and Sweden, see Table 1. This decrease is the highest one for Italy, where the coverage ratio is projected to reduce the pension expenditure by up to 4.5 pps. of GDP. This reflects the effect of the recent pension measures adopted in Italy, where an automatic link between the statutory retirement age and life expectancy is set: in this way, the number of pensioners should increase less of the number of people above the age 65 years.

Benefit ratio. This indicator is given by the ratio of the average individual pension to the average wage that is proxied by GDP per hours worked. Therefore, it provides a measure of the level of the public pension benefits, and is affected by the way in which pension benefits are adjusted for inflation and productivity gains, by the rules for the acquirement of pension rights or for enjoying full pension benefits, all features that imply the lower or higher level of generosity of pension systems. Thus, the lower is the generosity of the pension scheme, in the sense of lower benefits on average with respect to the productivity, the lower is the benefit ratio.

The contribution from the benefit ratio is expected to reduce the pension expenditure-to-GDP ratio with a magnitude, on average, larger than that of the coverage ratio. For all European countries, it is at least zero. Specifically, for Spain, Italy and Sweden the reduction in the benefit ratio is expected to decrease the pension expenditure by at least 4.0 pps. of GDP, a decrease larger than that expected for Europe as a whole (3.3 pps. of GDP), whereas for the United Kingdom the contribution of this ratio is expected to be a neutral factor for pension spending.

This reduction reflects the effects of the substantial pension reforms adopted in last decades. For Italy, it can be principally attributed to the introduction of the NDC scheme and the indexation of pension benefits to price

inflation, MEF (2018b). Note that up to 2030 in Italy the pension benefits are expected to rise faster than wages: despite the fact that the quota of NDC pensions will increase, this does not enough to compensate for the low growth in productivity assumed in this period. This is expected to cause an increase in the benefit ratio, and hence in the pension expenditure-to-GDP ratio, equal to 1.7 pps. of GDP, which is the maximum increase in Europe in the period taken into account. Between 2030-2070, the benefit ratio effect will turn negative, because of the fact that the NDC scheme will be fully running, and the maximum decrease is expected in 2040-2050 (-2.7 pps. of GDP).

Labor market effect. This last indicator, which assesses the impact of the labor market behavior on the pension expenditure, can be further split in turn in three sub-drivers:

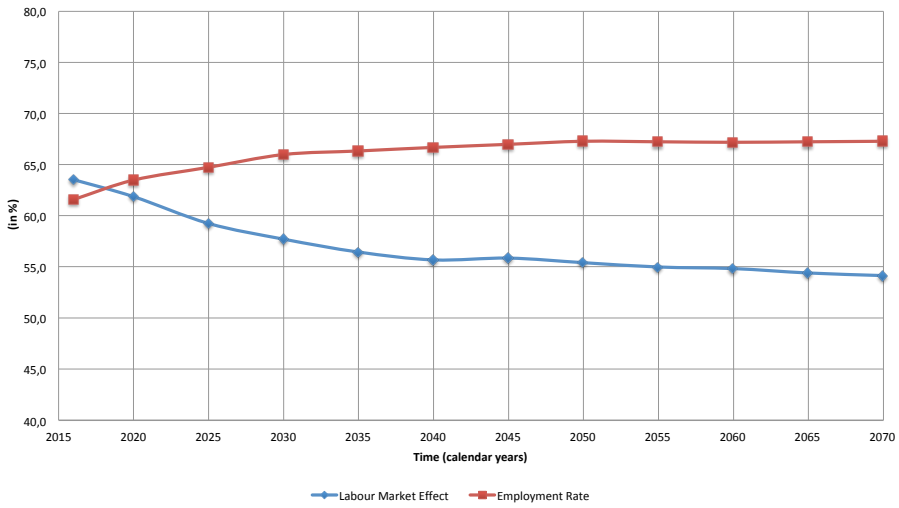
(a) the employment rate effect, i.e. the inverse of the employment rate, denoted by x_5, is the ratio of population aged 20-64 to the number of working people in the same age range 20-64: $x_5 = \frac{population\ 20-64}{working\ people\ 20-64}$;

(b) the labor intensity effect, i.e. the inverse of the labor intensity, denoted by x_6, is the ratio of working people aged 20-64 to the hours worked by the population 20-64: $x_6 = \frac{working\ people\ 20-64}{hours\ worked\ 20-64}$;

(c) the career shift effect, i.e. the inverse of the career shift, denoted by x_7, is the ratio of the hours worked by the population 20-64 to the hours worked by the population 20-74: $x_7 = \frac{hours\ worked\ 20-64}{hours\ worked\ 20-74}$.

Note the contribution to the pension expenditure-to-GDP deriving from this factor still acts to counteract the projected increase in the dependency ratio, but its magnitude is lower than those deriving from the coverage and benefit ratios, see Table 1 for the considered countries. However, for Italy and Spain too, the assumed reduction of the unemployment rates leads the contribution due to this factor at the second largest value in Europe (-2.8 pps. of GDP). In addition, note that the employment rate and the career shift are the factors that, as a matter of fact, drive the labor market effect, whereas the contribution deriving from the labor intensity is almost neutral for all countries. In Figure 4, the labor market effect and the employment rate trend are illustrated for Italy. It has to be highlighted the increase assumed in the employment rate, mainly due to the postponement of the retirement age and its inverse impact on the projected trend on the labor market effect, hence on the pension expenditure- to GDP ratio. Therefore, reforms, aimed at strengthening the potential of economic growth, are particularly relevant, for example if they stimulate people to stay longer in the labor market.

Figure 4. Projected trend in the labor market effect and the employment rate for Italy between 2016-2070



Source: Our illustration from data provided in European Commission (2018b) and in European Commission (2018a).

4. Assessing the financial sustainability of the Italian pension system

The last economic and budgetary projections provided by the European Commission (2018a) confirm that Italy is going towards a society that is getting older and older, and show how the last pension reforms, implemented with the main aim at limiting the future increase in the pension expenditure (with the only exception of the measures adopted in 2017), impact on the pension expenditure-to-GDP ratio in an ageing context. Basically, the projected decrease in the Italian pension expenditure-to-GDP ratio, which should take place from 2040, comes mostly from the benefit ratio effect, which largely depends on the rules determining the coverage and the amount of pension benefits.

In the following, as in Di Palo (2011), we consider two other indicators.

4.1. The ratio of pensioners to working people

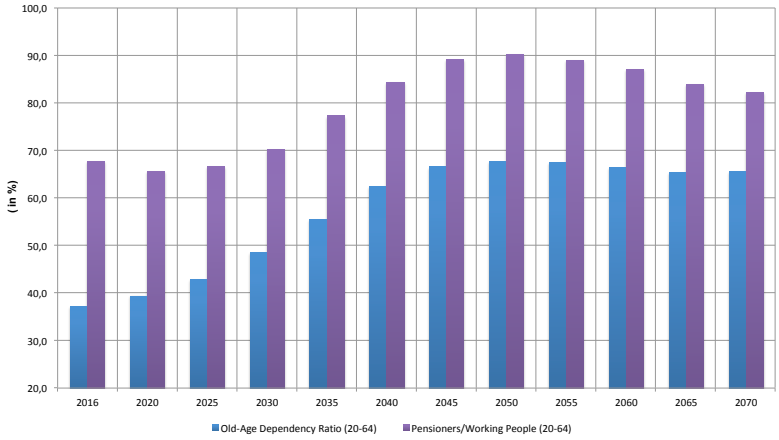
The ratio of pensioners to working people aged 20-64, denoted by x_8, is calculated as

$$x_8 = \frac{number\ of\ pensioners}{working\ people\ 20-64} = \\ = \frac{population\ +65}{population\ 20-64} \cdot \frac{number\ of\ pensioners}{population\ +65} \cdot \frac{population\ 20-64}{working\ people\ 20-64} \tag{3}$$

namely, it is calculated as the product of the three ratios indicated as x_1, x_2, and x_5 in Section 4, and are the old-age dependency ratio, the coverage ratio, and the inverse of the employment rate, respectively. For easy of reading, in Figure 5 the old-age dependency ratio and the ratio of pensioners to working people aged 20-64, as calculated in (3), are compared. In particular, note that Italy presents very high values of ratio x_8, which starts from over 60% and rises to over 80% from 2040, with a projected peak in 2050. This means that between 2040 and 2060, according to the projections, one pensioner will be supported by about one active person. By means of decomposition (3), this indicator reflects the effects of:

- the population ageing, see the values of the old-age dependency ratio that for Italy gets the highest value, among the other European countries, in 2016 (37.2%), and reaches one of the highest values also in 2070 (65.5%, the fourth highest value);
- the implemented reforms, which basically have provided the increase in the standard age for the retirement and rules that automatically link the retirement age to life expectancy lengthening, see the significant decrease in the values of the coverage ratio: they start from a large value in 2016 (112.1%) to reach a level that is very lower than that for Europe as a whole;
- the labor market effect, mostly represented by the values of the employment rate. For the population aged 20-74, the employment rate for Italy is among the lowest ones in Europe (53.2%, the second lowest value) in 2016, and it is 9.0% below the average value for Europe as a whole. According to the projections, it will reach the 60.0% level in 2070, remaining still below the European average (66.0%). Thus the first of the five European headline target fixed by the "Europe 2020" strategy, that is to raise to 75% the employment rate for women and man aged 20-64, is well-far to have been reached (Marlier, 2010), with its consequent negative impact on the pension expenditure.

Figure 5. Old-age dependency ratio (20-64) and pensioners-contributors ratio between 2016-2070



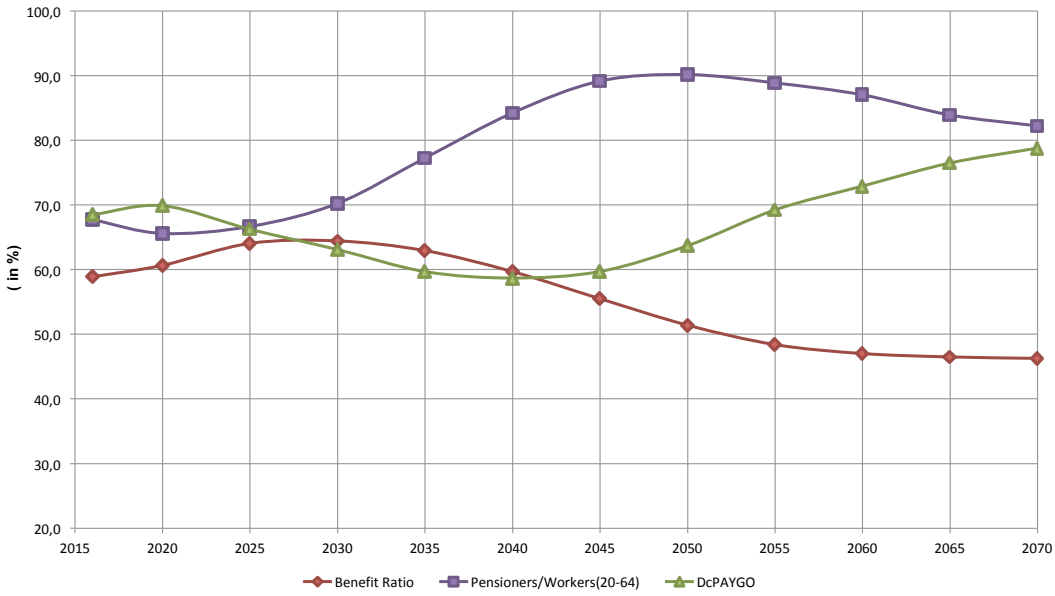
Source: Our illustration from data provided in European Commission (2018a).

4.2. The degree of pay-as-you-go (PAYG) covering of the pension disbursements

The degree of PAYG covering of the pension disbursements, referred to as Dc^{PAYG}, see Angrisani and Di Palo (2019), hereinafter denoted by x_9, is calculated as: $x_9 = Dc^{PAYG} = \frac{contributions\ as\ \%\ of\ GDP}{pension\ as\ \%\ of\ GDP}$, whose data are provided in Part III Statistical Annex - Cross-Country Tables, Table III.1.76: Public pensions, contributions as % of GDP and Table III.1.66: Public pensions, gross as % of GDP, in European Commission (2018a).

This indicator is inversely linked to the ratio of pensioners to working people and the benefit ratio; thus, to make the Dc^{PAYG} increasing, both ratios have to decrease. Figure 6 shows the expected trend of the three ratios considered, benefit ratio x_3, ratio of pensioners to working people aged 20-64 x_8, and degree of PAYG covering x_9, for Italy between 2016 and 2070. Over the projection period the demographic dynamics of the Italian pension system is strongly affected by the consistent increasing in the ratio of pensioners to working people aged 20-64 expected between 2020 and 2050, where it reaches its maximum value (90.0%). This means that the support ratio will move from about 1.5 contributors for each pensioner in 2020 to just over one contributor for each pensioner in 2050. Note that although the adoption of the NDC scheme and the recent pension measures adopted, the benefit ratio shows an increasing trend up to 2030, where it achieves its maximum value, and thereafter it will decrease up to 2070. As a consequence, the decrease expected in Dc^{PAYG} in the decade 2020-2030 is due to the increase of both ratios, whereas in the subsequent decade 2030-2040 the expected reduction in the benefit is not able to counteract the consistent increase in the demographic factor that will strongly impact to expand the level of the pension expenditure. Thus, the degree of PAYG covering is projected to decrease from 69.9% in 2020 to 58.7% in 2040. The demographic trend is also worsened by the effects of the so-called 'demographic wave' (Angrisani and Di Palo, 2014, 2018) due to the baby boomers, namely the individuals born in the sixties (1960 is the year taken representative of the baby boom, Lanzieri (2011)), who approach to retirement starting from 2025, see the degree of PAYG covering graph between 2020 and 2050 in Figure 6.

Figure 6. Trends of the benefit ratio, the ratio of pensioners to working people aged 20-64, and the degree of PAYG covering between 2016-2070 for Italy



Source: Our illustration from data provided in European Commission (2018a).

Therefore, on the basis of the considered projections, the Italian pension system, under current rules for contributions and benefits, is and will be imbalanced. Note that the Italian pension system, although exclusively on PAYG financed, is actually supported by heavy additional contributions from the State, which covered about the third part of the pension expenditure in 2016, and is projected to cover 40% of the pension expenditure when the demographic wave will put under further pressure the system.

Conclusion

In this study, the time evolution of the Italian pension expenditure-to-GDP ratio is analyzed in the context of an ageing population. The analysis is carried out from the economic and budgetary projections as provided by the European Commission (2018a, 2018b).

These projections show that the time profile of the Italian pension expenditure-to- GDP ratio is of the so-called UP/DOWN type, because the initial upward trend in the level of the pension expenditure would be followed by a decline expected after the peak in 2040. The expected decline should exceed the initial growth so that the pension expenditure-to-GDP should move to a level lower than that in 2016. This predicted trend is mostly due to the expected demographic dynamics that confirm the ageing of the Italian population, a phenomenon that will be also worsened in the forthcoming decades as baby boomers will approach to retirement.

Hence, the issue of the pension system sustainability is still one of the major challenges for Italy that displays one of the highest level in the pension expenditure to GDP ratio in the whole Europe also in the long term. The sequence of pension reforms implemented over last decades have managed to control the future expansion in the level of the pension expenditure (although the last measures applied in 2017 goes in the opposite tendency), acting on the cuts of benefits and tightening the eligibility requirements. The effect of these measures makes the Italian benefit ratio reduced by 12.6 pps. between 2016 and 2070, while keeping a level above the European average.

Thus, projections, which prospect the pension expenditure to decline over time, could suggest that the pension system could be financially sustainable, namely able to face its commitments towards its current and future participants under substantial equity among generations. Actually, as the pension system is PAYG financed, the fulfilment of pension promises should have to be supported by projections of stabilization of contributions levels to ensure the intergenerational equity. In addition, any sustainability evaluation has to take into account the current, and not projected, quantification of the pension liability, namely the commitments already taken up, as the future pension expenditure is depending on the current pension liability. From this point, it comes up the necessity to analyze the current pension system state by means of proper indicators of state and control, defined in a logical and mathematical framework, so that the sustainability should not be subjected to the 'goodness' of the adopted assumptions (Angrisani and Di Palo, 2019). Differently, sustainability evaluations based exclusively over the pension expenditure projections can be misleading because of the strong dependence on the underlying assumptions and the lack of objective indications to re-balance the system.

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