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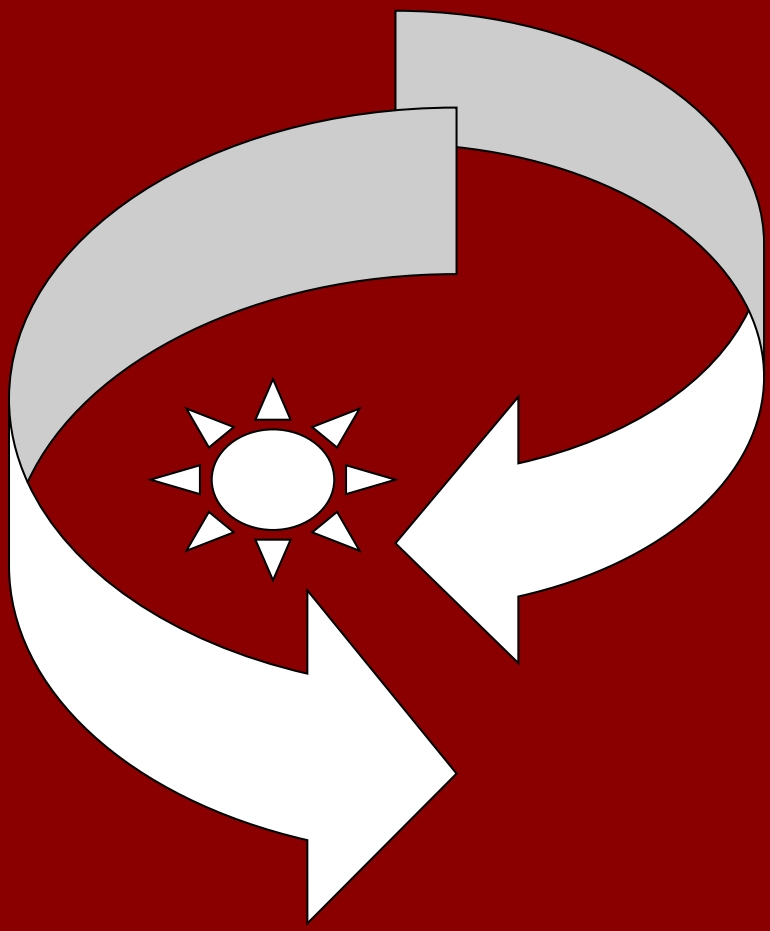

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Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is reffered to be a forum for the delivery of scientific thought and analysis in the field of economics especially related to financing and regional development for faculty staff, researchers, alumni, students and broad community. Starting from Volume 6 No. 1, this journal is published into six times a year (originally published four times a year). The editor receives articles that have unpublished yet in any media, either inside or outside the country. The online version of this journal is available at http://online-journal.unja.ac.id/JES

Jurnal
Perspektif Pembiayaan dan Pembangunan Daerah
(Journal of Perspectives of Financing and Regional Development)

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Editor's Note

Since Volume 6, Issues 2 (September – October 2018), the Journal of Perspectives on Financing and Regional Development has been nationally accredited with SINTA (Science and Technology Index) score of S2, based on the Decree of the Director General of Development and Research Enhancement, Ministry of Research, Technology & Higher Education of the Republic of Indonesia, Number 10/E/KTP/2019 concerning the Ranking of Scientific Journal.

In Volume 7 Issue 1, 2019 is presented nine articles that come from Universitas Jambi (Indonesia), Universitas Andalas (Indonesia), Insitut Teknologi Bandung (Indonesia), Polytechnic LP3I Bandung (Indonesia), University of Science and Technology (Norway), Academic City College (Ghana), Kwame Nkrumah University of Science and Technology (Ghana), University of Cape Coast (Ghana), and Goettingen University (Germany).

Hopefully in the next issue can be presented articles with issues and from more diverse circles.

Happy joy reading

Editorial

Human capital of school-age population in West Sumatera: measurement and determinant

Firlan*; Werry Darta Taifur; Indrawari

Faculty of Economics, Universitas Andalas, Indonesia

**To whom correspondence should be addressed. Email: sabananeha@gmail.com.*

Abstract

Information on human capital, especially for school- age population is still limited. Most of Indicators of human capital only consider the dimensions of education, while human capital is formed by various dimensions not only education. Recent human capital measurement is displayed in macro level so that difficult to analys in micro level. Based on recent condition of human capital information, this study aims to measure the human capital of the school-age population of 7-18 years old using the fuzzy set approach by considering several dimensions of human capital investment and analysis the determinant. The data source is from West Sumatera Socio-Economic Survey that held by National Bureau of Statistic in March 2017. Measurement human capital of 9,950 samples of school age population shows that urban areas have higher human capital than the rural areas. Internal factors, household and spouse characteristics such as income, parent education and occupation have impact in their children human capital. External factors such as subsidies and rural-urban development inequality also have impact and tend to be larger than internal factor. The strategy of increasing human capital under conditions of limited resources can be achieved by increasing the index of indicators which have greatest weight and also reducing development inequality between urban and rural areas. The other policy is to realize growth economic that have positive impact to entire society. In terms of methodology, this approach can be adapted to regional conditions, the development of theory and related research. Adjustments can be made at the stage of selecting investment indicators, data types and weight of indicator.

Keywords: *Human capital, School-aged population, Fuzzy set approach*

JEL classification: O15, I25

INTRODUCTION

Human capital is an important part of economic growth. This has been empirically proven by Mankiw, Romer & Weil (1992) by adding human capital to the Solow growth model. The result of this model explains that human capital investment has a positive and significant effect on the economic growth of many countries.

The measurement of human capital is important as a consideration for policy making, especially for Indonesia entering demographic bonus. Demographic bonus is a population phenomenon where the ratio of productive population to unproductive population (dependency ratio) is at lowest point. This phenomenon will occur between 2020 and 2030, especially for the province of West Sumatera, it is predicted to occur in 2025 with dependency ratio about 50.07 (BPS, 2012).

Furthermore, preparing to face the demographic bonus, it is important to ensure that the productive population is a population with high human capital. School-age population play an important role in this matter. One reason is that they will become a workforce after attending school. In addition, the formation of good human capital in the school-age population is one of the keys to breaking the poverty chain (Taifur, 2005). Poor households that invest well in human capital such as adequate education and quality and good health have the opportunity to get out of poverty when their children enter the workforce

Unfortunately, a comprehensive indicator of human capital is not yet available for productive population, especially the school-age population. The Human Development Index (HDI), Human Capital Index (HCI), School Participation Rate (SPR) or Net Enrollment Rate (NER) are also not enough to explain the current state of human capital of school-age population. In addition, these indicators are measured only through an educational approach and presented on macro level. Research by Liu (2003), Bagby, de Walque & Kazianga (2012), Blandin & Herrington (2018) are some examples of research that make education as form of human capital investment. Whereas according to Becker (1962) human capital investment is very broad in scope, not only education and health, but also every action that can affect income in the future.

Some other dimensions such as information technology can support educational achievement (Bulman & Fairlie, 2016). Individual with good education and expert in using information technology will certainly have higher human capital than individual just good in the education dimension. This shows that information technology can increase human capital so that it can be categorized as a form of human capital investment.

According to Christian (2017) the measurement of human capital can be done at least through three approaches. Expenditure, income, and indicator approaches. The indicator approach is considered easier to use than other approaches in the context of data availability. This approach will calculate human capital through indicators of various forms of human capital investment.

Human capital is multidimensional (Thamma-Apiroam,2015). The indicator approach will produce different sizes between indicators from various investment dimensions. For example, the value of average years of schooling will differ with health dimension indicators such as the live insurance ownership.

Aggregation among indicators values is needed to provide a more meaningful measurement. One method of aggregation is the fuzzy set approach introduced by Zadeh (1965). So far, fuzzy set approach method has been used in multidimensional poverty index measurements. This method will combine measures in various dimensions into one measure in the form of an index in [0;1].

Besides measure human capital, it is important to review it's determinant in order to contribute in policy maker that support increasing human capital. Many study was conducted show that income still the dominant variable that affect human capital espescially in macro analysis. Brata (2002) show that GNP percapita had positive effect on human development index and also confirm by Setiawan & Hakim (2013), they found that GNP had positive effect on human development in Indonesia while negative effect from tax and economy crisis. In micro level studys such as was conducted by Liu (2003), Yang (2008), Dang & Rogers (2016), Qin, Wang & Zhuang (2016) and Blandin & Herrington (2018) shows that household characteristic such as income or consumption, parent education and occupation affect human capital of their children.

Important role of income not exist in west sumatera. It can be proven by looking the interaction between GDRP and HDI. The fact shows that the regency with high GDRP not always have high HDI than regency with low GDRP. It indicate that income in macro level not the only one factor that affect human capital and it could be the hypothesis in micro level.

Finally, this study will measure human capital of school-age population by considering several dimensions of human capital investment in west sumatera using fuzzy set approach and also review it's determinant using regression analysis.

METHODS

This study use National Socio-Economic Survey (SUSENAS) microdata held by National Bureau of Statistic (BPS) in March 2017. This data allows analysis in regency or municipality level.

Data processing method or index measurement is using fuzzy set approach. This method was first used by Cerioli & Zani (1990) to measure poverty from a multidimensional perspective. Then this method is explained in detail by Costa (2002). The difference between applied this method in poverty and human capital just in dimensions.

The unit of analysis is individual or population aged 7-18 years old. Then it is aggregated into regency or municipality level. Suppose there is n population aged 7-18 years and is the number of indicators of investment dimensions that are taken into account, and for example k is the set of individual who invest in human capital, then the index of human capital from individual i can be written as:

$$\mu_A(i) = \frac{\sum_{j=1}^{k} z_{ij} w_j}{\sum_{j=1}^{k} w_j} \quad \text{..... (1)}$$

Where z_{ij} is membership function i in dimension j and w_j is weight of dimension j. The membership function z_{ij} can be written as:

$$z_{ij} = \begin{cases} 1, x \geq x' \\ 0, x \leq x'' \\ \frac{x - x'}{x' - x''}, x' < x < x'' \end{cases} \quad \text{..... (2)}$$

Where x is the data of indicator of dimension j and x', x'' is criteria of invest or not in dimension j.

Membership function can be interpreted as individual membership degrees to become members of set A (individual who invest). For example if someone is not attending in school then it is called not invest in education, then the degree of membership in set A (education dimension) is 0 (not member A). If he attends school and the school level is matching to age, the degree of membership is 1 (member A perfectly). The degree of membership is between 0 and 1 if age is not matching with the school level. This relationship also applies to other dimension indicators based on the its membership function.

Weight w for each dimension indicator determined by comparing individuals who meet the investment criteria on a dimension indicator with a population. The more individuals invest in a dimension indicator it can be interpreted as the more important the dimension indicator and bigger weight obtained. Investment criteria can be seen in Table 1.

Whereas, the household human capital index is the average of the children human capital index owned by household and for the regency or municipality with shchool-age population denoted by i, the human capital index is written:

$$\mu_A(kab/kota) = \frac{1}{n}\sum_{i=1}^{n}\mu_A(i) \quad \text{..... (3)}$$

In this study there are eight indicators that compile the index, they are individual pure participation (IPP), health insurance, not smoking activities, internet use , sources of drinking water, lighting sources, computer use and cooking water sources (Table 1) . Full details of the types of indicator data can be seen in Table 5 (Appendix).

Education has long been recognized as one of the human capital investments. . Healthy insurance and non-smoking behavior are also investments because they have a positive impact on human capital formation, this was stated by Cohodes, Grossman, Kleiner, & Lovenheim (2014) and Allo, Sukartini & Saptutyningsih (2018) . Internet use, drinking water sources and types of lighting source also have a positive impact on human capital, each of which is shown by the results of Bulman & Fairlie (2016); Beach, Ferrie, Saavedra, & Troesken (2014)) and Bridge, Adhikari, & Fontenla (2016) so that they are categorized as human capital investment.

Table 1. Characteristics of human capital investment indicators

Dimension	Indicators	Data (value)	Membership function	Investment criteria
Education	IPP	Numeric (1-18)	$z_{ij}=\begin{cases}1, x \le 6\\ 0, x \ge 18\\ \frac{18-x}{18-6}, 6 < x < 18\end{cases}$	If Attendace Schooling
Health	Health Insurance	Categorical (1. Yes, 0. No)	$z_{ij}=\begin{cases}1, x = 1\\ 0, x = 0\end{cases}$	If Have Health Insurance
	Not Smoking Behavior	Categorical (1. Yes, 0. No)	$z_{ij}=\begin{cases}1, x = 1\\ 0, x = 0\end{cases}$	If Not Smoking
Housing	Lighting Source	Categorical (1-4)	$z_{ij}=\begin{cases}1, x = 3\\ 0, x = 1\\ \frac{x-1}{3-1}, 1 < x < 3\end{cases}$	If Source in 1-3
	Drinking Water Source	Categorical (1-12)	$z_{ij}=\begin{cases}1, x \le 4\\ 0, x \ge 11\\ \frac{11-x}{11-4}, 4 < x < 11\end{cases}$	If Source in 1-3
	Cooking Water Source	Categorical (1-12)	$z_{ij}=\begin{cases}1, x \le 4\\ 0, x \ge 11\\ \frac{11-x}{11-4}, 4 < x < 11\end{cases}$	If Source in 1-3
Information Technology	Internet Usage	Numeric (0-4)	$z_{ij}=\begin{cases}1, x = 4\\ 0, x = 0\\ \frac{x-0}{4-0}, 0 < x < 4\end{cases}$	If Using Internet
	Computer Usage	Categorical (1. Yes, 0. No)	$z_{ij}=\begin{cases}1, x = 1\\ 0, x = 0\end{cases}$	If Using Computer

Regression analysis with OLS method is used in order reach the second aim that is to determine the variables that affect the human capital. The model that will be estimated as following:

$$HCI = \beta_0 + \beta_1 Y + \beta_2 Fedu + \beta_3 Medu + \beta_4 Hoccu + \beta_5 Hstatus + \beta_6 Hsize + \beta_7 Gsub + \beta_8 RU + \varepsilon \quad \text{..... (4)}$$

We also interest to review effect of education inequality of parent to their children human capital. We adding dummy variabel "gap" into the model than (4) will be the following:

$$HCI = \beta_0 + \beta_1 Y + \beta_2 Fedu + \beta_3 Medu + \beta_4 Hoccu + \beta_5 Hstatus + \beta_6 Hsize + \beta_7 Gsub + \beta_8 RU + Gap2 + Gap3 + \varepsilon \quad \text{.....(5)}$$

Independent variables obtained from several previous studies such as Liu (2003), Yang (2008), Dang & Rogers (2016), Qin, Wang & Zhuang (2016), Thakurata & D'souza (2017), Wang (2018) and Blandin & Herrington (2018). Althought dependent variable of that research little different with this research but it still relevant to use it's independent variables.

RESULTS AND DISCUSSION

School-age human capital

Processing data from 9,950 school- age population (7-18 years old) placed the Mentawai Islands district as the lowest regency with a human capital index of 0.611. Pariaman municipality is the region with the highest index of 0. 873. In general, urban areas have a higher index than the district area, this can be caused by the availability of more adequate education and health facilities and supporting facilities. However, if the index is decomposed into its constituent indicators, each regency or municipality has its own advantages and disadvantages. Composite index and dimension indicators index can be seen in Table 4 (Appendix).

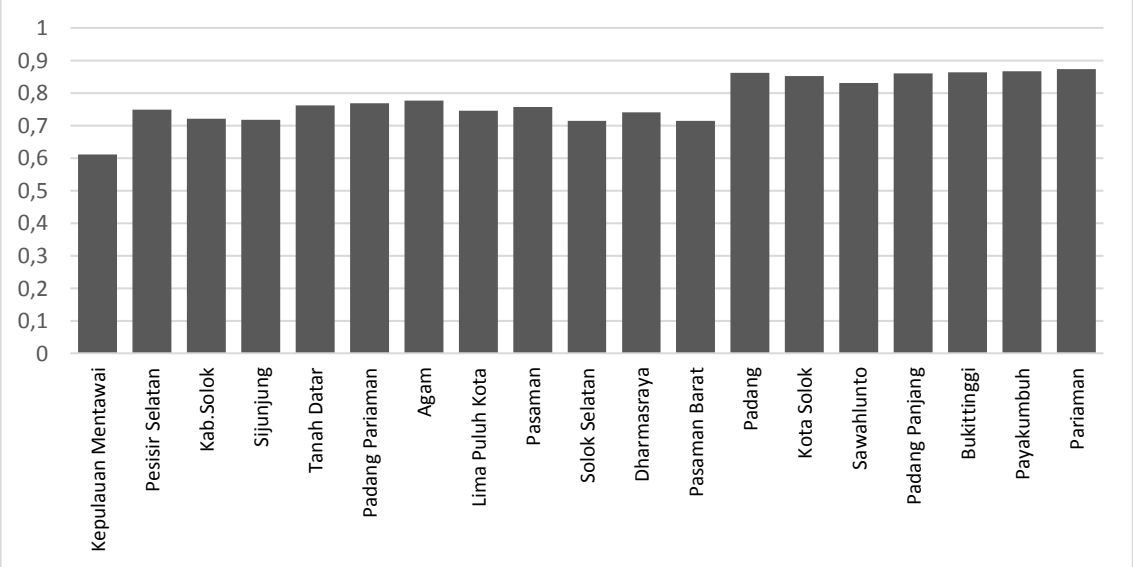

Figure 1. Human capital index of school-age population of West Sumatera by regency and municipality 2017

The magnitude of the weight affects the total index formed. If an area has a low index in an indicator with a large weight it will affect the low total index. The results

showed that non-smoking activity had the largest weight of 0.97 then education 0.95, electricity source 0.84, health insurance 0.60, drinking water source 0.51, cooking water source 0.38, internet use and computer use 0.37 and 0.33 respectively.

Indicator weight is a flexible component. Various methods and justifications can be used to determine their value. In addition to the relative weighting method, the alkire-foster method can also be used. Alkire & Foster (2011) in forming a multidimensional poverty index that provides the same weight for all dimensions. Furthermore, indicators weight is obtained by dividing the dimension weight by the number of indicators in that dimension. The use of different weight gives a different total index, the relative weight giving the index value tends to be higher than the alkire-foster weight (Table 3, Appendix).

Indicator indices with binary data (0 and 1) can be interpreted as a comparison of investing households (1) or those who do not invest (0) to the population. For example index of health insurance indicator in the Mentawai Islands are 0.72. This means that 72% of the population already has health insurance, as well as the indicator of smoking activity.

Human capital index by indicators, for West Sumatera there are two indicators are still low, they are health insurance, internet and computer use. Index of health insurance indicator is 0.601, which means that 60.1 percent of the school-age population has health insurance[1] . The index on the indicator of internet use is 0.215 and computer use is 0.327 which means that it is still far (low) from 1 (perfect value).

Regional groupings according to the human capital index category can be done by determining the intervals of each category. In this study each region will be grouped into four categories, they are low, medium, high and very high. The category interval is obtained from the averages of fisrt, second dan third quantile of all indicators. This method also used by UNDP in classifying countries based on HDI (UNDP, 2018). The category is low if index small than 0.638, medium if between 0.638 and 0.689, height between 0.690-0.785 and very high if index more than 0.785.

The use of data in the formation of this index is still dominated by categorical data. Only the dimensions of education with IPP indicator are purely quantitative data. The use of categorical data results index tend to less varied. Conversely, quantitative data will provide more varied index because the data tends to be different for each household and has a larger data interval.

The implication of low school-age human capital is they will difficult to get pefect result from human capital investment in general after graduate from college and entrance into labour market. But if they get the perfect human capital in age 7-18 it could predict that they will get good human capital accumalation in college and perfect human capital in the last human capital investment.

Determinant of school-age human capital

The determinant of human capital of school-age population consists of direct determinants and indirect determinants. The direct determinant is a variable that directly affects the index if the variable experiences a change in value. This direct determinant is a variable used in index calculation and is deterministic. The eight indicators used in calculating the index are direct determinants. If an increase in population has health insurance, the human capital index will increase and so to other indicators. In addition, the weighting scale is also a direct determinant. Changes in the weight of each indicator

[1] If indicator index come from binary data, it can be interpret in persentage

will also have a direct effect on the human capital index. Last, the membership function, if the upper and lower limit of membership function is changed, will have a direct impact on the index size.

Indirect determinants of the index are external variables that are not used in calculations and are stochastic. The results of the regression in Table 2 show that internal household variables such as income, parental education and head occupation have a positive effect on the human capital of their children. While the external variables that affect human capital of school-age population are government intervention and rural-urban areas.

Table 2. Regression result

Variables	Human Capital Index (Model 1)	Human Capital Index (Model 2)
Constant	0.6891	0.6838
	(0.0067)	(0.0075)
Income	2.36×10^{-8}***	2.35×10^{-8}***
	(1.87×10^{-9})	(1.87×10^{-9})
Fedu	0.0029***	0,0018**
	(0.0004)	(0.0008)
Medu	0.0031***	0,0042***
	(0.0004)	(0.0008)
Hoccu	-0.0181***	-0,0180***
	(0.0029)	(0.0029)
Hstatus	0.0064***	0,0065**
	(0.0028)	(0.0028)
Hsize	0.0013	0,0013
	(0.0008)	(0.0008)
Gsub	0.0137***	0,0137***
	(0.0027)	(0.0027)
UR	0.0542***	0,0541***
	(0.0028)	(0.0028)
Gap 2	-	0,0058
		(0.0041)
Gap 3	-	0,0100
		(0.0065)
F-Test	0.0000	0.000
Breusch-Pagan Test	0.5436	0.5387
N	4,554	4,554

Notes: Standard error in parentheses

Model 1 regression exclude years of schooling gap of parent, Model 2 regression include years of schooling gap of parent.

*** p< 0.05, *** p< 0.01*

The effect of income is not too large on human capital. This is possible because not all dimensions of human capital calculation are closely related to income. For example, electricity and internet use are also influenced by government and private policies in

providing electricity and internet networks. But this finding confirm Liu (2003); Yang (2008); Dang & Rogers (2016); Leu, Chen & Chen, (2016); Qin, Wang & Zhuang (2016) and Blandin & Herrington (2018) that show positive effect of income in children human capital.

Internal household factors such as parental education show a positive effect, this confirms several previous studies such as Dang & Rogers (2016). Human capital index will increase about 0.0029 if year of schooling father increase one year and 0.0031 if year of schooling increase one year. The possible reason to explain this is parent attempt to make sure their children have human capital especially education at least the same with him. Further, parent education inequality did not show the effect as shown by Blandin & Herrington (2018).

The head occupation in the agricultural sector tends to have children with lower human capital than other. It possible because most of people in agricultural sector live in rural area which have less public fasilities. The position of head in the formal sector tends to have children with higher human capital than the informal sector. People in formal sector have better acsess to public fasilites than other, it could be seen in Table 5 (Appendix) and this finding confirm research by Liu (2003).

Household size did not affect human capital of children. It is different with most previous research that had conducted by Akresh, Bagby, de Walque & Kazianga (2012), Dang & Rogers (2016) and Blandin & Herrington (2018). They had found that household size have negative impact on human capital of children. This finding similar to Taifur (2005) who show that household size did not affect poverty status.

Government intervention or subsidies has a positive effect on human capital. It help households that are less able to access human capital investment facilities. Most of household human capital investment like other household consumption such as food and durable goods consumption. Household income is used first to basic need consumption, subsidies make them able to consume beyond it such in education and health. So that low income household still able to invest in human capital. It confirm several previous research such Thakurata & D'souza (2017) and Wang (2018) that shows that government subsidies have positive impact on human capital.

Development inequality between urban and rural areas has the greatest impact among all variables. The urban area has a higher index of 0.0542 compared to rural areas. It could make senses because urban have complete fasilities support human capital such as education, health, information technology and housing than rural area. Further, urban population especially school-age population get advantage of this condition. This is confirm findings from Qin, Wang & Zhuang (2016), they show that children who live in urban area had education and health higher than urban area. This condition also confirm Taifur (2005) that convey development inequality between urban and rural lead deceleration on poverty reduction.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The municipality area is still higher in the human capital index of school-age population than the regency. This is caused by a number of indicators are closely related to the availability of public facilities and infrastructure which in the urban areas are more advanced than the districts. This is show the negative impact from development inequality between municipality and regency.

It can be concluded that the education dimension with the IPP indicator is almost perfect with 0.925. However, the supporting indicators are still left behind. Such as the use of the internet and computers that have not been optimal, especially for the district.

The presence of this human capital index can complement the indicators of human capital such as HDI, HCI, School Participation Rates and other indicators especially indicator in micro level. Although the calculation still allows changes, this index can be a consideration for the government in formulating policies.

Income is still variable which have impact on human capital especially on school-age human capital although the impact is not too large. Household characteristics such as parent education, head occupation beyond agriculture and position in formal sector has positive impact on human capital. Further, external factor such subsidies and living location also have impact and tend to larger impact than other variables.

Recommendations

This index is formed by micro unit analysis such as individual or household so that probably to hold an analysis based on individual or household. In addition, each step of the calculation allows it to be changed and modified according to the theory, research area or previous underlying research. Some recommendations for further research and the policy are as follows:

First is the data source. This study is dominant using categorical data such as data on ownership of health insurance, smoking activities, sources of drinking water and types of lighting, but it does not rule out the possibility of using numerical data. Using numerical data will make the index more varied and can maximize the fuzzy set approach

Second is the investment dimension. In general the education and health dimensions are most often analyzed. However, there are other dimensions and indicators that can be considered. Dimensions and indicators can adjust to the development of the theory and the latest research as well as the investment habits of the area under study.

Next, the part that can be modified is the indicator weight. Weight has an important role because it will determine the contribution of each indicator in forming an index. This study uses the relative weight of each indicator on the population. Weight can also be determined by considering the proportion of expenditure of an indicator to all household expenses or using Alkire-Foster method that was discussed earlier.

The policy that can be taken in order to increase the human capital index based on direct determinant is to encourage each index compiler indicator to be better. However, in general, constraints on limited resources will be encountered. So in this context an increase in the human capital index can be focused on indicators with the largest weight because it will have a greater impact on the increase in the total index. Reduce development inequality between urban and rural areas could be taken because this inequality also impacts the inequality of the human capital. Economic growth that have positive impact to all levels of society could increase household income and also increase the school-age human capital, this is because economic growth is not always give a positive impact especialy in reduce poverty (Taifur, 2012). The positive impact of government subsidies give the signal that it should be continued and held in right household.

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APPENDIX

Table 3. Human capital index of school-age population based on relative weight and Alkire-Foster weight, 2017

Regency/ Municipality	Relative Weight		Alkire-Foster Weight	
	Index	Rank	Index	Rank
Kep. Mentawai	0.611099	Low	0.550128	Low
Pesisir Selatan	0.748999	High	0.666865	Medium
Kab.Solok	0.720547	High	0.645148	Medium
Sijunjung	0.717278	High	0.631925	Low
Tanah Datar	0.762353	High	0.684657	Medium
Pdg. Pariaman	0.768888	High	0.687833	High
Agam	0.776808	High	0.703651	High
Lima Puluh Kota	0.744785	High	0.664401	Medium
Pasaman	0.756942	High	0.677044	Medium
Solok Selatan	0.71456	High	0.634533	Low
Dharmasraya	0.739907	High	0.657419	Medium
Pasaman Barat	0.714282	High	0.626764	Low
Padang	0.861471	Very High	0.804703	Very High
Kota Solok	0.852612	Very High	0.787802	Very High
Sawahlunto	0.831419	Very High	0.760131	High
Padang Panjang	0.860474	Very High	0.803797	Very High
Bukittinggi	0.863972	Very High	0.807792	Very High
Payakumbuh	0.867252	Very High	0.811171	Very High
Pariaman	0.873121	Very High	0.812357	Very High
West Sumatera	0.773437	High	0.700117	High

Table 4. Human capital index of school-age population in West Sumatera by regency/ municipality, 2017

Regency/ Municipality	IPP	Having Health Insurance	No Smoking Behavior	Using Internet	Using Computer	Lighting Source	Drinking Water Source	Cooking Water Source	Index	Rank
Kep. Mentawai	0.906	0.651	0.991	0.020	0.014	0.484	0.437	0.449	0.611	19
Pesisir Selatan	0.937	0.430	0.982	0.164	0.264	0.944	0.768	0.718	0.749	12
Kab.Solok	0.892	0.450	0.956	0.182	0.271	0.887	0.700	0.689	0.721	15
Sijunjung	0.909	0.423	0.971	0.170	0.221	0.949	0.700	0.529	0.717	16
Tanah Datar	0.924	0.576	0.976	0.186	0.308	0.939	0.752	0.683	0.762	10
Padang Pariaman	0.938	0.541	0.992	0.186	0.287	0.967	0.732	0.732	0.769	9
Agam	0.928	0.598	0.965	0.243	0.322	0.941	0.776	0.750	0.777	8
Lima Puluh Kota	0.908	0.453	0.972	0.171	0.284	0.929	0.776	0.721	0.745	13
Pasaman	0.895	0.907	0.973	0.138	0.173	0.863	0.652	0.638	0.757	11
Solok Selatan	0.916	0.469	0.969	0.137	0.187	0.861	0.700	0.664	0.715	17
Dharmasraya	0.897	0.374	0.966	0.189	0.266	0.953	0.763	0.788	0.740	14
Pasaman Barat	0.915	0.475	0.964	0.110	0.124	0.893	0.702	0.670	0.714	18
Padang	0.964	0.717	0.983	0.370	0.566	0.980	0.931	0.898	0.861	4
Kota Solok	0.937	0.703	0.968	0.282	0.521	0.974	0.993	0.967	0.853	6
Sawahlunto	0.936	0.751	0.965	0.288	0.408	0.987	0.910	0.800	0.831	7
Padang Panjang	0.959	0.741	0.976	0.337	0.584	0.979	0.922	0.910	0.860	5
Bukittinggi	0.943	0.709	0.957	0.376	0.588	0.990	0.979	0.951	0.864	3
Payakumbuh	0.946	0.776	0.964	0.343	0.572	0.959	0.979	0.976	0.867	2
Pariaman	0.945	0.953	0.966	0.324	0.517	0.989	0.887	0.897	0.873	1
West Sumatera	0.925	0.601	0.972	0.215	0.327	0.921	0.783	0.750	0.773	

Table 5. Detail of data of dimension indicator

Dimension	Indicator	Data
Education	IPP	Age minus year of schooling[2]
Health	Having Health Insurance	1. Yes 0. No
	No Smoking Behavior	1.Yes 0. No
Housing	Lighting Resources	1. PLN (State Electricity Company) 2. PLN Without Gauge 3. Non PLN 4. Non Electricity
	Drinking Water Source	1. Bottled Water 2. Reload Water 3. Tap Water 4. Artesian Water With Pump 5. Protected Artesian Water 6. Unprotected Artesian Water 7. Protected Fountain Water 8. Unprotected Fountain Water 9. Rain Water 10. Surface Water (River, Lake, Irrigation) 11. Other
	Cooking Water Source	1. Bottled Water 2. Reload Water 3. Tap Water 4. Artesian Water With Pump 5. Protected Artesian Water 6. Unprotected Artesian Water 7. Protected Fountain Water 8. Unprotected Fountain Water 9. Rain Water 10. Surface Water (River, Lake, Irrigation) 11. Other
Information Technology	Internet Usage[3]	1. Using internet to study 2. Using internet to finishing task 3. Using internet to send email 4. Using internet to other purposes
	Computer Usage	1.Yes 0. No

[2] For example, if 16 year old children attend junior high school in class 2, so year of school is 8 and age minus year of school =16-8=8

[3] Point 1-4 have value 1, if individual do all items so that the using internet indicator value is 4

Table 6. Percentage of household based on indicators and working position

Working Position	Index = 1			
	Health Insurance	Internet Usage	Drinking Water Source	Electricity
Informal Sector	56,09	9,90	48,39	87,56
Formal Sector	67,98	14,89	66,48	89,35

Table 7. Regression variables

Variables	Description
Income (Y)	Household expenditure percapita
Fedu	Father years of schooling
Medu	Mother years of schooling
Hoccu	Head working sector
Hstatus	Head working position
Hsize	Number of household member
Gsub	Subsidies from government
UR	Urban-rural area
Gap1	Father years of schooling < mother years of schooling
Gap2	Father years of schooling = mother years of schooling
Gap3	Father years of schooling > mother years of svhooling

Determining the buyer-supplier relationships in international market: evidence of Indonesian products

Ervyna Rizki Febrianny*; Mustika Sufiati Purwanegara

School of Business and Management, Institut Teknologi Bandung, Indonesia

**To whom correspondence should be addressed: ervyna_rizki@sbm-itb.ac.id*

Abstract.
This paper examines how trust and commitment impact repurchase intention and relationship performance in international market from overseas buyers to Indonesian suppliers. To achieve this objective, data were collected through a survey using a structured questionnaire to overseas buyers who have been engaging with Indonesian suppliers. A total respondent of 84 were collected. A confirmatory factor analysis was measured in this study to test the reliability and validity of the measurement model. The Partial Least Square technique also was used to test the conceptual framework of this study. The result shows that trust is significantly influenced commitment in the International buyer-supplier relationship. Commitment also significantly influenced repurchase intention and relationship performance of overseas buyers in buying Indonesian products.

Keywords: *B2B Relationship, Emerging country, Indonesia, International marketing*

JEL classification: F14, F23, M31

INTRODUCTION

Relationship marketing has brought serious both in academic and managerial consideration in the last two decades (Whipple, Lynch, & Nyaga, 2010). In the international world marketing, the growing globalization, integration of the world economy, and liberalization have been responsible for encouraging an increasing number of firms to engage in international business movements (Czinkota & Ronkainen, 2007). The very significance of these activities lies in the structure, development, and maintenance of cross-national relationships (Holm, Eriksson, & Johanson, 1996; Leonidou & Kaleka, 1998). This happens because shaping strong working relationships can bring benefits for both parties (e.g., cross-selling opportunities, repeat sales, minimization of customer switching, source of innovative ideas) and importers (e.g., cost reduction and rationalization, better purchasing prices, efficiency improvement, access to technical expertise) (Sheth & Sharma, 1997). However, to get this benefit, it is very important to have trustworthy partners who are willing to work hard and show commitment to the relationship (Evangelista, 1996).

Trust is normaly noted as one of the key elements in prosperous channel relationships (Doney & Cannon, 1997; Palmatier, Dant, & Grewal, 2007) and is considered important for cooperation between the channel parties (Morgan & Hunt, 1994).Trust has been investigated for years in several disciplines and continues to attract the interest of researchers in business-to-business (B2B) marketing (Akrout,

Diallo, Akrout & Chandon, 2016). In relationship marketing, trust has been recognized as an essential concept (Lagrosen & Lagrosen, 2012). Trust is synonymous with integrity and trustworthiness. Trust is also considered as existing when one party has trust in the reliability and integrity of the other exchange partner (Morgan & Hunt, 1994; Davey & Powers, 2016).

Commitment defines as a desire to continue a relationship with a partner (Richey & Myers, 2001). In buyer-supplier contexts, commitment is defined as a desire for continued relationship and an effort to ensure its continuance (Anderson & Narus, 1984; Morgan & Hunt, 1994; Wilson, 1995; Valtakoski, 2015) or as a pledge for relational continuity between exchange partners (Dwyer, Schurr, & Oh, 1987). Commitment has been studied in buyer-seller relationships (Anderson & Weitz, 1992; Zabkar & Brencic, 2004), strategic alliances (Cullen, Johnson, & Sakano, 2000), marketing strategic alliances (Voss, Johnson, Cullen, Sakano, & Takenouchi, 2006), and cross-border relationships (Styles, Patterson, & Ahmed, 2008).

It has significantly been demonstrated that a powerful buyer-seller relationship goes to increase repurchase intention (Hewett, Money, & Sharma, 2002; Frank, Enkawa & Schvaneveldt, 2015; Agag, 2019) which is generally determined as a buyer's willingness to become involved in future transactions. Previous studies (Wind, 1970; Kleinaltenkamp, Plinke, & Söllner, 2015) defined that industrial buyers will continue relationships if cost savings are significant that industrial buyers are more appropriate to continue relationships if cost savings are significant and if other departments within the buying companies recommend the suppliers' products. Buyers are likely to be more satisfied when they perceive strong relationships with suppliers and thus more likely to rebuy (Cannon & Perreault, 1999). Numbers of evidence in the marketing literature stated that strong relationships lead to higher repurchase intention (Hewett, Money & Sharma, 2006).

Relationship performance can be appraised in many ways. It has been evaluated in terms of cost savings, ability and other aspects of general financial performance that increase from the buyer-seller relationship (Lee, Sirgy, Brown & Bird, 2004). Consistent with research on business-to-business relationship situations, previous researchs find that trust and commitment bind the importer and exporter to a relationship and help ease task complexity, high uncertainty, and contractual rigidities (Ambler & Styles, 2000; Zabkar & Brenic, 2004; Voss, Johnson, Cullen, Sakano, & Takenouchi, 2006; Berthon, Ewing, & Napoli, 2008), all of which affect long-term success (Cullen, Johnson & Sakano, 2000).

HYPOTHESES DEVELOPMENT

A typical finding that has emerged from previous studies that trust, and commitment are essential for exporter and importer to outcome the positive relationship, including performance relationship quality, and satisfaction (Skarmeas, Katsikeas, & Schlegelmilch, 2002; Lohtia, Daniel, Yamada & Gilliland, 2005; Nevins & Money, 2008; Styles, Patterson, & Ahmed, 2008). Constant with previous studies regarding business-to-business relationship conditions, those studies discover that trust and commitment bind the importer and exporter to a relationship and help mitigate task complexity, high uncertainty, and contractual rigidities, and all of problems which affect long-term success (Cullen, Johnson & Sakano, 2000).

Morgan & Hunt (1994) pointed trust and commitment are the key mediating variables in business relationships. Doney & Cannon (1997) observed that five separate

processes to to build trust in a supplier and a salesperson were positively correlated with selection of a supplier. Trust and commitment are fundamental elements for the success of the relationship marketing strategy (Siguaw, Simpson, & Baker, 1998). Intercompany relations are guided by relational factors such as commitment standards, which are based on trust (Cambra-Fierro & Polo-Redondo, 2011).

Trust uses as a basis for strengthening the commitment relationship in organizational sciences (Cambra-Fierro & Polo-Redondo, 2011). Trust determines the desire to depend on an exchange partner in whom one has confidence (Moorman, Zaltman & Deshpande, 1992). Beliefs in interpersonal trustworthiness (reliability of promises, honesty, helpfulness, and mutual interests in business relationships) serve as indicators of trust in buyer-seller relationships (Jap, 1999). Thus, this study hypothesized:

H1: Trust is positively influenced commitment in the international buyer-supplier relationship.

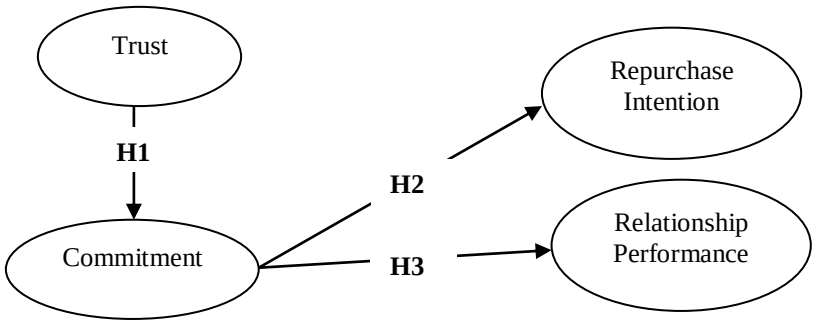
Buyers will repurchase if there is a high level of trust and commitment (Morgan & Hunt, 1994), interdependence, and buyer power (Kumar, Scheer & Steenkamp, 1995). Ganesan (1994) evaluated how buyer dependence, trust, and commitment in a vendor influence long-term sales. Commitment has been pointed out as an important component of close relationships in business-to-business marketing (Chang, Wang, Chih, & Tsai, 2012; Raineri & Paillé, 2016; Yousef, 2017). Secure communication, planning, and mutual performance reviews also create greater repurchase intention (Paun, 1997; Money, Hewett & Sharma, 2002; Hewett, Money & Sharma, 2006). Moreover, when buyers see strong relationships with suppliers, they tend to be more satisfied (Cannon & Perreault, 1999) and so that there are more likely to rebuy. An importer's commitment perspective in the internationalization process is as essential for the exporter as its is for importer to build a long-term relationship (Saleh, Ali & Julian, 2014). Thus, this study hypothesized that:

H2: Commitment is positively influenced repurchase intention in the international buyer-supplier relationship.

A usual finding that has emerged from these studies is that trust and commitment are vital for exporter as well as importer creates positive relationship outcomes, including performance (Skarmeas, Katsikeas & Schlegelmilch, 2002; Lohtia, Daniel, Yamada & Gilliland, 2005; Nevins & Money, 2008; Skarmeas & Robson, 2008; Styles, Patterson, & Ahmed, 2008). Many studies have found trust improves partner performance (Cullen, Johnson & Sakano, 2000; Katsikeas, Skarmeas & Bello, 2009). Further, the term commitment indicates a desire to continue a relationship with a partner (Richey & Myers, 2001). Skarmeas, Katsikeas & Schlegelmilch (2002) figured out that importer's commitment has a positive impact on importer relationship performance. Several studies have suggested the importance of trust and commitment (Anderson & Weitz, 1992; Zabkar & Brencic, 2004; Moore, & Ratneshwar, 2015; Frankel, Mollenkopf, Russo, Coleman & Dapiran, 2016) in maintaining buyer-seller bond. Trust and dependence of the buyer on seller (an antecedent of commitment) also affect the long-term orientations of both parties (Ganesan, 1994). Commitment positively affect

the relationship performance between importer and exporter (Lee, Sirgy, Brown & Bird, 2004). Thus, this study hypothesized that:

H3: Commitment is positively influenced relationship performance in the international buyer-supplier relationship.



Graph 1. Hypotheses development of the research

METHODS

The sampling processes

Data were collected through survey using a structured questionnaire to overseas buyers who have been engaging with Indonesian suppliers. The survey was posted in hard copy and soft copy. The hard copy questionnaire was spread by the International business concentration of Bachelor of Management at SBM-ITB that were doing their exchange program outside the country. The soft copy questionnaire was spread in social media, namely Facebook and emails of overseas buyers. 128 responses were collected. 44 data were rejected because of missing data in the questionnaire. Therefore, the total sample of this research was 84.

Data analysis

The Confirmatory Factor Analysis (CFA) was tested in this study. The purpose of our survey is to test the construct that we have collected from the previous study regarding international buyer-supplier relationships. Our conceptual framework was then tested with Smart – Partial Least Square (Smart-PLS). The Smart-PLS procedure is appropriate to test the relationship between each variable in the framework and how well the proposed conceptual framework that contains observed variables and unobserved variables fit the collected data. This study used three-time iterations.

A further criterion in SMART-PLS analysis, the prediction on model quality can be examined with R^2. The value of R^2 is the squared correlation between actual endogenous variables with predictions (Hair, Hult, Ringle & Sarstedt, 2016). The value of R^2 implies that the combined effect of exogenous variable able to explain some variances of the endogenous variable.

Measurement model

Confirmatory factor analysis (CFA) was used to test for validity and reliability. For reliability issues, Cronbach's Alpha (α) that need to be examined. Excellent reliability will be achieved once both criterion values can exceed threshold 0.7 (Nunnally & Bernstein, 1994; Hair, Black, Babin, Anderson, & Tatham, 2010). The

validity quality for variables is constructed by using convergent and discriminant validity. Convergent validity, which aims to check if a group measurement of indicator joined the same group correctly. It determines that the output of convergent validity is anticipating the undimensional to appear in a group of measurement indicators by testing the value of Average Variance Explained and factor loading. The value of AVE in a group of variables must be at least 0.5 (Henseler, Ringle & Sinkovics, 2009). If it is found to be less than 0.5, then the item will be eliminated (Hulland, 1999; Hair, Black, Babin, Anderson & Tatham, 2010; Memon & Rahman, 2014). Construct validity defines with two criterions which are Fornell-Larcker criterion and cross loading. For Fornell-Larcker criterion, undimensional does not exist once the correlation value between the latent variable is smaller than the value of the SQRT AVE variable (Fornell & Larcker, 1981). While for the cross loading undimensional is not found if an indicator does not have a greater loading value on other variables than the variables it belongs to (Chin, 1998; Götz, Liehr-Gobbers & Krafft, 2010).

Indicators and variables

The indicators and variables in this study are detailed in the appendix. The indicators of trust we adapted from a paper that is widely used by researchers to measure the buyer-supplier relationship namely, Doney & Cannon (1997) that explains the promises that keep holding on to suppliers, believe in supplier, being concerned to business succeed, consideration of welfare as well as its own, keep the best interest in mind, and trustworthy. Besides, the indicators of commitment we also adapted from Morgan & Hunt (1994) that describes business commitment, business importance, maintain business indefinitely, family business look alike, and being cared to the business.

Repurchase intention variable in this research derived from several previous studies (Paun, 1997; Money, Hewett & Sharma, 2002; Hewett, Money & Sharma, 2006; Saleh, Ali & Julian, 2014). It explains the future increasing purchase, future receiving a larger share, and future expansion of suppliers. The variable of relationship performance also derived from previous literature (Skarmeas, Katsikeas & Schlegelmilch, 2002; Lee, Sirgy, Brown & Bird, 2004; Lohtia, Daniel, Yamada & Gilliland, 2005; Nevins & Money, 2008; Skarmeas & Robson, 2008; Styles, Patterson & Ahmed, 2008; Cullen, Johnson & Sakano, 2000; Katsikeas, Skarmeas & Bello, 2009) that explains increasing profitability, performing better financially, and cost savings.

RESULTS AND DISCUSSION

Respondent's profile

This sub chapter explains the demographic characteristics of our respondents. It includes the nationality of overseas buyers and their export experience in year. Table 1 shows the demographic characteristic of the overall respondents. The respondents of our research are 84 respondents from 29 nations. The majority of the overseas buyers are from the United States which has 12 people. It follows Japan that has 8 people who have been engaging with Indonesian suppliers in the field of export import. The least people who have been cooperating with Indonesian suppliers are from Italy, Norway, Spain, United Kingdom, Afghanistan, Lebanon, Turkey, Yemen, Chile, and Suriname which has 1 person in each country.

Table 1. Demographic characteristics of respondents

Characteristics	Number	Percentage (%)
The nationality of overseas buyers		
Belgium	3	3.57
Germany	4	4.76
Italy	1	1.19
Netherland	1	1.19
Norway	1	1.19
Spain	1	1.19
UK	1	1.19
Afghanistan	1	1.19
China	4	4.76
India	4	4.76
Japan	8	9.52
Kuwait	2	2.38
Lebanon	1	1.19
Malaysia	3	3.57
Saudi Arabia	3	3.57
Singapore	3	3.57
South Korea	6	7.14
Turkey	1	1.19
Yemen	1	1.19
Egypt	2	2.38
Gambia	3	3.57
Johannesburg	5	5.95
Nigeria	4	4.76
Canada	4	4.76
USA	12	14.28
Brazil	2	2.38
Chille	1	1.19
Suriname	1	1.19
Australia	2	2.38
Export experience		
1-5 Years	40	47.60
6-10 Years	21	25.00
11-15 Years	6	7.14
16-20 Years	6	7.14
21-25 Years	3	3.57
26-30 Years	2	2.38
31 Years and over	6	7.14

We can conclude that most overseas buyers have been engaging export-import relations with Indonesia between 0 and 5 years with the value of 48 percent of total respondents. After that, around 25 percent of the total respondents have been cooperating in export-import with Indonesia for approximately 6 to 10 years. Around 7 percent of the total respondents have been collaborating with Indonesia around 11 to 15 years, 16 to 20 Years, and 31 and over. Furthermore, around 4 percent of total respondents have been cooperating with Indonesia for approximately 16 to 20 years. The least are around 26 to 30 years with a value of 2 percent of the total respondents.

Measurement model

In the third iteration we can see that every indicator has outerloading value of more than 0.7 as well as the Cronbach Alpha (α) in every variable. In addition, the Average Variance Extracted (AVE) value of all variables are over 0.5 which means that the data is completely fine. The discriminant validity can be evaluated by using cross-

loading of indicator, Fornell & Larcker criterion and Heterotrait-monotrait (HTMT) ratio of correlation. However, current study selects HTMT critetion to assess the discriminant validity since Henseler, Ringle & Sinkovics (2009). The result confirmed that the all correlation coefficient of the two different dimensions are smaller than 0,9 except in Trust to Commitment which has the value of >0.9 (0.935).

Therefore, we reduce one indicator according to the results of the interview with ITPC as an expert in the field of export-import. The interview states that the C3 indicator which describes a maintain business indefinitely has no effect on the export-import process between overseas buyers and Indonesian suppliers. Therefore, we remove the C3 indicator and recalculate it. According to Diamantopoulous & Siguaw (2006), collinearity among construct is declared non-exist if the VIF value is less than 3. The path coefficient (β) is representing the relationship between variables on the hypothesis while t-value is checked to find the significance . The (β) value and the sign of relationship is range from -1 to +1 where according to Hair, Hult, Ringle & Sarstedt (2016) the value of +1 indicates a stronger positive relationship.

Table 2. Overall CFA for the modified measurement model

Research Variables	Indicator	Outerloading	Cronbach's Alpha (α)	AVE	CR
Trust	Being concerned to business succeeds	0.906			
	Keep the best interest in mind	0.917	0.796	0.830	0.907
Commitment	Business commitment	0.711			
	Business importance	0.878			
	Maintaining business indefinitely	0.864	0.815	0.638	0.875
	Being cared to the business	0.728			
Repurchase intention	Future increasing purchase	0.820			
	Future receiving a larger share	0.866			
	Future expansion of supplies	0.774	0.758	0.673	0.861
Relationship Performance	Increasing profitability	0.758			
	Performing better financially	0.859	0.709	0.633	0.838
	Cost savings	0.767			

After recalculating the discriminant validity test, we finally obtained a value of the trust to commitment correlation coefficient of 0.869 or < 0.9. This means that the data is completely fine, and it does not have to be improved or replaced.

Table 3. Discriminant validity test (HTMT)

Construct	T	C	RI	RP
T				
C	0.869			
RI	0.597	0.666		
RP	0.839	0.772	0.898	

Structural model

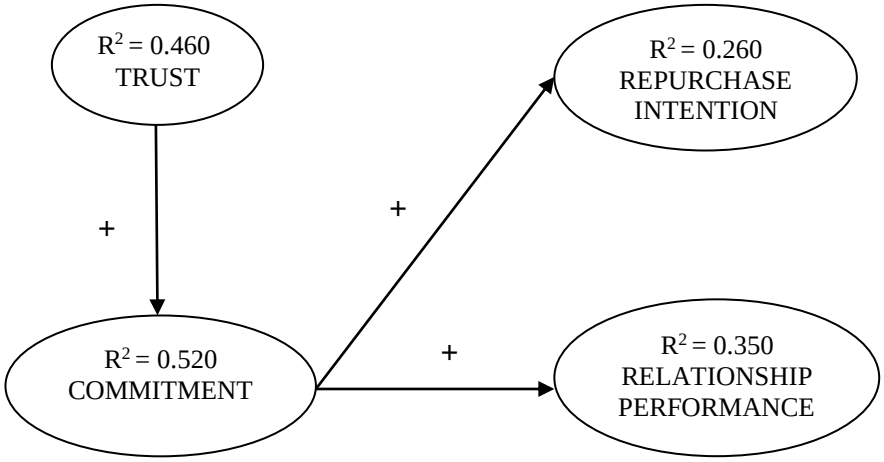
After the assessment in the measurement conceptual framework is carried out and this shows the results that are in accordance with the standard, it is time to continue the process of data analysis in the structural model. In the structural model assessment, Hair, Hult, Ringle & Sarstedt (2006) mention that there are some criterions which must be checked. Hence, current study examines collinearity (VIF), path coefficient (β), coefficient of determination (R^2). The score of collinearity and path coefficients are listed in Table 4.

Table 4. Path coefficient and collinearity for structural model

Hypothesis	Path	Path Coefficient				Collinearity	
		β	T-Value	P- Value	Result	VIF	Result
H1	T→C	0.720	17.040	0.000***	Supported	1.000	No Collinearity
H2	C→RI	0.520	5.540	0.000***	Supported	1.000	No Collinearity
H3	C→RP	0.600	8.560	0.000***	Supported	1.000	No Collinearity

Significant at: *p<0,1; **p<0,05; ***p<0,01

The result shows that coefficient value (β) is range from 0.520 until 0.720 using varied two-tailed test significance levels with p<0.01, p<0.05 and p<0.1. With this, all hypotheses are supported.



Graph 2. Conceptual framework with adjusted R^2

In this model, there are four endogenous variable which are Trust (R^2 = 0.460), Commitment (R^2 = 0.520), Repurchase Intention (R^2 = 0.260), and Relationship Performance (R^2 = 0.350). This means that Trust, Commitment, Repurchase Intention, and Relationship Performance are categorized into the variable with moderate R^2 level (R^2 >0.33). Finally, the result of structural model assessment can be seen in Graph 2. Our result indicates that trust is significantly influenced commitment in the buyer-supplier relationships in International market of Indonesian products. From the results of statistical value, commitment also shows significant results on repurchase intention and relationship performance.

Our result also stated on previous study that trust and commitment are noteworthy drivers of exchange performance (Morgan & Hunt, 1994). It is also stated that buyers will repurchase if there is a high degree of trust and commitment. Saleh, Ali & Julian (2014) said that an importer's commitment perspective in the internationalization process is as essential for the exporter as its is for importer to build a long-term relationship. This is propotional to the result of this study. Other previous study that associated with buyer-seller relationship shows that commitment is essential for exporter and importer to create positive relationship outputs, includes performance (Skarmeas, Katsikeas, & Schlegelmilch, 2002; Lohtia, Daniel, Yamada & Gilliland, 2005; Nevins & Money, 2008; Skarmeas & Robson, 2008; Styles, Patterson, & Ahmed, 2008).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Topics regarding export import in International market has been conducting by many researchers in developing countries, but only a few has been examining the buyer-supplier relationships in Indonesia. Therefore, this research was conducted to fill the gap by analyzing the buyer-supplier relationship in International market, as an evidence of Indonesian products.

The results show that trust and commitment are two essential factors that impact export-import of Indonesian products. After trust and commitment have been formed in this export import process, buyers have the intention to repurchase and they believe that by working with Indonesian suppliers, it creates relationship performance between the two parties.

Recommendations

Respondents are expected to be classified according to the scale of the company, whether the company is in the lower, middle, or upper class because the results might be different. Not only the size but also the relationship age, distribution intensity, supply intensity, and competitive intensity. If the survey is also given to Indonesian suppliers, we could compare the perspective of overseas buyers and Indonesian suppliers, so that the result can be beneficial for both parties who want to collaborate in export-import. It is also expected that further investigation in collecting survey data questionnaire should be in online form rather than in the offline form or the hardcopy in order to anticipate the existence of missing data. Hence, for further research, which would recreate this study in other developing countries, not only is welcome but also is cordially invited. The managerial implications of this study are not restricted only to highly-level firms, namely those who have been cooperating with Indonesian suppliers in ages, but also for firms who have just collaborated with Indonesian suppliers.

This study is not free from limitations, but further research can efficiently address them so that a stronger understanding of International buying decision. It is because if we have more respondents, we will obtain a better result. A second limitation refers to the heterogeneous characteristics of this research respondents which means that respondents come from well-developed countries as well as less-developed countries. Besides, the research respondent's character also comes from various levels such as from the lowest scale companies to the highest scale companies. As published by the interview results, the longer the company cooperates with overseas buyers, the higher the level of the Indonesian companies.

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APPENDIX : Indicators and variables

Variable	Indicator	Label	Questionnaire
Trust	Keep promises to supplier	T1	Indonesian supplier keeps promises it makes to our business
	Believe in supplier	T2	We believe in the information that Indonesian supplier provides us
	Being concerned to business	T3	Indonesian supplier is genuinely concerned that our business
	Consideration of welfare as well Its own	T4	When making important decisions, Indonesian supplier considers our welfare as well as its own
	Keep the best interest in mind	T5	We trust Indonesian supplier keeps our best interest in mind
	Trustworthy	T6	Indonesian supplier is trustworthy
Commitment	Business commitment	C1	The relationship that my business has with Indonesian supplier is something we are very committed to
	Business importance	C2	The relationship that my business has with Indonesian supplier is very important to my business
	Maintaining business indefinitely	C3	The relationship that my business has with Indonesian supplier is something my business intends to maintain indefinitely
	Family business look alike	C4	The relationship that my business has with Indonesian supplier is very much like being family
	Being cared to the business	C5	The relationship that my business has with Indonesian supplier is something my business really cares about

Variable	Indicator	Label	Questionnaire
Repurchase Intention	Future increasing purchase	RI1	Our firm expects to increase its purchases from Indonesian suppliers in the near future
	Future receiving a larger share	RI2	In the near future, Indonesian suppliers will receive a larger share of our business
	Future expansion of suppliers	RI3	Over the next few years, Indonesian suppliers will be used more than it is now
Relationship Performance	Increasing profitability	RP1	Our firm's profitability has increased because of Indonesian suppliers
	Performing better financially	RP2	The relationship with Indonesian suppliers helped us perform better financially
	Cost savings	RP3	There is significant cost savings resulting from doing business with Indonesian suppliers

Comparison of executive compensation practices at Nordic and US markets: a mini-review article based on empirical evidence

Ummeh Habiba Faria Benteh Rahman

Department of International Business, Faculty of Economics and Management, Norwegian University of Science and Technology, Norway

Correspondence author email: rahmanhabiba26@gmail.com

Abstract

This paper examines the compensation package of the CEO of both the Nordic and US markets and their roles in the organization. The paper contains the comparison between the compensation package of Nordic and US CEOs along with the harmony of the determinants. The work pattern and compensation are different in these two markets, certainly. It has been a big influence in the organization or working places to provide the most desired efforts on the particular or assigned responsibilities. This study is based on a systematic review of literatures, empirical evidences and surveys extracted from 23 articles of the previous studies on the compensation packages of CEO of both Nordic and US markets. The paper will be discussing about the chief executive body in the organization, the compensation design along with their compensation package system, discussing about the theories and determinants' differences of their compensation practices and how this package is designed in both the Nordic and US markets. The difference between these two markets will be elaborately discussed and following by the author's own discussion. The paper will end by providing a valid conclusion about the whole study.

Keywords: *Compensation practices, Remuneration package, Pay structure determinants, US pay practices, Nordic pay practices*

JEL classification: M1, M48, M51, M52

INTRODUCTION

Chief Executive Officer or CEO is mostly, the highest ranked position in a company and has more or less a very significant influence on the company's outcomes. CEO is a corporate leader who influences the effectiveness of the organization to the stakeholders. Organizational reputation is affected by this employee vastly (Men, 2012). This important person gets compensated according to the particular company's authorized policy. The compensation package of Nordic CEO has been compared by the compensation package of the US CEO's in this study. US CEOs are paid high rather than the CEOs of Nordic counties. This has been due to the corporate governance and the board committee of the organizations (Conyon & He, 2004).

CEO compensation package is comparatively lower in the Nordic countries than US markets (Randøy & Nielsen, 2002). Though according to Scandinavian companies are moving close enough to Anglo-American companies' pay scale for the CEO certainly, the package system has differences based on the corporate governance and CEO compensation includes both the monetary and non-monetary major components

(Thomsen & Conyon, 2012). In a certain year, CEO of top Nordic company earned 8.9 million SEK on the other hand, CEO of top US company received 58.9 million USD (Randøy & Nielsen, 2002). The evolving share of market based factors or transnational mergers and acquisitions or growth of MNCs or any other provocation of market based factors make the compensation packages different in these two markets (Thomas 2008).

The board has to be fair enough for the payment of the Nordic CEOs as their responsibilities matter a lot in the companies. On the other hand, US CEOs "monopoly game" of their pay system has to be diminished or must be equivalent to EU or Nordic CEOs.

The purpose of this study is to provide a systematic empirical evidences of the difference between US and Nordic CEO Compensation practices. From the previous studies, author has collected the determinants which gives clear picture of the payment practices for the executive bodies in both US and in Nordic markets. This paper further aims to provide a comprehensive understanding of determinants differences in the applicability of preparing the payment design of both of these market's chief bodies. Specifically, this paper will focus on two major questions, and these are: (1) Does USA focus paying to CEO by not focusing on the performance? and (2) Do Nordic CEOs need more monetary motivation in the organization? The following section describes the main concepts compensation practices and design. The study also provides pay practices for both US and Nordic markets. At the end of this study, discussions by the author has put a clear picture of the differences between two markets.

METHODOLOGY

A systematic review has been done according to the guidelines suggested by (Tranfield, Denyer, Smart, 2003) as: a) building scope of the study, b) identification of research, c) discussion of the literatures, d) study quality assessment, e) data monitoring.

This paper has been stated by designing keywords and by processing following the questions of interest. The inclusion and exclusion criteria have been decided. The discussions of the literature were done from the studies which have been published online. All the topics were collected from different scholars' write up, but unfortunately, many publications were not up to the standard level and very generic. To retrieve the relevant articles, the author has used keywords, i.e. "compensation management", "Pay practices in USA", "Compensation design", "CEO gets low paid", etc.

The number of articles was then narrowed down. Articles or journals were based on the differences of CEO compensation package between USA and Nordic countries. Out of 35 articles, author have chosen 23 most relevant to the research area. The author has selected these articles because these have clarified the determinants which decide the pay system in USA and Nordic countries and the usage of models of corporate governance.

Though recent articles or journals were not sufficiently available on the sources, there was no limit of the year of publications as the previous studies have the importance as well though there are many new ideas added up with the new or recent papers. Taking into consideration both most recent and most significant literature gives the opportunity to deliver more accurate analysis.

MAIN CONCEPTS COMPENSATION PRACTICES AND DESIGN

What is compensation practices?

Compensation practice is the existence of a system which provides adequate and fair remuneration to employees in exchange for the work they have performed (Baker,

Jensen, Murphy, 1988). There are various ranks in the organization allocated with various descriptions of work or job and according to those, package of compensation is designed. Each organization has their own policy to build that practice (Talley & Johnsen, 2004). Managerial pay which depends on the performance, minimizes the moral hazard. According to the economics models, the higher the performance, the greater the effort or in other words, employee providing great efforts to produce bigger performances (Baker, Jensen, Murphy, 1988).

Generally, as the work of a CEO is the top most so, his or her payment for the exchange of work is also the highest but executive compensation is controversial in the debate field of the corporate governance (Talley & Johnsen 2004). After the analyses of some significant literatures, it has been stated robustly that the relation between position and performance is weaker and the actual compensation practice is not therefore, matches with the expected one (Talley & Johnsen, 2004). A significant negative relationship had been discovered between the performance and the practice of compensation of CEOs in the organizations (Randøy & Nielsen, 2002).

Overall, over the past thirty years, international compensation practice can be classified into two classifications: practice of American CEO Compensation has been highly controversial because of the vigorous increment and the other classification goes for the Nordic CEO Compensation practice which did not increase proportionately by the passage of time (Thomas, 2008).

Remuneration package design

From recent years, compensation design effected the efforts of the employees in the organization This design offer opportunities to the changes of organization's strategy (Mahoney 1989). The design of the compensation package includes the base salary, stock ownership and bonus payments. The design is set by the committee or the board members in the company as it was mentioned before. From the research empirical evidences, it has been said that compensation plans indicate or talk about the explicit financial rewards in the form of things i.e. performance-based bonuses or worker's compensation (Baker, Jensen, Murphy, 1988).

The author will be discussing the examples of compensation design below:

Base salary: Base salary is the basic amount of money which a CEO gets in exchange of his or her work and it is generally fixed. The fixed amount of this is based on the size and profit of the company. Additionally CEO might get something very huge or any terrific reward but the basic salary will be always there until he or she gets fired! It is always there. For example if a CEO's total salary is 500,000 Euro or USD then 350,000 Euro or USD will be the basic salary (hypothetical).

Bonus: is the additional amount of money which a CEO gets with the basic salary. It is a monetary reward in exchange of better performance i.e. meeting desired targets or KPI. On the other hand it can be for profit or revenue growth, increase in share price and so on. For example: Let us drag the amount from the above example so, from there, 50,000 Euro or USD will be the bonus amount which makes the total salary (350,000+50,000) Euro or USD= 400,000 Euro or USD.

Stock ownership: Stock options are provided to link the interest of executive's and shareholders. It is offered to the CEO so that the person takes the organisation as his or her own and performs better. The return from the share is added to the overall salary. It makes the salary healthier and allows the CEO to buy shares of the company. For example: more 50,000 Euro or USD added to 400,000 Euro or USD which makes the salary now 450,000 Euro or USD

Stock options: this is the option which gives the CEO of a particular company to buy the shares of the company. It gives the executive to obtain more income added to the basic salary. For example: return on investment will be more 50,000 Euro or USD will make the total amount of the CEO's salary which is 500,000 Euro or USD.

DIFFERENCES OF PAY STRUCTURE DETERMINANTS BETWEEN US AND NORDIC CEO COMPENSATION

The following topic will be discussing about the compensation practices followed by the differences. The result of the evidences suggest that the compensation determinant in US country is based on the firm's structure, size, performance and ownership (Magnan, St-Onge, Thorne, 1995). Market forces mainly decide the executive compensation in USA (Kaplan 2008). In U.S CEO compensation is strongly based on some model for example, according to (Bebchuk & Fried 2005), US public companies has moved aimlessly from the model of economics which is named as "arm's length contracting". It happened between the board and executives in labor market which is competitive. The three-tier agency model in the U.S where the presence of significant shareholders make the decision of lower CEO payment and on the other hand with higher CEO equity incentives (Conyon & He 2004).

Firms which have the higher paid compensation committee, there the members are connected with greater CEO compensation and on the other hand, lower incentives (Conyon & He. 2004). The evidence supports that the board of the committee will be benefitted from the outsider directors more for setting the CEO's yearly compensation service (Mangel & Singh 1993). CEO compensation in Anglo-American financial market effect the product and service internationalization of the firm (Oxelheim & Randøy, 2005).

If we look at the Nordic countries then we can see that welfare state model or the Nordic model policies are chosen for the payment of wages/salaries to the CEOs (Gupta, Smith, Verner, 2008). From 5-year pay panel in Denmark, which is one of the Nordic countries, according to the job positions i.e. performance related pay and authority, payment should be determined and not based on the individual pay differentials (Eriksson, 2000). From public listed firms in Sweden, it is shown that despite of the fixed nature, firm's performance and CEO compensation has a positive relation (Oxelheim & Clarkson, 2015). The relative success of managerial power theory versus agency theory explains CEO compensation having close ties with the chairman compensation in Swedish public listed firms (Oxelheim & Clarkson, 2015).

In Nordic companies, even in privately held firms, the relationship between payment and performance is week than the Anglo-American companies. It is been studied by (Banghøj, Gabrielsen, Petersen & Plenbor, 2010) that a strong payment according to the performance is absent even in firms where bonus plans are better designed. In the following section, US and Nordic pay practices will be discussed which have been derived from the determinants.

US pay practices

Indeed, US CEOs are paid more compared to similar firms situated elsewhere in the world. Much reform is needed in the US executive compensation practices as these are falling in a widespread manner (Core, Guay, Thompson, 2005). USA It is undisputable that US CEOs are paid compared to any other foreign countries and there are four primary components which build up the compensation package and these are: base salary, annual bonus, stock options and long term incentive pay (Thomas, 2008). Critics of corporate governance have stated that US CEOs are neither paid according to

their performance nor boards monitor actively the compensation design of them in the publicly owned firms (Kaplan, 2008).

Much of the payments of US CEO comes in the form of variable payments. There is a positive relationship between pay and firm size in the US market. CEO turnover and stock performances is closely tied with each other since 1970's (Kaplan 2008). Compensation is higher when foreign sales are higher, and when the foreign firms are cross-listed on U.S. exchanges (Fernandes, Ferreira, Matos & Murphy, 2009). In the year 1997, 1600 publicly traded American corporations were being surveyed and it was found that 63 percent of CEO income comes from the variable pay i.e. high performance (Thomas, 2008). Over 1990's stock options in USA rose 300 percent that means from 5 percent to 15 percent. However, in the year 2007, "performance-based plans" overtook the stock options in the form of long term incentive plan. US monopoly regarding CEO compensation has the cause and effect in international rules.

A huge amount of stock is held by the individual investors in the US public corporations; therefore, highly diversified portfolio stocks are maintained (Balkin 2008). US CEOs earn 45% more cash compensation and 190% more total compensation, this calculation is after considering the size, sector and executive characteristics of other firms. They also receive 1.48% from any kind of increase in any shareholder's wealth (Conyon & Murphy, 2000). The managerial influence led the increment in US payments of executive compensation by ignoring the performance in the firms (Bebchuk & Fried, 2005).

Finally, according to the critics, it has been said that the executive's payment is high as there is no real markets of executives. Therefore, they set their pay level. We can conclude by saying that this is the ownership structure of the firms which allows the US CEOs get well paid than other nationalities' CEOs.

Nordic pay practices

According to the data, the living cost in Nordic countries are higher than US but still Nordic CEOs are paid little than US CEOs. The most commonly argued about the payment of Nordic CEOs are that their jobs are more demanding which pay them well rather they their position in the company (Oxelheim & Randøy, 2010). According to the agency theory, linkage between the firm's performance and CEO payment should give mechanism of company success. As CEOs are hired from outside in Norway and Sweden, they have more bargaining power about their salary (Randøy & Nielsen, 2002). Scandinavian CEOs are paid very low as the foreign owners are mostly from US or UK. Previously it was said in the paper that it is the ownership structure who decides the pay scale of the CEOs.

The ingredients of the CEO payment has been divided into cash, bonus, and long term incentives which goes higher if the company size increases. Pay structure of the Nordic corporations are heavily skewed towards salary rather than variable payment. The long term plans or incentives is 8.4 percent of total pay only (Thomas 2008). Chairman compensation is set after the CEO compensation in Nordic countries so, it has been stated in the empirical evidence that chairman may be inclined to conspire with the CEO in earnings management efforts. This is the expense of monitoring on behalf of investors (Oxelheim & Clarkson, 2015).

Due to the family controlled ownership, the remuneration is relatively low. Risk metrics study of 2008 has declared that the Nordic CEOs salaries are measured as "industrial workers' salaries" (Gupta, Smith, Verner, 2008). A lower level of CEO compensation makes the shareholders benefitted as it provides higher rate of return to

them. (Randøy & Nielsen, 2002), stated that the business has been apparently expended in Nordic countries, despite the CEO compensation is lower in this territory.

DISCUSSION

According to the articles, the author has referred to, Scandinavia is ruled by the Social Democrat because the he political structure of these countries are supported or guided by the social democracy. These economic and social interventions actually promote or have been promoting the social justice. As we know, the mixed economy basically follows or end to follow capitalistic behaviors therefore, these intervention of Scandic countries provide justice in the framework of liberal democratic policy. Therefore, the payment system here are mostly based on the equity or on the quality of the performances.

Moreover, USA is a pure Capitalistic country as it plays the main difference. The political structure in this country leads to the private ownership mostly. Therefore, the payment system intends to grab attention on profits rather on the quality of performances. Not necessary, it has to be always on the monetary way of payment but also the total price or payment system including stock ownership (mentioned above). US firms should reduce the amount of variable payments to its CEOs i.e. stock plans as it makes them "too rich" (Thomsen & Conyon, 2012) and it will provoke them to work for self-interest.

However, recently, a potential trend has been observed the merging possibilities or probabilities of the two payment systems. Author's first question, "Does USA focus paying to CEO by not focusing on the performance?" is discussed: Executive compensation is aligned with agency theory and to attract competence but there are pros and cons as well in the stock options and stock options is included in the compensation package. Pros are positive certainly but cons make the performance ratio to fall as the CEO's become more money oriented rather than focusing on the purpose of their power in the workplace.

Executive pay is higher in US than in Europe. CEO drives the magnitude in the firm by holding back the stock (Bebchuk & Fried, 2003). The problem occurs with the power position of the CEO so, the compensation committee wants it to be transparent always, improvement in pay practices and improvements in boar accountability (Bebchuk & Fried, 2005). Actually, the package is set or determined by the members of the board of the company but many also think that CEO can lobby over boards and have high payments (Bebchuk & Fried, 2003). Referencing in the payment system sometimes hinder the ways of recognizing or identifying the proper candidates for the proper roles in the office (especially in the executive levels) which makes a loss in the work hierarchy and harmony of the accountancy/transparency.

Author's second question, "Do Nordic CEOs need more monetary motivation in the organization?" is discussed: though, compensation package is very important for the effective role play in the organization, the divergence between the package of US and Nordic will be even wider at least according to some researchers (Thomas, 2008). However, a market failure may take place if the CEO starts acting opportunistic (Balkin, 2008). Opportunistic behavior can be hidden or ineffective in the short run but in the long run, it may also be the reason of "downsizing", "cost-cutting" and "Golden handshake"

Nordic CEOs have more responsibilities (as it is the highest rank) so, they need more motivation in a monetary way. If the monetary motivation is always being deprived then turnover costs may be way too high in the Nordic markets than expected. On the other hand, brand reputation of the companies in the way of payment scale may have bad tags too. Their variable pays should be increased as well. The author also encourages the

Nordic market system to organize stock options for the CEOs just like US market. It will increase the security of their jobs and executives will have more bright retirement plans. However, these options must have a valid limitations and well-structured accordingly. This must be declared the board otherwise the opportunistic behaviors can be cultivated deep inside of their minds too as stock options will be making them more rich than they have expected before.

CONCLUSION

The author wants to conclude by saying that though companies form the similar industry located in different continents have the vast differences in setting the compensation package of the highest ranked person i.e. executives. The top most people of the companies are very precious and they must be prioritized according to their ability and companies' affordability. Employees must be treated as "assets" of the company which will help to provide a matured and desired pay level according to their working responsibilities.

If the companies real assets which are human resources are being taken as granted then certainly these people will be utilizing companies' internet to be shifted on new place! (Looking for other jobs by sitting in the office). The harshest truth is that "payment scale" or the structure of the monetary benefits are the most real cause to hold or attract any type of employees in a company.

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Competitiveness of Indonesian banking industry based on commercial bank business group: Panzar Rosse Model

Fajra Octrina[1]; Rike Setiawati[2*]

[1)] Business Administration, Polytechnic LP3I Bandung, Indonesia
[2)] Faculty of Economics and Business, Universitas Jambi, Indonesia

**To whom correspondence should be addressed. Email:rike_setiawati@unja.ac.id*

Abstract
The present research was aimed to investigating the competitiveness in Indonesian banking sector during the period of 2005 to 2016, to set the limit of the scope of the study a total sample is 84 banks. This research was conducted by grouping banks based on ownership and based on BUKU (General Bank based on Business Activities). The study also aimed to analyze the banking competitiveness based on classification of banks and groups of capital ownership. The study was conducted by evaluating the value of H-statistic for the research model comprising of three input variables, namely funds, labors and capital. The results of the research show that the market of banking industry in Indonesia is classified as monopolistic competition. The limitation of this study is that this study only looks at the competition variable, and has not seen its relationship with other variables. In subsequent studies, it is expected to conduct research related to competition and relate it to other variables, such as market share or level of market concentration.

Keywords: *Banking industry, Competition, Panzar Rosse*

JEL Classifications: G21, M21

INTRODUCTION

As a country which has the largest number of banks, based on ownership, Indonesia classifies its banking structure into several groups, consisting of government banks, national private foreign exchange banks, national private non-foreign exchange banks, regional banks (BPD), joint venture banks, and representative offices of foreign banks (Figure 1).

Banks in Indonesia are currently encountering intense competition, given the fact that there is quite large number of banks in Indonesia. In addition, there is also an increase in growth of the bank's business due to the government policies related to banking minimum capital requirement which then led to bank classification into 4 groups of BUKU (General Bank based on Business Activities). The development of banks based on the group of BUKU within the last 3 years (2014 – 2016) can be observed in the Figure 2.

As seen in the Figure 2, the increase in the number of banks since the regulation was enacted in 2014 has undergone a series of changes. Yet, until 2016, the banks within group of BUKU 4 were dominated by the four largest banks in Indonesia (Bank Mandiri, Bank Negara Republik Indonesia, Bank Rakyat Indonesia and Bank Central Asia). On the other hand, the number of banks continued to decrease with a series of mergers and acquisitions in order to realize the minimum capital requirement. As such, it caused high

concentrated market of the banking industry which led to poor competition of the business. Concentration is ownership of a large number of resources by a certain group of industry players. In fact, an industry will have good and sound business competition provided that the market is not concentrated, or in other words, the industry is not only dominated by large companies.

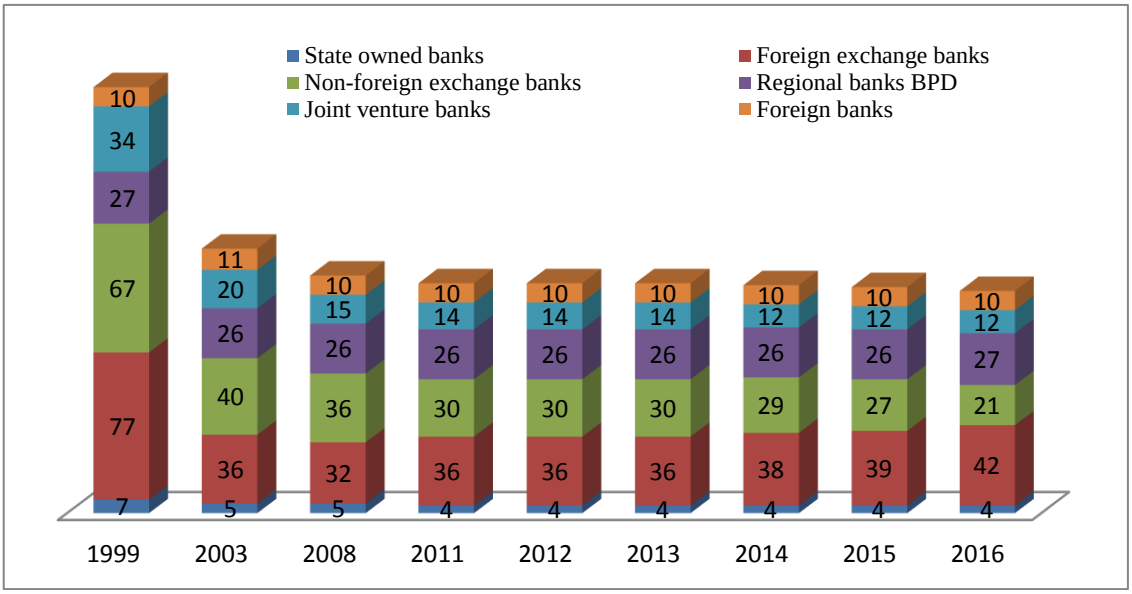

Figure 1. The number of banks according to ownership classification
Sources: Bank of Indonesia, The Financial Services Authority, 2016 (processed)

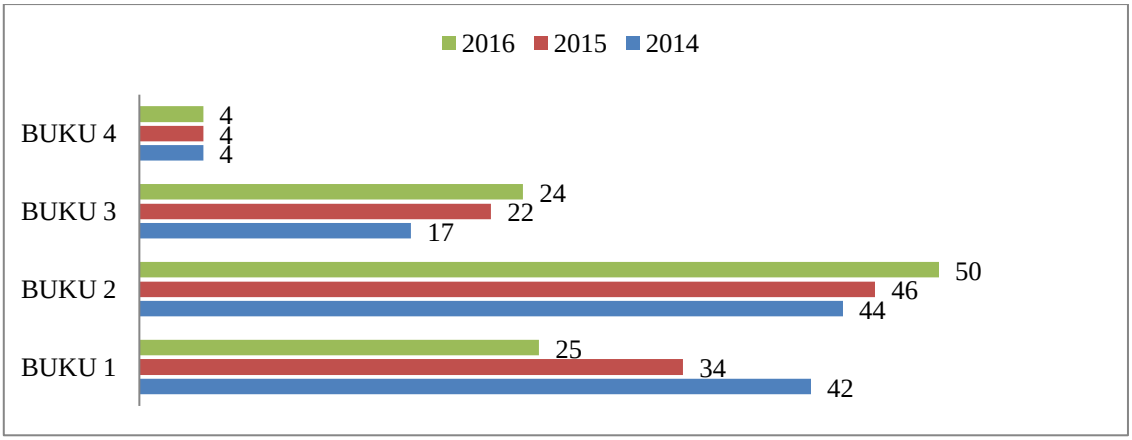

Figure 2. Number of banks based on core capital (BUKU group)
Sources: Bank of Indonesia, The Financial Services Authority, 2016 (processed)

Several previous studies conducted by Athoillah (2010), Mulyaningsih & Daly (2011) proved that Indonesian banking industry was in a state of monopolistic. In addition, Widyastuti & Armanto (2013) also mentioned that the Indonesian banking market was classified into a monopolistic market during the consolidation period.

There are several important grounds why this study is necessarily conducted. First, competition is an important aspect in the industry which enables the products being generated can have an impact. Second, the practice of market structures which becomes increasingly concentrated in business activities results in more intense concentration of industry which tends to reduce competition between companies. It can eventually bring about less efficient behavior.

In order to be able to observe the extent to which the banking competitiveness exists, the method of Panzar Rosse model is proposed. Bikker & Haaf (2002) stated that the Panzar Rosse model is able to prove that monopoly can increase input prices in order that they can increase marginal costs, while they can reduce output and income; thus, the resulting value will be zero or negative. Broadly defined, Panzar Rosse model is a non-structural approach which assesses the level of competition based on the cost structure assuming that the bank operates in a long-term market equilibrium state. In addition, the Panzar Rosse model is also considered being capable of overview on the market structure more broadly by using simple calculations using simple regression model (Shaffer, 2004).

Panzar Rosse model employs the H-statistical concept which will generate quantitative assessments on market competition. The H-stat value is obtained from the sum of the elasticity of the input price by using the revenue value to determine the market structure. The basic concept of this method is that the changes in input prices can affect other changes in income. Initially, a research which employed Panzar Rosse method was first conducted by Shaffer (1982) and Molyneux, Thornton & Lloyd-Williams (1996), both of whom showed the research results that the market indicated monopolistic competition. Furthermore, Anzoategui, Pería, & Melecky (2012) proved that the level of competition in the banking industry is one of the most important factors in depicting how bank products can create a major impact on banking sector. In addition, the role of the government, such as their intervention in establishing other policies, also drives a major influence in the banking industry.

The novelty in this study is the Panzar Rosse test conducted on all banks in the industry, besides that it is also conducted tests on banks based on the group of each bank, this has never been done together before. The hypothesis of this study is how the competitive conditions in the Indonesian banking industry, whether in a state monopoly, monopolistic competition or perfect competition, and whether there is a difference if the Panzar Rosse test is based on a bank group.

LITERATURE REVIEW

Firstly developed by Panzar and Rose in 1987, the Panzar Rosse model is a non-structural model which identifies the level of competition in the printing industry. In both of their researches (Panzar & Rosse, 1987; Rosse & Panzar, 1977) they formulated a simple model for measuring oligopoly markets, perfect competition and monopoly, and also developed a test to distinguish between these models. The method of Panzar Rosse (PR) reduces the form of equation and acceptance through utilizing company's income and price data. The evaluation is performed based on the nature of the reduction in the form of income equations in banks using the H statistical test as a measure of the level of competition in the banking (Vesalla, 1995). The value of H can empirically distinguish prices in imperfect competition, ranging from monopoly, monopolistic competition to perfect competition (Bikker & Haaf, 2002). In addition, according to Spierdijk & Shaffer (2015), Panzar Rosse is a measure commonly used in assessing the strength of banking market. Shaffer (2004) in his research stated that the Panzar Rosse model uses data from company-level with H test statistics to capture the level of competition in banking.

In the study conducted by Kashi, Beynabadi & Mosavi. (2015), they show that level of concentration declined when structural changes occured in banking. The results of the Panzar Rosse test showed that the Wald Test rejects the hypothesis assuming that the market is monopolistic or perfect competition. Therefore, it infers that total income of bank is earned in monopolistic market state. In contrast to them, Yuan (2006) in his research claimed that banking in China is close to the market of perfect competition with a very competitive market.

To measure the competitiveness of a market in an industry, it requires a method which was initially introduced by Panzar & Rosse (1987) which is in a form of equality of income and prices. Vesalla (1995) provided the H sign for the sum of income and prices, in which, if H-stat obtained is less or equal to zero, the market tends to be either monopoly or oligopoly. On the other hand, if the value of H is equal to unity, it means that the market experiences perfect competition.

Table 1. Discriminatory power of H

H value	Competitive environment
$H \leq 0$	Monopoly state: each bank operates independently, maximizes profits (H is a derivative function of demand elasticity)
$0 < H < 1$	Monopolistic competition with free entry conditions. Each of competing companies has unequal market power
$H = 1$	Perfect competition, free to enter the state with efficient capacity utilities

Source: Bikker & Raaf (2002)

In a perfectly competitive market, an increase in input prices will lead to an increase in average cost, or in the long run, the price set will be equal to the average cost it incurs. In other words, it will increase the output price to maintain profitability. When companies quit from the competition, it will cause an increase in demand, which will eventually lead to increase in prices and revenues equal to the costs increment (Bikker & Haaf, 2002). Meanwhile, in monopolistic competition or collusive oligopoly, increased marginal costs occur when input costs increase; thus resulting in decreased income.

Bikker & Haaf (2002) in their research revealed that H values can empirically provide a difference within the process of price formation in the theory of imperfect competition. Panzar Rosse's empirical model assumes that banks have income and cost functions in the form of linear log.

$$Ln(MC) = a0 + a1\ln(out) + \sum_{i=1}^{m} \beta i \ln(FIPi) + \sum_{j=1}^{p} \gamma i \ln(EXcost, i) \quad \text{..... (1)}$$

$$Ln(MR) = \delta 0 + \delta 1\ln(out) + \sum_{k=1}^{q} \varphi i \ln(EX\,revenue, i) \quad \text{..... (2)}$$

Where OUT represents output, n denotes the number of banks, FIP is the input price and $EXI_{Revenue}$ and EXI_{Cost} represent variables that affect the receipt and function of bank costs, respectively. The empirical application approach of Panzar and Rosse assumes the log-linear function marginal cost for banks i.

In addition, PR also models profit maximization which will be generated at a level where the marginal cost is equal to marginal revenue, resulting in equilibrium values for output:

$$Ln\ (OUT) = \frac{\left(a_0 - \delta_0 + \sum_{i=1}^{m} \beta i \ln(FIPi) + \sum_{j=1}^{p} \gamma i \ln(EXi,cost) - \sum_{k=1}^{q} \varphi i \ln(EXi,revenue)\right)}{\delta 1 - \alpha 1} \quad \text{..... (3)}$$

The equation model of revenue earned as follows (Bikker & Haaf, 2002):

$$Ln\ (TIRit) = \alpha_i + (\beta Ln(AFR_{it}) + \gamma Ln(PCE_{it})) + \sigma Ln(OI_{it}) + \sum_{j} \left(BSF_{jit}\right) + e_{it} \quad \text{..... (4)}$$

According to Yeyati & Micco (2007), TIR is the ratio of interest income to the total balance sheet, while AFR is the price of funding; HALE is labor costs (wage rate); PCE is the price of capital expenditure; OI is the ratio of other income to the total balance sheet, and BSF is exogenous specific factors of a bank, such as the risk component, the difference in deposit mix and the size of the bank's real assets.

H is the value of elasticity in the equation of income which is described by price.

$$H = \sum_j \frac{\vartheta Ri}{\vartheta FIPj,i} \frac{\vartheta FIPj,i}{\vartheta Ri} \quad \text{..... (5)}$$

$$H = \beta + \gamma + \vartheta \quad \text{..... (6)}$$

The value of H can be calculated using β as the funding elasticity against the changes in funding costs, γ as income elasticity to the changes in human resources, and ϑ is defined as income elasticity to changes in capital prices.

Bikker & Haaf (2000) conducted a study using Panzar Rosse model carried out in 23 countries for 10 years, the results of which revealed that the banking market was characterized by monopolistic competition. Banks competition became stronger for large banks (operating in the international market) while increasingly weak for small banks which operated locally. In the researches carried out in several countries, it was obvious that the competition in the European market was more intense in comparison with other counterpart. In addition, in another study, Bikker & Haaf (2002) stated that the Panzar Rosse model can prove that monopolies can increase input prices in order that they can increase marginal costs, while output and income are reduced to gain H value to be zero or negative.

There are several assumptions to be taken into account when using the Panzar Rosse method. According to Gelos & Roldos (2002), one must regard the banks as the industries which can maximize profits with their own revenue through cost functions and that the market is in a long-run equilibrium condition. De Bandt & Davis (2000) proposed that a bank is a company which creates a single product that acts as a financial intermediary, and that high input prices are not related to the quality of services; thus, they can generate high income.

RESEARCH METHOD

To measure the level of competition in the banking market, the study performed a test based on the form of an equation of a structural model. A form of linear log of the Panzar Rosse model of revenue and cost functions is formulated as follows (Claessens & Laeven, 2003):

$$\ln(P_{it}) = \alpha_0 + \beta\ln(W1_{it}) + \gamma\ln(W2_{it}) + \delta\ln(W3_{it}) + \lambda_1\ln(Y1_{it}) + \lambda_2\ln(Y2_{it}) + \lambda_3\ln(Y3_{it}) + \varepsilon_{it} \text{ .....(7)}$$

Where, subscript i represents a bank, while t denotes a year, P_{it} is ratio of interest income/ total assets. For the proxy of prices, the following variables apply:

$W1_{it}$: Ratio of interest expense/total savings;

$W2_{it}$: Ratio of personnel expense/total assets

$W3_{it}$: Ratio of operational and administrative expense/total assets.

The model (7) also includes several variables to control each bank. The controller variables are:

$Y1_{it}$: Ratio of capital/total assets;

$Y2_{it}$: Ratio of credit/total assets;

$Y3_{it}$: Total asset value.

From the model (7), the H-stat value is obtained and used to determine the structure of the Indonesian banking market. One of the assumptions the Panzar Rosse method applies is that market conditions are equilibrium. In such a model, E-stat is considered equilibrium by conducting F test. If the F test is rejected, in the long term, the market will stay in a disequilibrium state. The equilibrium model is derived from the main model of PR by modification to:

$$\ln(ROA_{it}) = \alpha_0 + \beta\ln(W1_{it}) + \gamma\ln(W2_{it}) + \delta\ln(W3_{it}) + \lambda_1\ln(Y1_{it}) + \lambda_2\ln(Y2_{it}) + \lambda_3\ln(Y3_{it}) + \varepsilon_{it} \text{ ..... (8)}$$

Table 2. Operational variables

Variable	Indikator	Measurement
Competition	*Interest Revenue*	Ratio of interest income/total assets
	Input Prices	$W1_{it}$: Ratio of interest expense/total savings; $W2_{it}$: Ratio of personnel expense/total assets; $W3_{it}$: Ratio of operational and administrative expense/total assets.
	Variabel Control	$Y1_{it}$: Ratio of capital/total assets; $Y2_{it}$: Ratio of credit/total assets; $Y3_{it}$: Total asset value.

The present research was conducted from 2006 to 2016, during which, the number of commercial banks in Indonesia up to 2016 was 116 entities. However, to set the limit of the scope of the study, the purposive sampling technique was used in order to obtain a total sample of 84 banks.

RESULTS AND DISCUSSION

In conducting the test of Panzar Rosse model, an equilibrium test is firstly performed by replacing the dependent variable with the ROA one using the F test. Based on the equilibrium test results on the E-stat model, it revealed that the hypothesis E = 0 is accepted, or in other words it can be concluded that in the long-term conditions, the market of banking industry is in equilibrium state.

The H-stat value is obtained by combining the $\beta + \gamma + \vartheta$ coefficient based on the input variables of funds, labor and capital which will be used to generate income, while the others are controlling variables. Based on results of data processing, the value of H-stat is presented in Table 3 and 4.

Table 3. Panel data regression analysis of model PR (Dependent variable: LN(P))

Independent variable	All banks	State owned banks	Foreign exchange banks	Non-foreign exchange banks	Regional banks BPD	Joint venture banks	Foreign banks
C	0.4544 (0.0309)	-3.5255 (0.0720)	0.8835 (0.0336)	-1.1440 (0.0124)	0.7944 (0.0460)	3.2943 (0.0016)	-10.9941 (0.0000)
LN(W1)	0.2090 (0.0000)	0.4912 (0.0000)	0.2943 (0.0000)	0.1730 (0.0000)	0.0846 (0.0000)	0.2702 (0.0001)	-0.1229 (0.0391)
LN(W2)	0.2334 (0.0000)	0.3619 (0.0000)	0.0086 (0.8748)	0.1311 (0.0043)	0.1241 (0.0001)	0.2206 (0.0041)	1.0108 (0.0000)
LN(W3)	0.1445 (0.0000)	-0.1122 (0.2524)	0.1871 (0.0002)	0.0603 (0.1700)	0.0649 (0.0173)	0.3417 (0.0000)	-0.2716 (0.0024)
LN(Y1)	0.0394 (0.0006)	-0.2724 (0.0095)	-0.0307 (0.3559)	-0.1402 (0.0000)	0.1335 (0.0001)	-0.4033 (0.0000)	-0.0407 (0.1272)
LN(Y2)	0.3143 (0.0000)	0.3865 (0.0001)	0.2257 (0.0000)	0.2364 (0.0000)	0.3551 (0.0000)	0.2541 (0.0013)	-0.1754 (0.0374)
LN(Y3)	-0.1969 (0.0150)	0.9522 (0.1236)	-0.6052 (0.0000)	-0.0217 (0.9099)	-0.5651 (0.0010)	-1.1890 (0.0031)	3.8399 (0.0000)
R-squared	0.6122	0.8295	0.5071	0.434	0.7366	0.7108	0.7041
Adj R-squared	0.6099	0.8039	0.4853	0.4185	0.7312	0.6913	0.673
F-statistic	259.4561	32.424	23.3185	28.1097	134.7239	36.4624	22.6062
Prob(F-statistic)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
H-stat	0.5869	0.7408	0.49	0.3644	0.2735	0.8325	0.6163
Market structure	Monopolistic	Monopolistic	Monopolistic	Monopolistic	Monopolistic	Monopolistic	Monopolistic

Notes: Probability in parentheses

Table 4. Panel data regression analysis of model PR (by group of BUKU, Dependent Variable: LN(P))

Independent variable	BUKU 1	BUKU 2	BUKU 3	BUKU 4
C	-2,8297	-2,5678	-4,2223	-12,9935
	(0,0000)	(0,0455)	(0,0083)	(0,0037)
LN(W1)	0,1582	0,2487	0,2631	0,1446
	(0,0000)	(0,0000)	(0,0000)	(0,3110)
LN(W2)	0,1630	0,2485	0,2086	0,6094
	(0,0000)	(0,0000)	(0,0000)	(0,0000)
LN(W3)	0,0917	0,1922	0,1985	-0,0091
	(0,0030)	(0,0000)	(0,0000)	(0,9506)
LN(Y1)	0,0743	0,0653	0,1181	-0,2580
	(0,0000)	(0,0016)	(0,0054)	(0,1375)
LN(Y2)	0,3803	0,3529	0,3468	0,2906
	(0,0000)	(0,0000)	(0,0008)	(0,3327)
LN(Y3)	0,8543	1,0261	1,5504	4,3166
	(0,0000)	(0,0216)	(0,0041)	(0,0018)
R-squared	0,6095	0,6075	0,7244	0,8296
Adj R-squared	0,6045	0,5990	0,7120	0,7695
F-statistic	120,4595	71,4578	58,2598	13,7951
Prob(F-statistic)	0,0000	0,0000	0,0000	0,0000
H-stat	0,4128	0,6894	0,6701	0,7449
Market structure	Monopolistic	Monopolistic	Monopolistic	Monopolistic

Notes: Probability in parentheses

The results of measurement indicate the effect of each independent variable on the dependent variable (Tables 3 and 4). Each variable shows a significant effect with a probability less than 0.05 (5%). Based on the probability test on the overall bank, it shows that all significant variables affect income, while for the state-owned banks and non-foreign exchange banks; there are 2 variables which has a value of probability more than 10%. It can be seen in the variables ln (w3) and ln (y3), which are the ratio of operating expenses to total assets and total asset ratio. In foreign exchange banks, there are 2 insignificant variables as seen in the variables ln(w2) and ln(y1), namely the personnel expense variable on total assets and the credit expense on total assets. At last, for foreign banks, there is an insignificant variable ln (y1).

Meanwhile, when viewed based on the BUKU of banks classification, there are only 2 significant variables for their dependent variables ln (w2) and ln (y3). Based on the Table 4, it shows that although there are insignificant variables, if tested simultaneously, the research variables still have a significant influence. It can be seen based on the R-squared and Adj R-square values which are more than 50% except for non-foreign exchange banks, which is slightly below 0.5. In addition, based on banks classification by core capital, the banks of BUKU 4 group are more likely to be more competitive given that they are only dominated by the 4 largest banks in Indonesia. As such, the competition will be increasingly intense among these banks. However, the results of the research is not in line with those conducted by Yeyati & Micco (2007) in

which they found that the banking market of large group is in the form of a monopoly yet it is the least competitive.

In addition, Figure 3 shows the H-stat results for all banking sectors and all BUKU categories in a state of monopolistic competition market. For BPD (regional banks) banks, the H-stat value tends to approach H = 0 (0.2735) which indicates that the market tends to be monopoly (short oligopoly). Meanwhile, the H-stat values of joint venture banks category tends to approach H = 1 (0.8325) which means that the banks classified into the group nearly approach the perfect competition market.

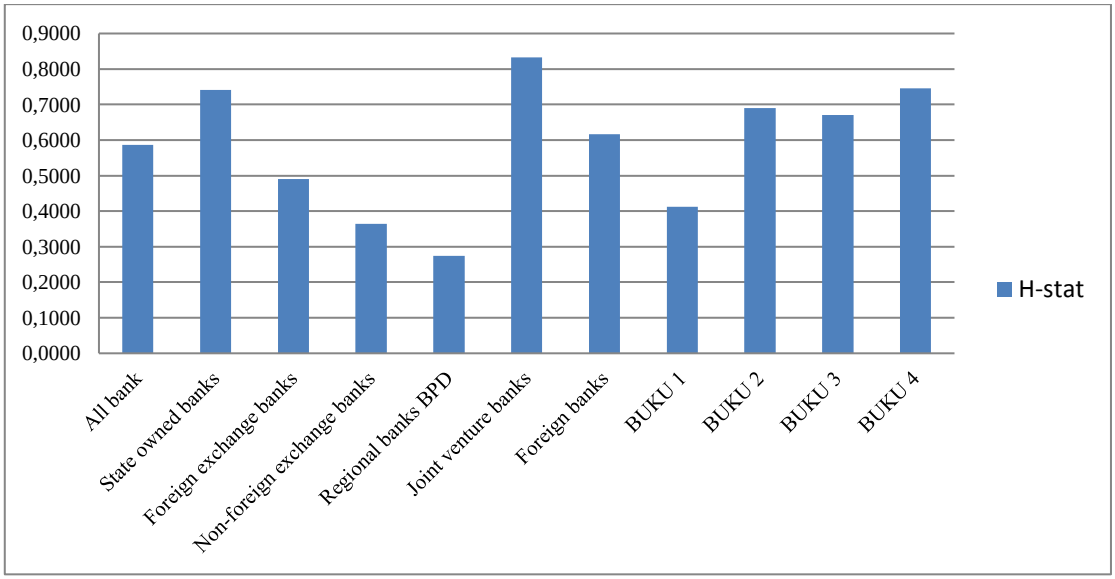

Figure 3. Analysis results of Panzar Rosse H-stat by banks classification
Sources: Regression analysis, 2018 (processed)

The results of H-stat are an assumption that an increase in costs of inputs may occur as a result of increased banking output, which indicates that there is a linear correlation between input and banking income. When prices of input increase, banking revenues will increase.

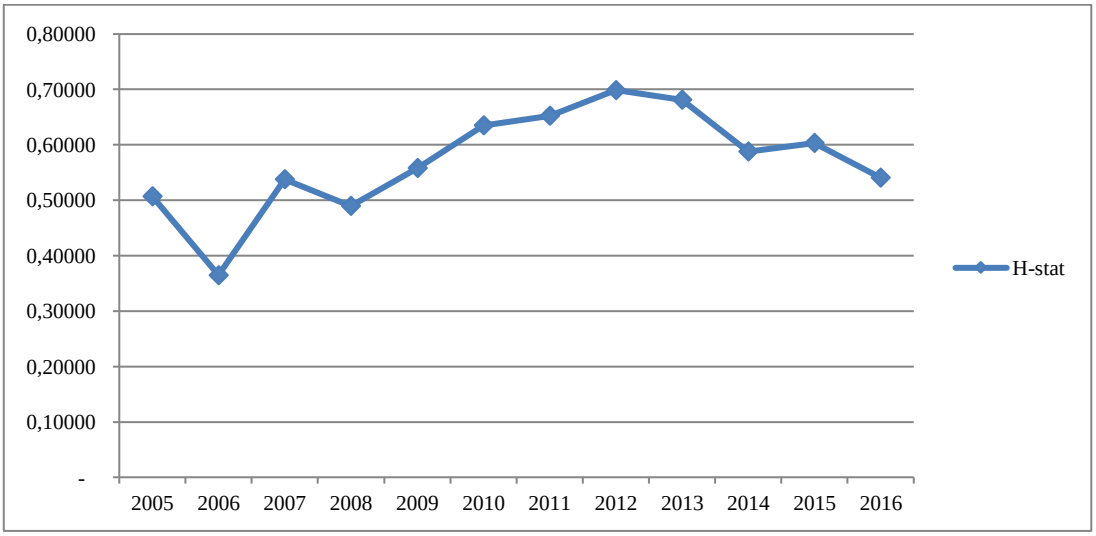

Figure 4. H-stat of Panzar Rosse test results
Sources: Regression analysis, 2018 (processed)

The results in Figure 4 show that during the research period, the bank was in monopolistic competition with H-stat values ranged from 0 to 1. Referring to Table 3, it can be seen that the H-stat value of the whole banks in the sample of study was 0.58694, which indicated that the market was monopolistic competition (0 <H-stat <1) with free entry conditions where each of competing companies has unequal market power (Bikker & Raaf, 2002). Thus, this study finding is consistent with the results of previous studies conducted by Shaffer (1985, 1993), Casu & Girardone (2006), Claessens & Leaven (2004), Majid & Sufian (2007), Aysan & Abbasoglu (2007), Athoillah (2010), Widyastuti & Armanto (2013) during the consolidation period.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The model of Panzar Rosse employed to model banking competition in Indonesia during the research period shows that the market is in an equilibrium state for the long term. Based on the results of the study, on average Indonesian banking industry is in monopolistic market state given the value of H-stat is 0.58694. It indicates that any increase in input prices will have an impact on bank income.

Meanwhile, the competitiveness of banking industry based on bank size categorized by its core capital, is more intense among large and medium banks (banks of BUKU 4, 2, and 1), whereas it is lesser in small-scale banks (banks of BUKU 4).

Recommendations

The limitation of this study is that this study only looks at the competition variable, and has not seen its relationship with other variables. In subsequent studies, it is expected to conduct research related to competition and relate it to other variables, such as market share or level of market concentration. In addition, it can conduct research related to how competition can affect the level of banking efficiency in Indonesia.

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APPENDIX: List of banks

No	Bank	ID_Bank	Bank Type	BUKU
1	PT Bank Negara Indonesia (Persero) Tbk	009	State owned banks	BUKU 4
2	PT Bank Rakyat Indonesia (Persero). Tbk.	002	State owned banks	BUKU 4
3	PT Bank Tabungan Negara (Persero)	200	State owned banks	BUKU 3
4	PT. Bank Mandiri (Persero). Tbk.	008	State owned banks	BUKU 4
5	PT Bank Bukopin. Tbk	441	Foreign exchange banks	BUKU 3
6	PT Bank Bumi Arta. Tbk	076	Foreign exchange banks	BUKU 2
7	PT Bank Central Asia Tbk.	014	Foreign exchange banks	BUKU 4
8	PT Bank Danamon Indonesia Tbk	011	Foreign exchange banks	BUKU 3
9	PT Bank Ganesha	161	Foreign exchange banks	BUKU 2
10	PT Bank ICBC Indonesia	164	Foreign exchange banks	BUKU 2
11	PT Bank Maspion Indonesia	157	Foreign exchange banks	BUKU 2
12	PT Bank Mayapada International Tbk	097	Foreign exchange banks	BUKU 3
13	PT Bank Mega. Tbk	426	Foreign exchange banks	BUKU 3
14	PT Bank Mestika Dharma	151	Foreign exchange banks	BUKU 2
15	PT Bank Jtrust Indonesia	095	Foreign exchange banks	BUKU 2
16	PT Bank Nusantara Parahyangan.Tbk	145	Foreign exchange banks	BUKU 2
17	PT Bank Of India Indonesia. Tbk	146	Foreign exchange banks	BUKU 2
18	PT Bank Permata Tbk	013	Foreign exchange banks	BUKU 3
19	PT Bank Rakyat Indonesia Agroniaga. Tbk.	494	Foreign exchange banks	BUKU 2
20	PT Bank SBI Indonesia	498	Foreign exchange banks	BUKU 2
21	PT Bank Sinarmas. Tbk	153	Foreign exchange banks	BUKU 2
22	PT Pan Indonesia Bank. Tbk	019	Foreign exchange banks	BUKU 3
23	PT Bank QNB Indonesia Tbk	167	Non-foreign exchange banks	BUKU 2
24	PT Bank Amar Indonesia	531	Non-foreign exchange banks	BUKU 1
25	PT Bank Oke	466	Non-foreign exchange banks	BUKU 1
26	PT Bank Artos Indonesia	542	Non-foreign exchange banks	BUKU 1
27	PT Bank Bisnis Internasional	459	Non-foreign exchange banks	BUKU 1
28	PT Bank Dinar Indonesia	526	Non-foreign exchange banks	BUKU 1
29	PT Bank Fama Internasional	562	Non-foreign exchange banks	BUKU 1
30	PT Bank Harda Internasional	567	Non-foreign exchange banks	BUKU 1
31	PT Bank Ina Perdana	513	Non-foreign exchange banks	BUKU 1
32	PT Bank Jasa Jakarta	472	Non-foreign exchange banks	BUKU 2
33	PT Bank Kesejahteraan Ekonomi	535	Non-foreign exchange banks	BUKU 1
34	PT Bank Mayora	553	Non-foreign exchange banks	BUKU 2
35	PT Bank Mitraniaga	491	Non-foreign exchange banks	BUKU 1
36	PT Bank Multiarta Sentosa	548	Non-foreign exchange banks	BUKU 2
37	PT Bank Nationalnobu	503	Non-foreign exchange banks	BUKU 2
38	PT Bank Royal Indonesia	501	Non-foreign exchange banks	BUKU 1
39	PT Bank Sahabat Sampoerna	523	Non-foreign exchange banks	BUKU 2
40	PT Bank Tabungan Pensiunan Nasional. Tbk	213	Non-foreign exchange banks	BUKU 3
41	PT Bank Victoria International. Tbk	566	Non-foreign exchange banks	BUKU 2
42	PT Bank Yudha Bhakti	490	Non-foreign exchange banks	BUKU 1
43	BPD Sulawesi Tenggara	135	Regional banks BPD	BUKU 1
44	BPD Yogyakarta	112	Regional banks BPD	BUKU 2
45	BPD Kalimantan Timur	124	Regional banks BPD	BUKU 2
46	PT Bank Dki	111	Regional banks BPD	BUKU 3
47	PT Bank Kalimantan Tengah	125	Regional banks BPD	BUKU 1
48	PT BPD Jambi	115	Regional banks BPD	BUKU 1
49	PT BPD Sulawesi Selatan & Sulawesi Barat	126	Regional banks BPD	BUKU 2
50	PT BPD Lampung	121	Regional banks BPD	BUKU 1
51	PT BPD Riau Kepri	119	Regional banks BPD	BUKU 2
52	PT BPD Sumatera Barat	118	Regional banks BPD	BUKU 2
53	PT BPD Jawa Barat Dan Banten. Tbk	110	Regional banks BPD	BUKU 3
54	PT BPD Maluku	131	Regional banks BPD	BUKU 1
55	PT BPD Bengkulu	133	Regional banks BPD	BUKU 1
56	PT BPD Jawa Tengah	113	Regional banks BPD	BUKU 2

No	Bank	ID_Bank	Bank Type	BUKU
57	PT BPD Jawa Timur	114	Regional banks BPD	BUKU 3
58	PT BPD Kalimantan Barat	123	Regional banks BPD	BUKU 2
59	PT BPD Nusa Tenggara Barat	128	Regional banks BPD	BUKU 2
60	PT BPD Nusa Tenggara Timur	130	Regional banks BPD	BUKU 2
61	PT BPD Sulawesi Tengah	134	Regional banks BPD	BUKU 1
62	PT BPD Sulawesi Utara	127	Regional banks BPD	BUKU 2
63	PT BPD Bali	129	Regional banks BPD	BUKU 2
64	PT BPD Kalimantan Selatan	122	Regional banks BPD	BUKU 2
65	PT BPD Papua	132	Regional banks BPD	BUKU 2
66	PT BPD Sumatera Selatan & Bangka Belitung	120	Regional banks BPD	BUKU 2
67	PT BPD Sumatera Utara	117	Regional banks BPD	BUKU 2
68	PT Bank Agris	945	Joint venture banks	BUKU 1
69	PT Bank Anz Indonesia	061	Joint venture banks	BUKU 3
70	PT Bank Bnp Paribas Indonesia	057	Joint venture banks	BUKU 2
71	PT Bank Capital Indonesia. Tbk	054	Joint venture banks	BUKU 2
72	PT Bank Dbs Indonesia	046	Joint venture banks	BUKU 3
73	PT Bank Mizuho Indonesia	048	Joint venture banks	BUKU 3
74	Bank CTBC Indonesia	949	Joint venture banks	BUKU 2
75	PT. Bank Sumitomo Mitsui Indonesia	045	Joint venture banks	BUKU 3
76	Bank Of America. N.A	033	Foreign banks	BUKU 2
77	Bank Of China Limited	069	Foreign banks	BUKU 2
78	Citibank N.A.	031	Foreign banks	BUKU 3
79	Deutsche Bank Ag.	067	Foreign banks	BUKU 3
80	Jp. Morgan Chase Bank. N.A.	032	Foreign banks	BUKU 2
81	Standard Chartered Bank	050	Foreign banks	BUKU 3
82	The Bangkok Bank Comp. Ltd	040	Foreign banks	BUKU 3
83	Bank MUFG	042	Foreign banks	BUKU 3
84	The Hongkong & Shanghai Banking Corp	041	Foreign banks	BUKU 3

Sources: Bank of Indonesia, The Financial Services Authority, 2016 (processed)

Human capital investment: an analysis of the return of higher education

Dina Hadia*; Nasri Bachtiar; Elfindri

Faculty of Economics, Universitas Andalas, Indonesia

**To whom correspondence should be addressed. E-mail: dinahadia@gmail.com*

Abstract

This study is aimed to analyze particular problems related to economic return for West Sumateran workers who graduated higher education by using human capital investment concepts. The dataset is sourced from National Labor Force Survey for West Sumatera 2017 and contains 1798 records of those aging at least 15 years, graduating from academy, university and postgraduate schools and distributed in all main industries. The return to higher education is estimated using Mincerian framework by considering modulatory effects of college major graduated. Other worker characteristics including training and experience are used to measure earning differentials among worker. The result of this study shows that the return to higher education is significantly positive and amplified if workers graduated from certain college majors. It is also found that participating in job training and having working experience prior to current job significantly increase highly educated workers earning in West Sumatera.

***Keywords**: Human capital investment, Return higher education, Unemployment*

JEL classification: O15, I25

INTRODUCTION

The unemployment, in the sense of rising amount of labor force with imbalanced employment rate, has been becoming a common development issue in every part of the nation in recent years. For West Sumatera, the unemployment rate has sharply increased from 6.04 percent in 2016 to 7.7 percent in 2017. It is also recorded that the average earning of the workers in West Sumatera is lower than that of entire Sumatera.

The competitiveness of highly educated graduates in acquiring jobs depends on local employment rate. Higher rate of unemployment may lead to lowering the total return to education, especially for the higher one since the its large amount of investment is exposed to the recent risk of being jobless due to economic slow downing. Therefore, it becomes more problematic for West Sumatera to achieve the efficacy of higher education in its own labor market. However, the labor market demand for certain college major's graduate is also decisive in determining the return to higher education. In this study, such college major effect is involved in our analysis to catch the reflection of higher education potency in West Sumatera.

To explain the return to higher education in West Sumatera, we delve into the relationship between earning and several workers characteristics including years of schooling, college majors, job training participation, and working experience by using the theory of human capital investment considered as the most appropriate and practical approach for the case. Becker (1975) introduced an economic concept that analyze individual investment decision when dealing with the trade-off between investing more

time and costs in adding education (and training) or investing experiences by straightly accepting the first job. The activities done based on this decision making in the trade-off is then assumed as investment that maximizes the present value of lifetime economic and psychological benefits for a person. Whatever the investment takes form, it shall enhance an intangible entity that determines future productivity called human capital. The activities which induces costs, time and certain other sacrifices in order to accumulate the stock of human capital is known as human investment.

According to Becker (1975), human capital is not only a resource but also a capital that yields returns compensating all cost invested, develops itself both in quantity and quality over the time during human investment. In labor market, human capital represents the value of a worker thus specify the ability of such worker in producing goods and services. Human capital investment is mainly assumed as adding one extra years of schooling in order to earn certain unit of increment in earning in the future. The forgone income due to extra years of studying in school, tuition, costs for books and other equipment, transportation and others relevant costs sum up as the total investment one must cover with future earning (Atmanti 2005).

Becker (1994) considered the following activities as human capital investment: 1) ***Job training***. Job training provides essential skills demanded by jobs. Generic training provides basic skills which are commonly applicable in almost all jobs. Firm-specific training provides typical skills needed for accomplishing particular jobs which may not available in other places thus establish stronger bond between employer and trainees; 2) ***Schooling***. Schooling is an effort to acquire cognitive knowledges in one or more majors; 3) ***Other efforts in seeking knowledge***. Beside schooling and training, human investment may cover migration and accessing economic information which could be geographically difficult and costly; 4) ***Self-improvement***. Firms normally invests in maintaining physical and mental wellbeing of its employees by providing medical services, nutrition, protection from harmful works and creating positive working policies.

Neoclassical theory suggests that in maximizing profits firms, production factors are utilized and then rewarded as much as the value of marginal increase in the product yielded by each factor. Therefore, the wage of an employee is the value of marginal increase in the goods or services produced by the employee. This is known as the theory of marginal productivity. It is derived from the theory what is called Marginal Product of Labor (MPL), defined as additional output received by firm in the response of adding one more labor. In classical view, MPL is real wage (MPL = wage/product). The theory of marginal productivity implies that labor demand and supply would be always equal or there would be zero possibility of unemployment since the wage flexibility is apparent in labor market. It means that if everybody is willing to have a job for certain real wage rate, then the unemployment is a matter of voluntary or personal preference.

Solow (1979) introduced the Theory of Efficient Wage. Efficient wage is equal to marginal product under certain conditions that sufficiently maximize firm's profit (Sugiono, 2012). However, firms prefer to arrange higher wage than that offered in perfectly competitive market for some reasons:1) Higher wage is intended to enhance working discipline that strongly associate with higher total productivity as well as being an incentive and reward for workers to achieve higher goals; 2) High repetitive recruitment costs could be avoided if firm successfully establish stronger bond with its employees by offering more appropriate salary which lowers the risk of job resigning. Higher wage offered may keep the firm from (i) forgone production due to loss of employees; (ii) New recruitment cost; (iii) New training costs; and (iv) lower productivity of new recruits; 3) An attractive strategy to win highly qualified individuals in firms labor

market competition; 4) A reward for determined workers that may stimulate to improve future working achievements; 5) In less developed countries, higher wage is expected to help fulfill better nutrition for workers in order to live healthy and productive.

West Sumateran labor market is recorded to offer a slight lower wage for highly educated workers compared to entire Sumateran labor market thus potentially lower the return to education. The average monthly earning of highly educated workers in West Sumatera is approximately Rp 3.4 million while the average monthly earning of all provinces in Sumatera is Rp 3.5 million. Despite the return to education is still positive for most situation (Blundell, Dearden, Meghir & Sianesi, 1999), Juwita and Lestari (2013) viewed that investment in education becomes less beneficial in a situation of excess labor supply since it forces highly educated graduates to accept low qualified jobs thus the earning cannot compensate the costs invested in human capital. Sanisah (2010) found that education-skill mismatch, commonly known as over-education and under-education, has been becoming the central issues of today's national unemployment. This situation is exacerbated by the tendency of 64-74 percent of secondary and tertiary school graduates to not starting their own business and voluntarily prefer to be unemployed while waiting future formal job recruitments.

Human investment is demanded to affect development sustainability. Pelinescu (2015) found that workers innovation capability and education attainment correlate strongly with GDP per capita. However, public education investment cost as part per GDP is apparently found to negatively affect the GDP per capita. This suggests that public investment in education somehow fails to address the challenge of providing productive skill and qualifications needed to boost GDP.

This study focuses on higher education that have contributed significantly to high unemployment rate in West Sumatera. It becomes more intriguing since the number of university students in West Sumatera keeps increased over years and results in larger investment costs. In this study we shall reveal the unemployment tendency of academy and university graduates in addition to our attempt to analyze the micro relationship between education, job training, working experience, and college majors. The main goal is to identify some factors potential for improving worker earning and some insight to optimize human capital supply that underpin the sustainability in national development especially in West Sumatera.

METHODS

Data

We use the records of National Labor Force Survey (SAKERNAS) 2017 for West Sumatera as our data to analyze the characteristics of highly educated workers in West Sumatera. The respondents are 1798 individuals aging at least 15 years, working primarily in an industry and graduating from academy, university or postgraduates schools. The survey was conducted officially by Badan Pusat Statistik to provide public data on employment. Panel sampling is implemented, meaning that the same households in sample are interviewed several times during the year. Sampling is designed to achieve accuracy up to regency level. Household samples are selected by using two stages one phase stratified sampling method.

Empirical framework

We observe the relationship between monthly earning and several explanatory variables including education, college majors, job training and working experiences. The basic concept of investment in education as reviewed by Mincer (1958) proposes that individual discount rate associated to present value of lifetime earning equals the return

to education if the discount rate is small enough or close to market discount rate value. In this model known as the Compensating Difference Model, the discount rate is given by schooling coefficient. In Mincer's later work (1974), the model is augmented to involve the effect of potential labor market experiences by assuming the human investment drops to zero as working age increases. The latest Mincer's model has become a potent instrument that explains the return to education and the diminishing return to working experiences.

In this study we appraise that the approach of having the years of schooling as our proxy for education based on Mincer's assumption on educational investment is quite reasonable. Schultz (1961) considered that the inseparability between education costs and other costs may lead to biased rate of return to education thus cost-based approach is not preferred besides requiring massive datasets to be compiled. Therefore, instead of using actual costs, Schultz recommended to implement time-based approach (years of schooling) in measuring the return to investment in formal education since it reflects the costs level and other sacrifice fairly. In this study, we observe 6 schooling levels above senior high school (SMA, 12 years of schooling) which cover the entire higher education as described in the Table 1.

Table 1. Higher education levels in Indonesia

No	Schooling name	Schooling category (degree)	Assumed years of schooling
1	Diploma-1/Diploma-2 (D1/D2)	Academy (Baccalaureate)	14
2	Diploma-3 (D3)	Academy (Baccalaureate)	15
3	Diploma-4 (D4)	Academy (Baccalaureate)	16
4	Strata-1 (S1)	University (Bachelor)	16
5	Strata-2 (S2)	Postgraduate (Master)	18
6	Strata-3 (S3)	Postgraduate (Doctor)	22

Hundreds of college majors graduated by study respondents are then grouped into 12 based on college majors classification issued by RISTEKDIKTI (Ministry of Research, Technology and High Education of Indonesia) as listed in Table 2. Then 1798 college major codes from the dataset are mapped to the corresponding group in RISTEKDIKTI classification.

Table 2. College majors classification

No	College majors group
1	Mathematics and nature sciences (MNS)
2	Agriculture
3	Husbandry
4	Medical
5	Health Sciences
6	Engineering
7	Economics
8	Social and humanities (SH)
9	Religion
10	Arts
11	Education
12	Other majors

Since choosing college major is an attribute of higher education, then college majors are involved in our model as modulatory variables for years of schooling thus stated as factor of education. Interaction between years of schooling and college majors gives unique changes in the return to education given the potency of each major in labor

market. Beside education and college majors, we involved job training participation and working experience as other dichotomous variables. We finally state our model as follows:

$$\ln E = \alpha_i + a_i Edu + \left(\sum_{k=1}^{12} b_{ik} Maj_k\right) Edu + c_i Trai + d_i Exper + \varepsilon_i$$

Where $\ln E$ is log of monthly earning, α is regression intercept that represents the default earning if no investment involved, a_i is the schooling coefficient that represents the return to higher education, b_{ik} is the modulatory coefficient that represents additional return to education due to graduating from college major k, c_i is the coefficient for for job training participation that represents earning differential between those trained and untrained, d_i is the coefficient for job experience that represents earning differential between those having prior experience of working and not having any working experience, ε is an error term that represent unobserved abilities in the model and i is the individual index.

The value ranges for each variable in the model is described in Table 3.

Table 3. Variable information

Symbols	Variable names	Value
$\ln E$	Log of Monthly Earning	Log of Rupiah
Edu	Years of schooling	14 for D1/D2 15 for D3 16 for S1/D4 18 for S2 22 for S3
Maj_k	College majors	MNS= 1, others = 0 Agriculture =1, others = 0 Husbandry = 1, Others = 0 Medical = 1, Others = 0 Health sciences = 1, Others = 0 Engineering = 1, Others = 0 Economics = 1, Others = 0 SH = 1, Others = 0 Religion = 1, Others = 0 Arts = 1, Others = 0 Education = 1, Others = 0 Other majors =1, Others = 0
$Trai$	Job training participation	1= participated in at least one certified training 0= never participated
$Exper$	Working experience	1= having experience prior to current job 0= first job

RESULTS AND DISCUSSION

Employment characteristic in West Sumatera

Table 4 shows the West Sumateran labor force of 367 thousand, consists of 96 thousands of academy graduates and 271 thousand of university and postsecondary graduates. From the figure, 86 thousands of academy graduates and 252 thousand of university and postsecondary graduates have been employed. The rest constitutes 7.1 percent of highly educated unemployment and becomes burden for local economies. The most dense labor force is recorded for Padang with over 100 thousand or around 28

percent of West Sumateran labor force. Despite the concentrated labor force in Padang city, Solok regency and Pasaman regency apparently becomes the highest for unemployment for academy graduate (23.4 percent) and university plus postsecondary graduates (16.3 percent) respectively.

Table 4. Labor force situation in West Sumatera 2017

Regency/city	Labor force		Employed		Unemployed			
	Academy	Above academy	Academy	Above academy	Academy	%	Above academy	%
Kep. Mentawai	736	1,489	736	1,489	0	0,0	0	0,0
Pesisir Selatan	5,424	18,836	5,290	17,075	134	2.5	1,761	9.3
Kab. Solok	5,982	15,472	4,584	14,368	1,398	23.4	1,104	7.1
Sijunjung	1,743	9,884	1,743	9,693	0	0.0	191	1.9
Tanah Datar	5,799	13,039	5,743	12,289	0	0.0	750	5.8
Padang Pariaman	3,628	14,273	3,628	13,674	0	0.0	599	4.2
Agam	11,875	22,259	10,381	21,227	1,494	12.6	1,032	4.6
Limapuluh Kota	5,427	13,881	5,038	13,614	389	7.2	267	1.9
Pasaman	2,745	12,492	2,642	10,454	103	3.8	2,038	16.3
Solok Selatan	1,888	8,622	1,765	8,441	123	6.5	181	2.1
Dharmasraya	4,102	9,446	3,960	9,271	142	3.5	175	1.9
Pasaman Barat	4,396	14,218	4,197	13,217	199	4.5	1,001	7.0
Padang	28,041	73,298	23,366	67,843	4,675	16.7	5,455	7.4
Solok	2,257	6,173	2,126	5,699	131	5.8	474	7.7
Sawahlunto	1,647	4,000	1,365	3,696	282	17.1	304	7.6
Padang Panjang	1,343	4,593	1,274	4,444	69	5.1	149	3.2
Bukittinggi	4,531	11,483	4,139	10,150	392	8.7	1,333	11.6
Payakumbuh	3,125	10,314	3,093	9,536	32	1.0	778	7.5
Pariaman	1,808	7,310	1,472	6,517	336	18.6	793	10.8
Total	96,497	271,082	86,598	252,697	9,899	10.26	18,385	6.78

Source: SAKERNAS, 2017

Highly educated unemployment

Even though the total unemployment rate has dropped to below 10 percent, it seems to happen mostly for those graduating from elementary school (SD) and junior high school (SMP) who are willing to accept blue collar jobs to get the daily living. For the higher graduates, the unemployment rate is worse. In 2017, the total unemployment for West Sumatera is only 5.58 percent, but the highly educated unemployment rate reach 7.67 percent. It indicates that regional development in West Sumatera seems to give smaller benefit for higher graduates and shall stimulate them to accept low qualified jobs or migrate to other provinces to find better jobs.

From the college major's point of view as shown by Figure 1, Economics and Health Sciences majors contribute the largest share for unemployment in West Sumatera, respectively of 13.30 percent and 13.05 percent. In the last decade, the labor supply of both major groups have been excessive due to massive establishment and development of new colleges in expectation to "export" qualified graduates to many other provinces and regions. However, the excess labor supply have been facing the economic slowdown nationwide and leading to more severe local unemployment of highly educated graduates. The religion, education, and agriculture majors are recorded to contribute the lowest unemployment rate (below 5.58 percent) in West Sumatera. It seems that the graduates of these three major groups are more flexible in accepting jobs in local labor market and not requiring the jobs to be formal.

Engineering graduates are reported to receive high earning when employed. On another side, the unemployment rate for engineering majors is apparently high (7.95

percent) compared to other majors. Relatedly, this phenomenon could be explained by the Efficiency Theory. Since the firms specializing in engineering-related jobs likely to offer above competitive labor market wage for determined workers in maintaining production efficiency, graduates in engineering may prefer to be unemployed when offered with low wage.

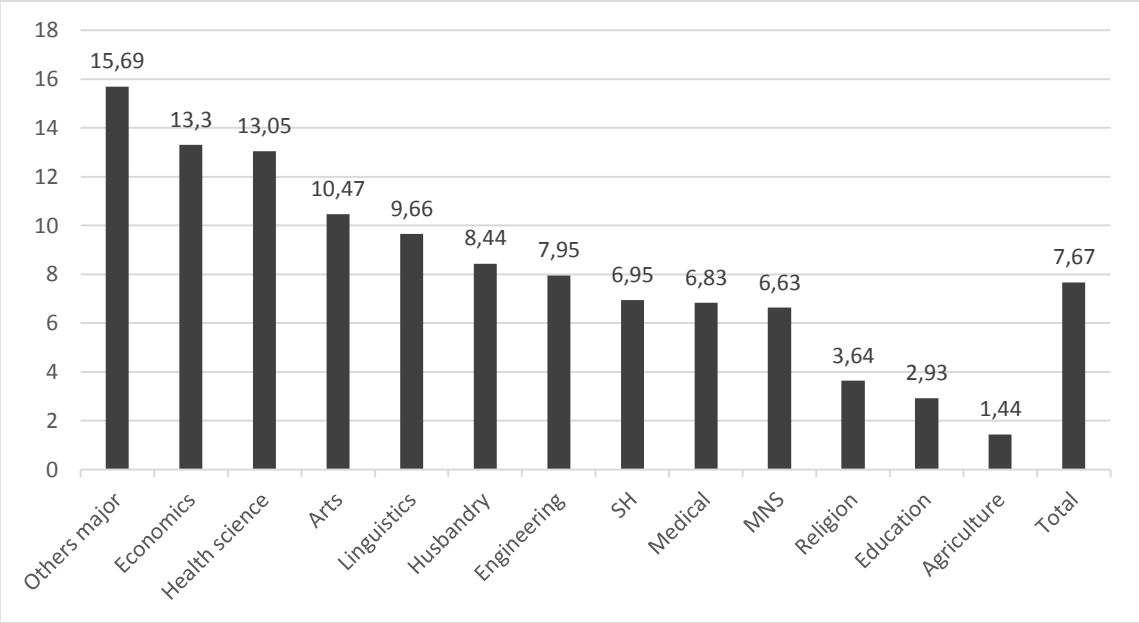

Figure 1. Unemployment rate by college major groups in West Sumatera
Source: SAKERNAS 2017[1].

We breakdown the unemployment characteristics by college majors in the following Table 5 shows the West Sumateran unemployment characteristics by college majors.

Table 5. Cross comparison between workers earning and unemployment rate by college major group

	Low earning	High earning
Low unemployment	1). Agriculture UR: 1.44; AE: 2,245,127 2). Education UR: 2.93; AE: 3,388,225 3). Religions UR: 3,64; AE: 2,965,801	1). Medical UR: 6.83; AE: 3,830,337 2). Social and humanities UR: 6.95; AE: 4,539,021 3) MNS UR: 6.63; AE: 3,564,085
High unemployment	1). Economics UR: 13.30; AE: 3,018,491 2). Health sciences UR: 13.05; AE: 2,940,116 3). Linguistics UR: 9.66; AE: 2,107,142	1). Arts UR: 10.47; AE: 4,136,710 2). Engineering UR: 7.95; AE: 3,549,949

Source: Calculated based on SAKERNAS, 2017
Note: -Division based on unemployment rates of West Sumatera and average wages
-UR: unemployment rate (in percent), AE: average earning (in Rupiah)

[1] The unemployment rate is the percentage of the number unemployed divided by the total labor force.

Relative distribution: academy or university

By calculating relative distribution, it would frame more interesting employment rate in West Sumatera by college majors. The result in Figure 2 shows that academy graduates in Economics and MNS are likely to be employed more than university graduates of those majors. In contrast, university graduates in SH are more likely employed than those graduating from academy. This indicates that university graduates in SH are more flexible to accept jobs or willing to have various jobs.

In Health Sciences, the academy graduates are booming in West Sumateran labor market, especially for D3 degree with unbalanced the demand for this major, leading to highest academy unemployment rate. Beside the low demand due to national economic situation, the problem beyond this phenomenon is more structurally concerning how the educational system was established for most academies in West Sumatera. Lack of proper assessment for college operation and weaker student entry selection account for incompetent graduates in national and international labor market.

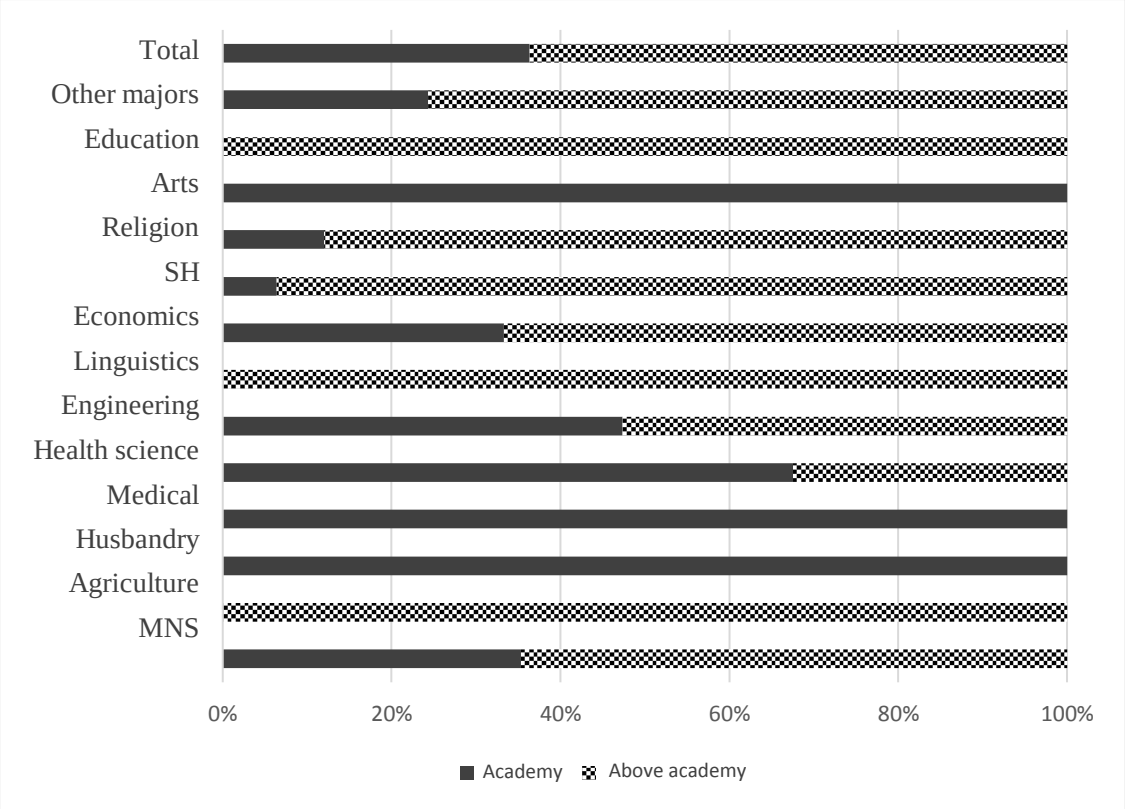

Figure 2. Relative distribution for unemployment by college majors
Source: Calculated based on SAKERNAS, 2017

Earning by college majors

Figure 3 shows our calculation on graduate's average earning of each college major. Arts and SH are both leading in average earning compared to other major groups. The earning of Medical graduates is recorded below Arts and SH, which is not expected given the relatively much higher amount of investment in Medical majors. However, it is not surprising that Medical graduates are not flexible in labor market when dealing with job options and may force them to work in matching occupations despite unmatched salaries.

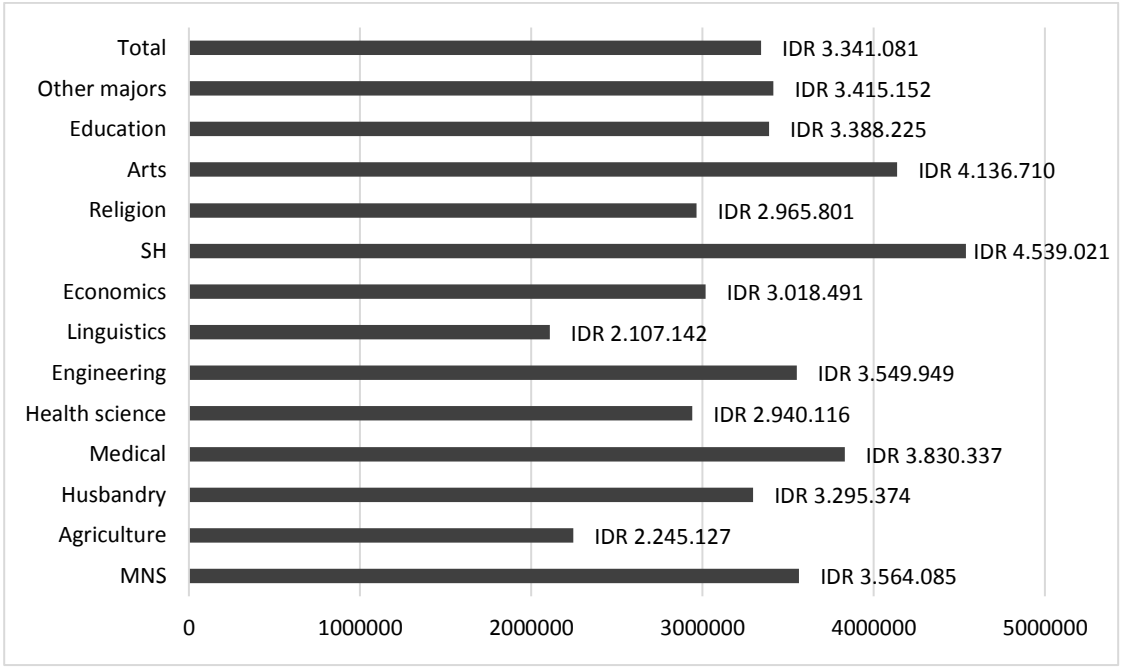

Figure 3. Average earning by college major groups
Source: Calculated based on SAKERNAS, 2017

Estimation for return to higher education in West Sumatera

Table 6 shows the estimated model of earning for West Sumateran workers who graduated from academy, university and postgraduate schools. Years of schooling, job training participation and working experience are found to affect earning significantly and positively, meanwhile only 8 out of 12 major groups observed are reported to affect earning significantly.

Table 6. Estimated effects of explanatory variables on earning

Variable	Coefficient	Std. Error	Prob.
EDU	0.171902	0.031638	0.0000 *
EDU×MNS	0.026725	0.009339	0.0043 *
EDU×Agriculture	0.014637	0.012503	0.2419
EDU×Husbandry	0.022046	0.015463	0.1542
EDU×Medical	0.042089	0.012175	0.0006 *
EDU×Health Sciences	0.027981	0.009012	0.0019 *
EDU×Engineering	0.032056	0.009121	0.0005 *
EDU×Economics	0.025646	0.008491	0.0026 *
EDU×SH	0.044687	0.008932	0.0000 *
EDU×Religion	0.009158	0.008968	0.3073
EDU×Arts	0.021404	0.014221	0.1325
EDU×Education	0.023634	0.008090	0.0035 *
EDU×Other majors	0.034033	0.014528	0.0193 **
TRAI	0.235368	0.049522	0.0000 *
EXPER	0.898997	0.096612	0.0000 *
α	10.58544	0.491398	0.0000 *
R-squared	0.123954		
F-statistic	14.63975		

*Note * significant at 1%; ** significant at 5%.*

From the estimation, years of schooling significantly affects the earning of West Sumateran workers in positive way. The coefficient of years of schooling is reported of 0.172. It means that by holding other factors constant, one extra years of schooling in higher education enhances 17.2 percent of earning. In instances, five extra years of schooling, which may happen if someone improves his education from D3 to S2 degree, is likely to induce around 50 percent rise in earning. This rate of return seems to be very promising for local education investors when compared to current market interest rate of around 10 percent as well as stimulate more incentive for West Sumateran in the race toward college degrees. In fact, Febrina & Chotib (2019) found that education has been a significant attractor for those especially unmarried and younger from other provinces to migrate to West Sumatera. Nevertheless it is remained the problem that West Sumateran industrial demand for highly educated graduates has not shown the equal promising improvement in recent years due to national economic stagnancies and slow local economic transformation. The annual statistic records reveals that West Sumatera relies fully on primary sectors since its share undergoes increases in latest five years (BPS, 2018), suppressing the share of more advanced sectors. Meanwhile the primary sectors demanded skills are not mainly provided by higher education. This may help explain the high unemployment rate for higher educated people in West Sumatera.

In the attribution to college majors, higher education seems to give largest benefit for workers with social humanities and medical degrees. Both majors contribute respectively of extra 4.4 percent and 4.2 percent to the return to higher education. These figures are quite shocking given the higher investment cost in medical education compared to that of social and humanities. This also seems contrast to studies that previously found that especially humanities and social major graduates tend to earn lower after graduating from college (see Lyonette, Hunt & Baldauf, 2017). However, Lyonette, Hunt & Baldauf (2017) also highlighted a number of positive qualities that commonly possessed by SH graduates such as (i) confidence in communication, interpersonal and softer skills; (ii) higher entrepreneurship passion and (iii) higher tendency to improve education in expertise which are apparently demanded in certain labor market situation. Specifically, graduating from Law major, a part of humanities major group, is also reported to as one of the most prominent among many college majors when it concerns the return to education ((Blundell, Dearden, Meghir & Sianesi, 1999). It is also found that the unemployment rate for SH majors is 6.95 percent, relatively lower than that of West Sumateran higher education. In contrary, the medical graduates seem to have less similar qualities probably caused by lacking of job options in labor market.

In the bottom of the chart, graduating from education majors seem to give least additional benefit to workers earning. The major effect is reported to give only 2.3 percent extra to the return to education or around 19.3 percent in total return to education. This is probably resulted by the massive graduates supply wave in the last decade in West Sumatera that forces the graduates to work as voluntary (assisting) teachers and are paid below labor market standard given limited regional and institutional budget to employ these graduates.

There are four major groups that are estimated to give insignificant effect to the return to higher education namely agriculture, husbandry, religions and arts. It is important to draw one's focus on the first two majors for the case of West Sumatera. The share increment of West Sumateran primary sector (agriculture, livestock farming, forestry and fishery) in its recent GDP apparently induces virtually no effect on the

welfare of graduates in agriculture and husbandry college majors. This may be caused by the tendency of both majors graduates who prefer to be employed rather than starting own business in primary sectors. Based on our data, 62 – 71 percent of these graduates work as state and firm employees.

Around 48.39 percent of graduates in religion majors earn below West Sumateran minimum wage and most of these graduates work as Islamic teachers. This is related to excess supply as found in the case of education majors. Meanwhile, graduates in arts are reported to have large variation of earning, from around Rp. 500 thousand to Rp. 4 million thus cause indeterminate changes in the return to higher education. The typical characteristic of arts graduates who accept jobs more for passion rather than living is presumed to become the explanation for the high variation in their earning.

The effect of job training and working experience on worker earning

From the regression estimations, job training participation affects worker's earning positively and significantly. The earning differential between trained workers and untrained workers is reported of 23.47 percent, holding constant other variables. This finding follows the human capital theory undoubtedly. A tremendous earning differential is constituted between those experienced and fresh workers as large as 89.87 percent. Working experience has been shown as a significant explanatory of worker's earning universally (see Fahmy, Bachtiar & Sari (2016) for example of the case of international workers in Malaysia). Therefore, it implies that job training and working experience prior to current job are effective ways of human investment for West Sumateran workers. However, the rise in amount of West Sumateran academy and university fresh graduates may take place as a challenge as well as an opportunity for public and private job training providers to develop and offer job training programs in order to supply demanded skills in West Sumateran labor market.

CONCLUSION AND RECOMMENDATION

Conclusion

This research is aimed to analyze the return to higher education for workers in West Sumatera by using Mincer framework as baseline. The relationship between earning and worker's characteristics including years of schooling in academy, university and postgraduate schools, graduating from certain college majors, participation in job training and working experience is approached with human investment concept introduced by Becker. According to the investment concept, the return to education is represented by the estimated of schooling coefficient. Further elaboration in our framework suggests that college majors is an unseparated attribute of higher education that best stated as a factor of education attainment.

The regression result shows that the return to higher education is quite large, around 17 percent. It implies that investing in higher education seems to be promising and yield future benefits for West Sumateran graduates when employed. The rate of return to education is amplified if workers graduate from certain college majors such as Social and Humanities and Medical. However, several majors such as economics and engineering contribute to high unemployment rate due to excess supply and low wage offered. Concerning the stagnancy of economic transformation West Sumatera, it is indicated by the increasing share of primary sectors apparently in local GDP, graduates in agriculture and husbandry majors should be employed better. In fact, both majors have not

contributed yet to reducing the unemployment rate in West Sumatera and not significantly received significant extra return to years of schooling.

The result also shows that the earning differential is found to be constituted by job training participation and working experience significantly. Trained and experienced workers significantly receive earning as large as 23 percent and 89 percent higher than those untrained and inexperienced. It implies that participating in job training and developing career in particular job should be considered as an effective human investment besides studying in higher educations.

Recommendation

To sustain the optimum supply of human capital in West Sumatera, in the sense of higher employment rate and higher earning for academy and university graduates, it is important to evaluate the educational system in order to provide students with entrepreneurship, interpersonal and highly demanded skills in modern industries such as complex problem solving, public management, creative thinking, decision making etc. This discretion in human capital should be emphasized for agriculture and husbandry majors and aimed for development of local primary industries.

Local institution of higher education in West Sumatera should also establish stronger partnership with industries, especially those specialize in primary output production to ensure the link and match between university qualification and industrial career. Local government is also expected to empower local primary industries with implementation of university researches in order to improve outputs and stimulate student apprenticeship. Regarding the training provision, it is also expected for public institution and private companies to broaden training availabilities with distant learning and develop training curriculum to response the demand of labor market in West Sumatera. According to World Economic Forum reports (2018), current millennials should possess the skill of high ordered thinking and leadership communication ability. Such skills such be introduced to student as earlier as possible in higher education. Since the qualification to run predictive and quantitative jobs tends to deplete in the future, the demand for softer skills that promote sophisticated abilities in dealing with complex situation and human natures shall rise significantly and should be responded seriously by higher education.

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Application of Altman Bankruptcy prediction model in Ghana

Josephine Agyimaa Agyirakwah[1]; Alhassan Musah[2*]

[1)] Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
[2)] Academic City College, Accra, Ghana.

**To whom correspondence should be addressed. Email: alhassan.musah@acity.edu.gh*

Abstract
The study examined the applicability of the Altman Z-score model in predicting bankrupt companies or financially distressed companies on the Ghana Stock Exchange. A sample 10 listed firms were selected and one other company to be used for validation purposes. The validation process involved data for 2016 and 2017 for Aluworks which represented a distressed company and GOIL Ghana Limited which represented non-distressed company. The final analysis was based on a random sample of 10 listed firms using their 2017 financial statement. The results of the initial prediction showed 50 percent of the companies were correctly predicted whiles the others were misclassified. Additional analyses showed that the size of the company influence the probability of bankruptcy whiles the nature of the business does not. The conclusion drawn shows that the Altman Z-score cannot accurately predict financially distressed firms in Ghana but can still be useful in giving signals.

Keywords: *Altman Z-Score, Bankruptcy, Firms, Ghana*

JEL Classifications: G33, M41

INTRODUCTION

Corporate failures around the world and even in Ghana has raised the need for a reliable bankruptcy prediction model to help reduce the menace (Samanhyia, Oware & Anisom-Yaansah, 2016). Some studies have argued that financial distress in companies can be linked to corporate governance (Appiah, 2011; Datta & Iskandar-Datta, 1995). In this regard some studies have even concluded that there is a relationship between corporate governance characteristics and corporate failure (Appiah, 2011; Daily & Dalton, 1994). Almost every major economy in the world have had its fair share of corporate failures of which Ghana is not an exception. The most famous cases are Enron and WorldCom in the United States but post-Eron period also witnessed some financial distress situations with companies such as Chrysler, General Motors, Delta Airline, America International Group etc. (Appiah, 2011). These scandals renewed the debate for the need to be able to predict some of these scandals before they occur.

Several corporate failure prediction models have been developed and used in various context with some modifications over the years all in an attempt to help predict bankruptcy of companies (Appiah, 2011; Wu, Gaunt, & Gray, 2010; Appiah & Abor, 2009). The first of such corporate failure prediction model was the one developed by Beaver (1966) which became the basis for subsequent models (Wu, Gaunt, & Gray, 2010). Other models came up but were all based on data from developed economies (Altman, 1968; Altman, 1984; Edmister, 1972; Trieschmann & Piches, 1973; Sinkey,

1975; Deakin, 1977; Piches & Trieschmann, 1977; Casey & Bartczak, 1985 etc.) all the way to Altman & Narayanan (1997).

These models have however been used on other context to test corporate failure prediction both in developed and developing and emerging economies. Wu, Gaunt, & Gray (2010) however argued that most of these models fails to accurately predict bankruptcy in different context like they did in the environment they were developed. This notwithstanding, there is some consensus that corporate failure prediction models are still useful and can predict bankruptcy if there are no methodological problems in their application in other environment (Appiah & Abor, 2009).

According to Appiah (2011), Ghana has had its fair share of corporate failures affecting almost all sectors. For instance, the study mention companies such as Ghana Airways Ltd, Juapong Textiles Ltd, Bonte Gold Mines, Devine Sea foods, Ghana Cooperative Bank, Bank for Housing and Reconstruction. In recent time the collapse of respectable banks like UT Bank, Capital Bank, Unibank Ghana Limited, Royal Bank Ghana Limited, Beige Bank, Sovereign Bank, Construction Bank etc. The impact of the collapse of these banks have been dire especially with regards to job loss. Up till date, some people are still losing their jobs as a result of the collapse of these banks. Several Micro-finance and non-bank financial institutions have also collapsed as bank of the Bank of Ghana clean-up of the financial sector.

The increasing number of corporate failures as enumerated above and the potential impacts on jobs, people's lives and the economy in general means that it is imperative to be able to predicts this events in Ghana before they occur. Several stakeholders such as government, employees, debtors, shareholders and other investors lose substantially in these corporate failures (Appiah, 2011).

Despite the numerous corporate failures in Ghana, little has been done in literature to predict corporate failures or even test the applicability of the bankruptcy prediction models developed in other economies (Appiah, 2011). Appiah (2011) used the Z-Score developed by Altman (1968) to test corporate failure of l15 listed firms in Ghana using a data sample from 2004 to 2005. Mahama (2015) also used the Z-score to predict corporate failure of listed firms using data from 2007 to 2013.

This current study is an upgrade as its seeks to use data set of non-financial firms covering 207 and 2018. Besides, apart from Appiah (2011) who examined the applicability of the Altman model in Ghana, the other studies focused on using the model to predict corporate failure. The data set used in that study is old which this study was to cure using recent data to see if the same results can be achieved. The study seeks to establish the extent to which Altman (1968) model helps to predict corporate failure in Ghana.

LITERATURE REVIEW

There are many studies that have examined the applicability of Bankruptcy models in different environment (Grice & Dugan, 2001). This several studies attest to the importance of bankruptcy prediction models in corporate governance (Appiah, 2011). There is general global concern for risk to corporations as a result of high debts especially after the collapse of top giants' companies in the United States and other parts of the World. Appiah (2011) argue that even through there are several reviews on corporate failure prediction models, most of these studies are mostly out of date or are too narrow focused. Some of these studies include Scott (1981), Zavgren (1983), Altman (1984), Jones (1987).

Most of these studies relied on statistical models even though latter studies such as Jones (1987) and Dimitris et al. (1996) failed to incorporate full theoretical models. Most of these studies have failed to incorporate the different approaches to corporate failure prediction models (Appiah). Moreover, they failed to provide solution to the problem of choosing the right model.

Some studies focused on using accounting ratios, a scoring model in a univariate discriminant analysis to predict the risk of bankruptcy of companies (Patrick, 1932; Durand, 1941; Beaver, 1966). It has been established that their method produces inconsistent results which gives confusing signals about the financial health of the company (Appiah, 2011). The improvement on the above models came with multiple discriminants analysis which has since been applied in several studies to estimate corporate failure prediction Altman, 1968; Zavgren, 1983).

The multiple discriminant analysis uses a linear discriminant function that helps to separate the variables into two disjoint components (Appiah, 2011). Altman (1968) is believed to be the first study that applied this model to estimate corporate bankruptcy prediction. The study fist sample was based on 66 firms from the United State from 1946 to 1965. The study first classified into two different groups, bankrupt firms and non-bankrupt firms. The discriminant function was developed based on a sample of 33 firms in each group. It involved 22 accounting and non-accounting ratios which was later reduced to 5 ratios. These ratios were what the model believed to be able to estimate corporate failure.

The first model that came out from the study was;

$$Z= 0.012X_1+0.014X_2+0.033X_3+0.006X_4+0.999X_5$$

Where:
X_1 = working capital divided by total assets
X_2 = retained earnings divided by total assets
X_3 = earnings before interest and tax divided by total assets
X_4 = market value of equity divided by book value of total liabilities
X_5 = sales divided by total assets.

Based on the above model Altman argued that a cut-off of 2.675 was adopted which translate into 6% and 3% type I and type II errors respectively for a sampled firm in a year before failure. Where there is the need to predict the risk of bankruptcy will result in an increase in the type I error and type II error to 28% and 6% respectively (Appiah, 2011). To correct the above deficiency, Altman & LaFleur (1981) developed a more upgraded Z-score which was given as;

$$Z= 1.2X_1+1.4X_2+3.3X_3+0.6X_4+1.0X_5$$

The definition of the variable did not change from that presented in the first model

After this model was developed and to test its reliability in predicting corporate bankruptcy, a new set of sampled companies was used. Out of the sample 86 companies went bankrupt in 1969 to 1975, 110 went bankrupt between 1976 to 1995, 120 went bankrupt between 1996 to 1999. Altman after this observation now reduced the cut-off point to 1.81. The further stated that the range between 1.81 and 2.7 as the point where the failure of the company was still uncertain. The model developed by Altman was similar to that of Beaver (1968) with the exception of the multiple discriminant analysis as against the univariate.

Several studies have since used this model in various methodologies such as logit, linear probability, probit among others. What is common among all these new variations

and models is the fact that they all have some assumptions which restrict their applicability. Subsequent models that were developed also had their own challenges in terms of reliability of estimating corporate bankruptcy. Altman himself later expanded his work in 1993.

In essence whiles the first models by Beaver (1966) and other that followed relied on accounting ratios to predict corporate bankruptcy and used the assumption that same ratios differ between bankruptcy firms and non-bankruptcy firms, critics argued that there were no standard ratios and that their estimates were not reliable. The Altman model and other subsequent model relied on multiple discriminant analysis unlike the first ones that used Univariate analysis. In this approach, bankruptcy score was used to predict corporate failure. Appiah (2011) argued that all the models emphasized the importance of statistical techniques in estimating corporate failure even though their ability to do so accurately is still questionable. The study further argued that there is no statistical technique in this case that is superior to the others suggesting that caution is key in using these methods. The other way around it is to use simple rank alongside the multiple discriminant analysis techniques which this study intends to adopt.

Some few studies have examined corporate prediction in Ghana using the Altman Z-score on both financial and non-financial firms. For instance, Appiah (2011) examined the use of Altman Z-score to predict corporate bankruptcy in Ghana based on a sample of 15 non-failed firms listed on the Ghana Stock Exchange. The test was based on data set from 2004 and 2005 for the sampled firms. The results showed that Altman Z-score was capable of predicting bankruptcy in Ghana but depends on the size of the firm. However, the model misclassified all the manufacturing, insurance, food and beverage as well as printing companies. It was rather able to classify all distribution companies. The study concluded that the nature of the business influence the applicability of Altman prediction model in Ghana. Also, large companies appeared to have been correctly predicted as compared to small companies.

Mahama (2015) examined the state of financial distress of listed firms in Ghana using the Altman Z-score model. The study sampled 1o listed firms covering a period from 2007 to 2013. The results of the study showed that six companies were financially sound with no bankruptcy threats, two companies were in financial distress and two other have deteriorated were near financial distress. The companies that were found to be in a state of financial distress however had not filed for bankruptcy yet.

Amoa-Gyateng (2014) examined the risk of corporate failure on Anglogold Ashanti, a mining company listed on the Ghana Stock Exchange and other exchanges as well. The study used a sample period from 2010 to 2012and relied on the modified Altman model and Beneish model. The results of the Altman Z-score showed that the company was in financial distress while the Beneish model showed the company was not engaged in any reporting fraud.

Samanhyia, Oware & Anisom-Yaansah (2016) examined financial distress of listed bank in Ghana in the midst of the several collapse of banks in Ghana. The data set covered a period from 2008 to 2014. The study used the Altman Z-score and Boone indicator. The results showed that poor corporate governance contributed to financial distress and that smaller board size was negatively associated with firm performance. In the nutshell these studies have examined different part of the problem in Ghana.

It appears Appiah (2011) study is the only study that attempt to examine the applicability of the Altman Z-score model in Ghana. The other studies rather focused on just predicting corporate bankruptcy on selected firms without necessarily checking the

applicability of the model. Since data set used for the study was 2004 and 2005 and the fact that a lot has changed in the Ghanaian business environment, it is imperative that a new study is conducted using recent data such as 2017 and 2018 on the same sample of firms to see if the same results could be achieved.

METHODS

In line with the study by Appiah (2011), the study adopts the methodology used by Argenti (1983), Moyer (1977) in predicting corporate failure and bankruptcy prediction in Ghana. The study examines the usefulness of the Altman Z-score for listed firms using some experimental approach. The researcher first used the Z-score to calculate the scores for two listed firms on the Ghana Stock Exchange for the year ended 31st December, 2016 and 2017. The data was extracted from the financial statement of these companies which was downloaded from either the company's website or the Ghana Stock Exchange annual report depository. The researcher validated the model on eight other listed firms with data set for 2017 financial year. The study then adopts the paired sample approach as per Appiah (2011) and other previous studies that have also relied on this approach (Taffler, 1995; Platt & Plat, 1990; Barnes, 1990; Palepu, 1986; Altman, 1968; Beaver, 1966).

After this stage the study now designed the sample to fit the paired sample. Even though the multiple discriminant methods require random selection of the sample, a sample selection on the basis of size using the sales or turnover was adopted. After this process the data was extracted from the financials of these companies into an Excel sheet to allow for the computation of the ratios or the variables start the necessary analysis. The study intended to test a failed company as part of the validity test but did not have any data on a failed company. However, the study sampled Aluworks Ghana Ltd which is one of the listed firms going through very difficult financial challenges and is looking for an investor to bail them out as by the chairman report to shareholders in the 2017 annual report. The study in line with Appiah (2011) had wanted to choose another company of commensurate size but their Z-scores were not encouraging so the study chose a company with a good Z-score for the initial testing and GOIL was selected. So Aluworks is the failed one company selected and GOIL is the non-failed company. The calculation of the Z-score was based on the revised model of Altman (2000). The model is defined as

$$Z= 0.717a + 0.847b + 3.107c + 0.420d + 0.998e.$$

Where:
a = working capital divided by total assets
b = accumulated retained earnings divided by total assets
c = operating profit divided by total assets
d = book value of ordinary and preference capital divided by book value of total liabilities
e = sales revenue divided by total assets.

RESULTS AND DISCUSSIONS

Initial testing

The initial testing on done using Z-score from GOIL for 2016 and 2017 wiles that of Aluworks also involved Z-score from 2016 and 2017. The Z-scores for Aluworks is -1.19 for 2016 financial year and -0.08 for 2017 financial year. On the other hand, the Z-scores for GOIL for 2016 financial years was 5.22 whiles that of 2017 is 4.95. The results

are in the with Altman argument that a company with a Z-score of less 1.8 has either failed or is failing. The Z-scores of the two companies are presented in the Figure 1.

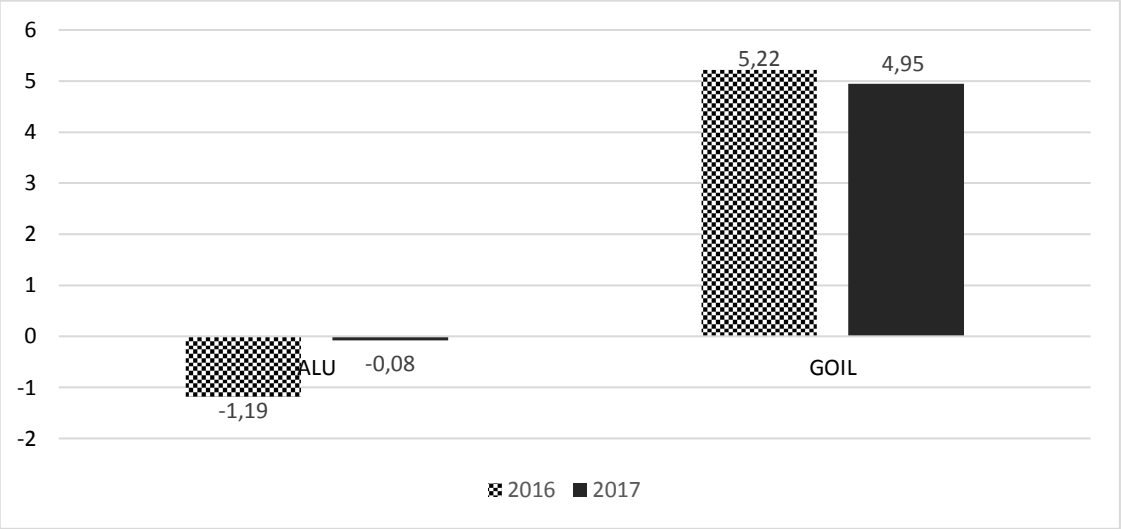

Figure 1. Z-scores for Aluworks and GOIL

The Z-score for Aluworks did improve marginally even though it is nowhere near being safe. On the other hand, that of GOIL saw a small decile from 5.22 in 2016 to 4.95 which is still good as per the Altman model interpretation of the Z-scores.

Validation of the model

The study based on the availability of data randomly selected 10 listed firms based on data from their 2017 financial statement filled with the Ghana Stock Exchange and https://africanfinancials.com. The study computed their Z-scores which have been presented below. The Z-scores of the selected firms are presented Figure 2.

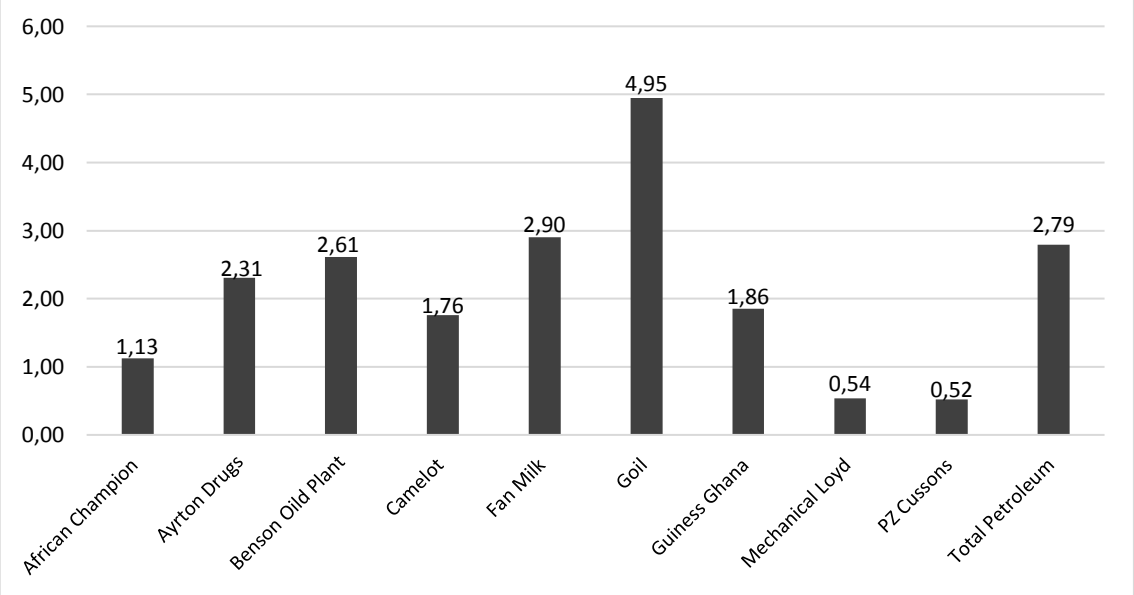

Figure 2. Z-score of selected listed firms

The Altman model classifies companies with Z-Sores below 2.01 as failed companies or at the verge of bankruptcy (Appiah, 2011). Based on the above classifications, 5 of the selected companies are classified as bankrupt companies which according to Appiah (2011), it is a misclassification as they are still operating. The companies which are supposed to be bankrupt from the figure above include African Champions Ltd, Camelot Ghana Ltd, Guinness Ghana Ltd, Mechanical Lloyd Ghana Ltd and PZ Cussons. These companies had Z-score below the threshold of 2.01.

On the other hand, five companies had a Z-score above the threshold of 2.01 and they include Ayrton Drugs manufacturing company Ltd, Benson Oil Plantation Ltd, Fan Milk Ghana Ltd, GOIL Ghana Ltd and Total Petroleum. The percentage pf companies as well as the number of companies not on the brink of bankruptcy or in good financial heath is higher than that reported by Appiah (2011). The number of companies in good financial health in 5 representing 50%. Which result in a type I error of 50%. This is better than the 15.38% reported by Appiah (2011) and a type I error of 84.62%. The model is predicting companies like Guinness Ghana, Mechanical Lloyd and PZ Cussons as bankrupt which can only be as a result of misclassification. In line with the study by Appiah (2011) the author decided to find out the missing link in this potential misclassification.

Table 1. Assessment of companies correctly predicted

Company	Z-score	Turnover	Total Assets	Nature of Business
Ayton Drugs	2.31	35,016,640	30,051,987	Manufacturing
Fan Milk	2.9	524,007,000	300,109,000	Manufacturing
Benson Oil Plant.	2.61	89,979,000	75,760,000	Processing
GOIL	4.95	4,669,509,000	1,036,510,000	Distribution
Total Petroleum	2.79	1,858,478,000	720,473,000	Distribution
Sum		7,176,989,640	2,162,903,987	
Mean		1,435,397,928	432,580,797.4	

The results from Table 2 and three shows that the mean of companies properly classified shows a very high turnover of GHC1,435,397,928 and a total Assets of GHC432,580,797 as compared to the misclassified firms that has a mean turnover of GHC145,037,405 and total Assets of GHC142,326,979. The results confirm the assertion by Appiah (2011) who argue that size influence the probability of failure.

Table 2. Assessment of companies not correctly classified (Failed)

Company	Z-score	Turnover	Total Assets	Nature of Business
African Champion	1.13	4,934,210	5,546,146	Manufacturing
Camelot	1.76	6,420,493	5,321,370	Printing
Guinness Ghana	1.85	587,447,000	527,907,000	Food and Beverage
Mechanical Lloyd	0.54	34,552,736	66,656,999	Trading
PZ Cussons	0.52	91,832,590	106,203,380	Manufacturing
Sum		725,187,029	711,634,895	
Mean		145,037,405.8	142,326,979	

Discussion of findings

The results of the study show corporate bankruptcy cannot be predicted in Ghana using the Altman prediction model as some of the companies labeled as failed as per the model are still operating and appears to be doing well. The result is consistent with the

findings of Appiah (2011) and other studies who also reported the non-applicability of the Altman Bankruptcy prediction model in other jurisdiction. The result is also similar to the findings of Mahama (2015) where the model predicted some solvent firms listed on the Ghana Stock Exchange to be at the risk of bankruptcy. Grice & Dugan (2001) argued that the bankruptcy prediction models are just good indicators that a firms is about to be financially distressed but does not accurately predict bankruptcy especially in different time context other than those used to develop the models. This means that the results from the use of the Altman model should only guide firms and help them take precautions before their situation escalates.

From the study, one thing stood out in the process of coding the data, it appears companies with high debt levels both current and non-current liabilities and low performance in terms of profitability are likely to be included in the bankruptcy bracket. That trend appeared more consistent in the course of the study. The size of the company can also help to product corporate failure as shown in the analysis. The results however show some elements of inconsistency based on the argument presented by Altman. The nature of the business does not accurately predict bankruptcy as some manufacturing companies appeared in both classifications. It can also be argued that the extent to which the country's financial market systems are developed could affect the applicability of the model as some components involves the use of market data which is based on how sensitive the country's capital market responds to information. The model however is useful as it serves as warning sign to listed firms in Ghana.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The study adopted the Altman corporate prediction model as applied by Appiah (2011) to predict the applicability of the model in the Ghanaian context. The results from the analysis shows that the model does not accurately predict corporate failure in Ghana. However, size appears to help predict corporate failure but the nature of business does not from the analysis. The results however give an indication for companies to reexamine their liability and their profitability as these aspects appears to impact on the Z-scores. The model also serves as a useful guide to companies to determine the risk of bankruptcy and reveal areas of potential threats.

Recommendations

On the basis of the above findings and similar studies in Ghana, it can be recommended that future studies attempt to develop an alternative model that can accurately predict bankruptcy in Ghana based on the unique features of the Ghanaian business environment.

The study also recommends that market players take companies financing and capital structure seriously as it has implication on the survival of the company. The high debt level of some listed firms did not reflect in their market valuation which is a sign of weak capital market efficiency. The study further recommends that future studies can examine the extent to which financial market efficiency influence the applicability of the Altman Bankruptcy prediction model.

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Does political connectedness determine stock returns in Indonesia?

Endang Dwi Astuti*; Yunieta Anny Nainggolan

School of Business and Management, Institut Teknologi Bandung, Indonesia

**To whom correspondence should be addressed. Email: endang_dwi@sbm-itb.ac.id*

Abstract.
This study aims to investigate the influences of political connection on stock returns in Indonesia. We develop a comprehensive database of firm-level political connectedness among Indonesian firms from 2010 to 2017. Our sample is non-financial Indonesian listed firms that are selected in the Kompas 100 index for 16 consecutive periods, with a total of 448 firm-year observations. This study employs panel data regressions to estimate this relationship, then mitigate possible endogeneity issues using two-stage least square with fixed-effects. The finding of this study shows that political connectedness is associated with lower stock returns, more prominently in agriculture and consumer goods industries. Moreover, state-owned enterprises are more likely to earn lower stock returns. In summary, our result suggests that investing in politically connected firms could be a risky investment. The finding holds using alternative estimation methods.

Keywords: *Political connection, Stock returns, Indonesia, Kompas 100 index.*

JEL classification: G18, O16

INTRODUCTION

The financial crisis has significant impacts on economic conditions. For example, the 2008 Global Financial Crisis affects most major economies in Asia and Europe, no exception in Indonesia. This crisis affects not only the housing market, but also economic productivity, unemployment, and asset prices. As explained by Reinhart & Rogoff (2009) in The Aftermath of Financial Crises, a sharp inclination of default and declined in output production growth occurred in emerging countries, for two consecutive years after crises.

Particularly in Indonesia, the economic growth drops around 4% during the crisis, as exports weakened and the downturn in security prices (Bank Indonesia, 2009). Due to lots of uncertainty, foreign capital outflows in the Indonesian stock market sharply increase as the investors reactively move out their capital to less risky places.

This sound effects of the financial crisis in real economy sectors and equity market stimulating the investors to find a way to predict the market so that they able to mitigate capital loss. This study aims to help the investors by investigating the determinant of stock returns in Indonesia, using the least explored capital, namely political connectedness. We investigate this issue because the political risk in Indonesia highly intervenes stock market returns (Amtiran & Indiastuti, 2017). Previous study suggests that having a good connection with politicians is a valuable capital for the firms (Ling, Zhou, Liang, Song, & Zeng, 2016).

We formulate the estimation models by developing testable political capital hypotheses used in Civilize & Young (2015) and Hahn & Lee (2009). We extend the study using more comprehensive measures of political connectedness, examining the connection of each board of director and board of commissioner. The evidence of this study is robust under different estimation methods and models.

We examine this linkage using Indonesian data. The reasons are; first, Indonesia has failed to impress Transparency International organization, due to the constant high level of corruption occurred in this country. Currently, Indonesia corruption index ranks number 90 out a total of 181 countries (Transparency International, 2018). Due to the fact that the sentiment is negative in the high level of corruption countries (Bathia & Goyal, 2013), the risk of investing in Indonesian stock markets is more pronounced. Therefore, we want to provide suggestions to investors in such a high-risk market setting. Second, according to Faccio (2006), political connection ubiquitously exploited in the country with high level of corruption, foreign investment restrictions and more transparent system. In fact, Indonesia fulfills those criteria, indicating the importance role of political connection in this country. Therefore, we attempt to address the influence of political ties on stock returns in Indonesia. As best to author's knowledge, this is the first study that examines this linkage using Indonesian data for a period of 2010 to 2017.

Research examining the determinant of stock returns in Indonesia suggest that macroeconomic conditions influence stock market performances. Inflation, exchange rate, interest rate, and bond yields affect stock returns (Defrizal, Sucherly, Wirasasmita, & Nidar, 2015). Furthermore, unique firm characteristics also play an important role in stock market performances. In the traditional model, stock returns are explained by these firm characteristics, i.e., firm size, book-to-market, debt ratio, and E/P ratio (Fama & French, 1992). Prior studies found that in Indonesia, firm size and debt ratio have a positive association with stock returns (Fauzi & Wahyudi, 2016). Also, liquidity ratio and market ratio have negative effects on stock returns in Indonesian markets (Fauzi & Wahyudi, 2016; Martani, Mulyono & Khairurizka, 2009). Therefore, we account for these firm characteristics in our estimation model.

Without neglecting these factors, the impact of political connectedness on stock returns has been tested using various methods (Chen, Ariff, Hassan, & Mohamad, 2014; Ferris, Houston, & Javakhadze, 2016; Fisman, 2001; Leuz & Oberholzer-Gee, 2006; Wu, Wu, & Rui, 2012 among others). Fisman (2001) uses an event study analysis to estimate the value of political connection in Indonesia. He found that the stock returns of politically connected firms highly depend on politicians' performances. Hahn & Lee (2009) find positive influences of political connection on stock returns because such firms are more likely to be assisted in bank loans access and regulation bureaucracies. However, Ling, Zhou, Liang, Song, & Zeng (2016) argue that the existence of politicians in the board members increase firm investment risks as they tend to overinvest the assets, which caused a sharp decline in firm performances. Chen, Li, Su, & Sun (2011) explain that politicians often utilize their power for rent-seeking, consistent with Shleifer & Vishny (1994) that suggest politicians focally point their best interests. Therefore, politically connected firms are less efficient, as government distorts firms' investment behaviour (S. Chen, Sun, Tang, & Wu, 2011).

Also, politically connected firms are associated with poorer corporate governance, due to lower quality information disclosure that caused by ineffectiveness of internal and external monitoring (Chaney, Faccio, & Parsley, 2011). With this regard, the markets punish political stocks. Using the sample of India, Ghosh (2011) shows that firms with

political connection earn lower stock returns compared to non-connected firms. Moreover, the liquidity of stocks is also disrupted (Ding, 2014). Hence, we develop the hypothesis as follow.

H1: Political connection has a negative impact on stock returns

This study contributes to the discussion regarding stock returns determinants, by reporting a significant association between political connectedness and stock returns (Addoum & Kumar, 2016; Civilize & Young, 2015; Fama & French, 1992; Hahn & Lee, 2009 among others). Our study also accompanies the discussion regarding political connection influences on firm value and performances (Cao, Huang, Liu, & Tian, 2012; Fisman, 2001; Su & Fung, 2013; Wu, Wu, & Rui, 2012 among others). Also, our finding has practical contributions. By acknowledging the factors that determine stock returns, the investors able to formulate better investment decisions. Our study helps them in avoiding capital loss.

The structure of this paper is organized as follows. Section 1 is introduction, which describes the background of this research. Section 2 explains the data collection and research methods. Section 3 presents the result of the data analysis. Last, section 4 concludes the paper.

METHODS

The population of this research is all listed firms in Indonesian Stock Exchange from 2010 to 2017. We employ a purposive sampling method and use Indonesian listed firms that are selected in the Kompas 100 index for 16 consecutive periods, from 2010 to 2017 with total observations of 448 firm-year data. We exclude financial firms due to different behaviour and financial reporting. Stock returns and firm characteristics data are obtained from The Indonesian Capital Market Institute (TICMI) databases. For political connection, we hand-collect the data from boards' resumes disclosed in the annual reports and firms' websites. Last, we collect Indonesian 10-Year bond yields from investing.com databases. This study uses panel data regressions to investigate the effect of political connection on stock returns, adopting the employed model in Civilize & Young (2015) as follow:

$$r_{it} = \alpha_0 + \beta_1 politicalconnection_{it} + \varepsilon_{it} \quad \ldots\ldots (1)$$

Where r_{it} denotes the log return of firm i year t. $politicalconnection_{it}$ denotes political connectedness of firm *i* year *t*, consists of $polscore_{it}$ for political connection score of firm *i* year *t*, $pSOE_{it}$ for state-owned enterprises dummy of firm *i* year *t*, and $pNSOE_{it}$ for politically connected non-state owned enterprises of firm *i* year *t*. To calculate political connection score *(polscore)*, we follow Boubakri, Cosset, & Saffar (2008) that calculates the ratio between connected board members to total board members on the firm. We define connected board members following Faccio (2006), if one of its top executives is a member/former of parliament, military, ministry, regent, or have served governmental organizations. White (1980) robust standard error is employed to account heteroskedasticity, serial correlation, and non-normality dispersions that may violate the estimation results.

Since stock risks are multidimensional, we adopt Fama & French (1992)'s multivariate analysis to determine the explanatory factors of stock returns. The following model is employed to test the effect of political connection on stock returns, with several control variables.

$$r_{it} = \alpha_0 + \beta_1 politicalconnection_{it} + \beta_2 Size_{it} + \beta_3 BTM_{it} + \beta_4 Solvency_{it} + \beta_5 LiqRatio_{it} + \beta_6 BEP_{it} + \beta_7 BondYields_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where r_{it} denotes the log return of firm *i* at year *t*. *Polscore* denotes political connectedness of firm *i* at year *t*. *Size* is the natural logarithm of total assets of firm *i* at year *t*, to proxy firm size. *BTM* is book value of equity to market capitalizations of firm *i* at year *t*, to account for firm's growth opportunity. *Solvency* denotes total assets to total liabilities of firm *i* at year *t*, to account for solvency. *LiqRatio* denotes current assets to current liabilities of firm *i* at year *t*, to account firm's liquidity. *BEP* is operating profits to total assets of firm *i* at year *t*, to account basic earning power ratio. Last, *BondYields* denotes Indonesian 10-Year bond yields, to account for undiversifiable risks occurred in the market.

In the first part of our analysis, we use pooled regressions to estimate the models using industry and time controls to account each industry's unique feature and change in economic conditions. To check the robustness, in the second part of our analysis, we use panel data fixed effect regressions and two-stage least square regressions, to account endogeneity problem that may exist in our models. This work uses ratio of politically connected board of directors to total board of directors of firm *i* at year *t (pBOD)* as an alternative instrument of *polscore* in 2SLS regressions.

RESULTS AND DISCUSSION

Summary Statistics

Table 1 reports summary statistics for political connection variables. Panel A provides a proportion of politically connected firms by industry, from a sample of Indonesian listed firms that are selected in Kompas 100 index for 16 consecutive periods, from 2010 to 2017. Panel B reports total observations, mean, standard deviation, minimum value and maximum value of political connection variables used in this research from the total sample.

Table 1. Summary statistics of political connection variables

Panel A: Proportion of politically connected firms by industry

	Number of firms	Number of connected firms	Percentage of connected firms
All firms	448	280	63
Industries:			
Agriculture	40	24	60
Basic Industry and Chemicals	40	32	80
Consumer Good	32	24	75
Trade and Services	16	10	63
Infrastructure, Utilities, & Transportation	48	20	42
Mining	128	78	61
Miscellanous	56	40	71
Property, Real Estate, & Construction	88	52	59

Panel B: Statistics of political connection variables

	Number of obs.	Mean	Std. Dev	Minimum	Maximum
Polscore	445	0.4844	0.6601	0	2
pBOD	448	0.0204	0.0617	0	0.2857
pSOE	448	0.2841	0.3144	0	1
pNSOE	448	0.1786	0.3834	0	1

Source: Author's calculation

From Panel A of Table 1, we find 63% of Indonesian listed firms that are selected in Kompas 100 index for eight consecutive years from 2010 to 2017 are connected to politicians or government officials. Moreover, Basic Industry and Chemicals dominate political connection data set as 80% of the sample from this industry is politically connected. In fact, Basic Industry and Chemicals is the top contributor to Indonesian unemployment and GDP (Ministry of Industry Republic of Indonesia, 2012). Therefore, this industry is more controlled by politicians or government officials to ensure economic stability.

Panel B shows the summary statistics of all political connection variables from the total sample. The mean of political connection score *(polscore)* on our sample is 48.44%, meaning that, on average, the board members or a majority of the shareholders of the firms in our sample are connected to the politicians or government officials, with standard deviations of 0.6601. Also, in average, 2.04% of the board of directors of the firms in our sample are politically connected with maximum score of 28.57%.

Furthermore, we provide summary statistics of firm characteristic variables in Table 2. Panel A reports the total observations, mean, standard deviations, minimum value, and maximum value for total sample. To understand whether the characteristics of politically connected and non-connected firms are different, we provide the summary statistics for a sample of politically connected firms in Panel B and summary statistics of non-politically connected firms in Panel C.

Table 2. Summary statistics of firm characteristic variables

Panel A: Total observations					
	Obs	Mean	Std. dev	Minimum	Maximum
Size	448	14.838	8.882	7.281	32.997
BTM	448	0.699	0.797	-0.386	6.983
Solvency	448	1.717	1.387	0.133	7.515
LiqRatio	448	2.189	1.592	0.345	10.642
BEP	448	0.113	0.127	-0.301	0.618
Panel B: Politically connected firms					
	Obs	Mean	Std. Dev.	Minimum	Maximum
Size	280	14.787	8.809	7.281	32.483
BTM	280	0.746	0.907	-0.386	6.983
Solvency	280	1.668	1.269	0.151	6.104
LiqRatio	280	2.183	1.623	0.345	10.642
BEP	280	0.107	0.125	-0.301	0.618
Panel C: Non-politically connected firms					
	Obs	Mean	Std. Dev.	Minimum	Maximum
Size	168	14.923	9.028	7.515	32.997
BTM	168	0.623	0.570	0.012	3.533
Solvency	168	1.798	1.564	0.133	7.515
LiqRatio	168	2.199	1.547	0.388	7.461
BEP	168	0.123	0.130	-0.287	0.538

Source: Author's calculation

From Panel A of Table 2, we see that the firm size of non-connected firms is higher than connected firms and total sample. The average value of *Size* for non-connected firms is 14.923 (deviation of 9.028), while *Size* of connected firms and total sample are 14.787 (deviation of 8.809) and 14.838 (deviation of 8.882), respectively. For *BTM*, we find that the ratio between book value of equity to market value of equity for connected firms are higher. The average value of *BTM* for connected firms is 74.6% (deviation of 0.907),

while for non-connected and total sample are 62.3% (deviation of 0.57) and 69.9% (deviation of 0.797), respectively. It means that non-connected firms are relatively overpriced compared to connected firms, indicating lower market growth opportunity.

Furthermore, the ratio of total assets to total liabilities *(Solvency)* of non-connected firms is higher. The average value of *Solvency* for non-connected firms is 1.798 (deviation of 1.564), meaning that such firms are relatively more solvent due to lower debt ratio. On the other hand, connected firms own higher debt ratio because such firms have more access to finance, consequently it becomes less solvent (Claessens, Feijen, & Laeven, 2008; Yeh, Shu, & Chiu, 2013). Similarly, current ratio *(LiqRatio)* of non-connected firms is higher because the curent liabilities of non-connected firms is lower.

Interestingly, connected firms have less basic earning power because the ratio between operating profits to total assets *(BEP)* is lower. The average value of *BEP* on connected firms is 10.7% (deviation of 0.125), while *BEP* on non-connected firms is 12.3% (deviation of 0.130). It means that connected firms are less efficient in utilising the total assets compared to non-connected firms. This inefficiency may occur due to rent-seeking activities from government officials that often occurred on connected firms Chen, Li, Su & Sun 2011). After the data distribution of variables used in this study is identified, we conduct a Pairwise Correlation test to ensure that our estimation models examining the influence of political connection on stock returns contain no multicollinearity problems.

Table 3. Pairwise correlation

	polscore	Size	BTM	Solvency	LiqRatio	BEP	BondYield
Polscore	1						
Size	0.011	1					
BTM	-0.026	-0.0664	1				
Solvency	-0.088*	-0.51***	-0.020	1			
LiqRatio	-0.047	-0.0078	-0.061	0.25***	1		
BEP	-0.083*	0.0715	-0.35***	-0.016	0.106**	1	
BondYield	-0.008	-0.346***	-0.038	0.337***	-0.061	-0.11**	1

****, **, * indicate statitical significance at 1%, 5%, and 10%, respectively.*
Source: Author's calculation

To provide unbiased estimation results, we use independent variables that correlated below 60% (Huang & Zhao, 2016). The result of Pairwise Correlation tests presented in Table 3 shows that our models contain no multicollinearity problems because the correlation matrix does not exceed 60%. After that, we conduct Breusch-Pagan Lagrange Multiplier, and Haussmann tests to decide the estimator of our models. The result shows that pooled OLS regressions fit our data set because it meets the best linear unbiased estimator (BLUE) conditions.

Estimation results

We provide the results of our estimation models in Table 4, using pooled OLS regressions. Panel A shows the estimated coefficient of political connection score *(polscore)* to stock returns. In Panel B, following Lin, Tan, Zhao, & Karim (2015), we separate the political connectedness under different types of ownership, i.e. state-owned enterprises *(pSOE)* and non-state-owned enterprises *(pNSOE)* to understand where the value of political connectedness occurred. We also provide the result of two sample mean-comparison test to ensure that the independent variables used in the model are statistically different, in order to avoid multicollinearity issue.

Table 4. Stock returns under different type of connection

Panel A: Overall political connection					
	Coefficient	t-stat			
Polscore	-0.023	(-1.80)*			
Cons	0.048	(4.06)***			
Obs	434				
R-Squared	0.0059				
Panel B: Based on different type of ownership structure					
	Coefficient	t-stat		Differences	t-stat
pSOE	-0.041	(-1.70)*	β1 - β2 = 0	-0.268	(-7.61)***
pNSOE	-0.020	(-0.94)			
Cons	0.055	(3.63)			
Obs	437				
R-squared	0.0055				

****, **, * indicate statitical significance at 1%, 5%, and 10%, respectively.*
Source: Author's calculation

Reported in Panel A of Table 4, stock returns for politically connected firms are significantly lower than non-connected firms. The *polscore* coefficient suggests that when firms tying closer connection to the politicians or government official, the average stock returns of the firms decrease 2.3% per year (statistically significant at 10%). Another significant variable is state-owned enterprises dummy *(pSOE)* that shows such firms earn lower average stock return of 4.1% per year (statistically significant at 10%) compared to average stock returns of non-SOEs. Previous study shows that the officials intervene connected firms for rent-seeking, resulting in lower firm performances (Acemoglu & Johnson, 2014). This exploitation is cutting the profit pie that initially distributed to the investors. Indeed, our result confirms the evidence in China that shows political rent-seeking is associated with negative stock returns (Fan, Rui, & Zhao, 2008).

To ensure that the evidence is not caused by other factors that also explain stock returns in Indonesia, we further run the regressions with control variables. We use pooled OLS regressions to estimate the relationship, using the robust standard error to account heterokesticity and non-normality dispersions (White, 1980). We run three models to estimate this relationship; model 1 does not account industry and time effects. Model 2 accounts time effect, and model 3 accounts industry effect. Other variables used are similar, as presented in Table 5.

Table 5. Stock returns and political connection with control variables

	OLS (1)		OLS (2)		OLS (3)	
	Coefficients	t-stat	Coefficients	t-stat	Coefficients	t-stat
Polscore	-0.028	-1.72*	-0.018	-1.70*	-0.006	-0.44
Size	0.007	4.83***	-0.012	-1.38	0.007	5.29***
BTM	-0.048	-1.98**	-0.040	-1.89*	-0.051	-2.11**
Leverage	0.002	0.28	-0.003	-0.45	0.006	0.87
LiqRatio	-0.006	-1.44	-0.007	-1.34	-0.008	-1.61
BEP	0.223	2.41**	0.163	1.83**	0.214	2.25**
BondYields	-0.109	-3.15***	-0.358	-6.00***	-0.115	-3.28***
Cons	-0.039	-0.96	0.052	0.49	-0.013	-0.28
Industry Control	No		No		Yes	
Time Control	No		Yes		No	
Obs	434		434		434	
R-squared	0.2238		0.3570		0.2495	

****, **, * indicate statitical significance at 1%, 5%, and 10%, respectively.*
Source: Author's calculation

After controlling for firm characteristics, the results confirm the negative relationship between political connection and stock returns in Indonesia. Table 5 shows political connectedness *(polscore)*, firm size *(Size)*, book-to-market *(BTM)*, basic earning power *(BEP)*, and bond yields *(BondYields)* determine stock returns in Indonesian market. In model 1, we see that one-unit standard deviation of political connection score decrease 2.8% average stock returns (statistically significant at 10%). Furthermore, when the variance of time effects is controlled, the magnitude of political connectedness influence on stock returns decrease 1% to 1.8%. However, the estimated coefficient of political connectedness *(polscore)* in model 3 become insignificant when we control for industry effect. Therefore, we further estimate this association within each industry to see where this effect is mediated.

For the influence of firm characteristics on stock returns, Table 5 shows larger firms tend to gain higher stock returns per year. We find one-unit increase in firm size increase 0.7% stock returns per year. We also find negative relationship between book-to-market *(BTM)* to stock returns, where one-unit increase in *BTM* decreases 4.8% stock returns. The result consistents with Hahn & Lee (2009) and Fama & French (1992) that found financially unconstrained firms (proxied by *Size* and *BTM)* have been predicted earning higher stock returns.

Similarly, the ratio between operating income to total assets *(BEP)* have positive and significant association with stock returns, consistent with Civilize & Young (2015). We find one-unit change in basic earning power increases 22.3% of stock returns per year. Moreover, Indonesian 10-Year Bond Yields is negatively associated with stock returns since bond is naturally an alternative investment choice for stock market. We see one-unit change in *BondYields* decreases 10.9% stock returns, and this finding is consistent with Glascock, Lu, & So (2000).

After the effects of political connectedness and firm characteristics are examined, we further analyze this association within each industry to understand the magnitude of this impact within each sector. We use fixed effect panel data regressions to estimate the models, with time effects to account for the variance of economic change conditions across time. The estimation results are reported in Table 6.

Table 6. Stock returns within each industry

	Agri-culture	Basic Industry & Chemicals	Consumer Goods	Trade and Services	Infrastructure, Utilities & Transportation	Mining	Miscella-nous	Property, Real Estate & Construction
polscore	-0.233*	0.188	-1.446**	6.445	-0.036	0.054	0.134	-0.174
	(-1.82)	(1.54)	(-2.35)	(0.14)	(-0.07)	(0.34)	(0.29)	(-1.04)
Size	-0.179*	0.315	-0.344	2.946	-0.219	0.037	-0.108	-0.175
	(-1.90)	(1.60)	(-1.09)	(0.06)	(-1.16)	(0.77)	(-0.70)	(-1.60)
BTM	-0.129**	-0.02	-1.847***	1.576	-0.332***	-0.103***	-0.239**	-0.039
	(-2.34)	(-0.20)	(-3.30)	(0.12)	(-5.27)	(-2.64)	(-2.20)	(-1.48)
Leverage	-0.031	-0.029	-0.015	-0.132	-0.034	-0.021	0.077	0.005
	(-1.47)	(-0.85)	(-0.51)	(-0.12)	(-1.59)	(-0.53)	(0.88)	(0.21)
LiqRatio	0.006	0.027	-0.0265	0.588	0.073	-0.012	-0.039	0.005**
	(0.20)	(1.53)	(-0.42)	(0.30)	(1.25)	(-0.56)	(-1.24)	(0.72)
BEP	0.158	0.585**	1.507**	-31.42	-0.387	0.443	0.598	1.290***
	(0.57)	(2.65)	(2.49)	(-0.27)	(-1.36)	(1.44)	(0.73)	(4.09)
Cons	2.031**	-3.593*	5.163	-37.93	2.451	-0.269	1.101	1.472
	(2.06)	(-1.77)	(1.58)	(-0.06)	(1.25)	(-0.55)	(0.64)	(1.46)
Time Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	38	40	32	16	47	118	55	88
R-Squared	0.2483	0.3721	0.3799	0.0249	0.3434	0.5027	0.2767	0.2099

Source: Author's calculation

From table 6, we see that political connection influences occurred on specific industries. This study finds political connectedness in Indonesia matters in Agriculture and Consumer Goods sectors. The estimated coefficient of political connectedness *(polscore)* is negative and significant in Model 1, meaning that one-unit change of political connection score of firms in Agriculture industry decrease 23.3% its average stock returns. Similarly, the estimated coefficient of political connection score *(polscore)* in model 3 is also negative and significant. For one-unit change in political connection score of firms in Consumer Goods industry, decreases 144.6% stock returns per year. To deliver robust evidence for the link between political connection and stock returns, we estimate the models using different methods. First, using fixed effect panel data regression to account for inconsistency of our data set. Second, using two-stage least square with fixed effects, the models account for endogeneity issue that may violate our regressions. We use political connection score of board of directors *(pBOD)* as an alternative measure of *polscore.* The result is presented in Table 7.

Table 7 shows consistent results for the link between political connectedness and stock returns. In model 1, we see that one-unit change of political connection score *(polscore)* decreases 25.2% stock returns per year. Similarly, using instrument variable of political connectedness of firm's board of directors, we find 56.6% average stock returns decrease as if board of directors become more connected to political party. In summary, it can be concluded that investors in Indonesia see political connectedness as a negative value.

For control variables, the result consistents with our main models. Larger firm *(Size)*, low book-to-market *(BTM)*, and high earning ratio *(BEP)* are positively influence stock returns. Furthermore, using fixed effect panel data regression and two-stage least square regression, we find other characteristics determine stock returns in Indonesia. Firm with higher assets to liabilities ratio *(Solvency)* is associated with positive returns because such firms are less likely to be financially distressed.

Table 7. Political connection and stock returns using different estimation methods

	OLS Fixed Effect (1)		2SLS Fixed Effect (2)			
			First Stage		Second Stage	
	Coefficients	t-stat	Coefficients	t-stat	Coefficients	t-stat
polscore	-0.252	(-2.77)***			-0.566	(-3.37)***
pBOD			-1.199	(-3.45)***		
Size	0.006	(5.71)***	0.008	(6.06)***	0.007	(5.50)***
BTM	-0.117	(6.56)***	-0.116	(-6.53)***	-0.116	(-6.40)***
Solvency	0.020	(2.16)**	0.020	(2.17)**	0.023	(2.38)**
LiqRatio	-0.031	(-3.10)***	-0.024	(-2.48)**	-0.038	(-3.56)***
BEP	0.558	(3.00)***	0.539	(4.28)***	0.605	(4.62)***
BondYield	-0.148	(-3.80)***	-0.384	(-3.68)***	-0.158	(-3.97)***
Cons	0.975	(1.50)	-0.020	(-0.44)	0.258	(2.64)***
Obs	417		417		417	
R-Squared	0.2561		0.1589		0.2911	

Source: Author's calculation

In summary, this work exploits an alternative determinant of stock returns in Indonesia using the least discussed factor, namely political connectedness. We find political connectedness determine stock returns, more prominently in Agriculture and Consumer Goods industries. The association between political connectedness and stock returns is negative due to rent-seeking behavior that is perceived negatively by the

investors (Chen, Li, Su & Sun, 2011). Rent-seeking behavior that commonly occurred in connected firms decrease firm performances and wealth distribution, hence the investors in Indonesia prefer to avoid these firms.

The finding of this study suggests that the presence of politicians in the board members cause negative sentiment in Indonesian stock markets. The politicians may exploit the company's profit for 2014 general election campaign and political party operations. Therefore, when politicians or government officials enter the company as the board member, the investors perceive that such agents will confiscate their wealth. With this regard, the stock price of such firms will befall. Our finding explains this phenomenon by demonstrating political connectedness statistically significant decreasing firm's stock returns using various methods.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study reports political connectedness determines stock returns in Indonesia. We find the existence of a politically connected board of directors or board of commissioners influence negatively to stock returns, more prominently in Agriculture and Consumer Goods sectors. Also, state-owned enterprises are more likely to gain lower returns compared to privately-owned enterprises. Prior literature explains that politicians often exploit the profit earned for rent-seeking that cause investors distrust. This study also find larger firms, low book-to-market, more solvent, more earning power, and liquid firms are more likely to gain high stock returns. The results hold under different alternative methods.

Recommendations

This study has several limitations. First, political connection data is compiled using all available information disclosed in boards' resume, and neglect unobserved aspect of connection, such as personal relationship with the political party that might also important on explaining political connection power. Second, this study does not examine the link between political connection and rent-seeking directly. Therefore, we suggest further research to test the direct relationship between political connection and rent-seeking in Indonesia, to deliver empirical explanations regarding negative effects of political connection on stock returns.

Nevertheless, the finding of this study is important for investors. By understanding the determinants of stock returns presented in this research, we help the investors on optimizing their investment decisions. Our results suggest the investors consider political connectedness of the board members, prominently in Agriculture and Consumer Goods sectors.

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Effect of capital inflows on financial development in Ghana

Daniel Agyapong*; Michael Asiamah; Joop Lloyd Crabbe

Department of Marketing and Supply Chain Management,
University of Cape Coast, Ghana

**To whom correspondence should be addressed. Email: dagyapong@ucc.edu.gh*

Abstract

The study examines the effect of capital inflows on financial development in Ghana. The study employs the Johansen and Juselius multivariate cointegration approach in analysing the interactions between the variables using annual data spanning 1970 to 2014. The results show that foreign direct investment (FDI), external debt, and remittance inflows have significant negative impact on financial development in the long run. Furthermore, there were significant negative relationships between external debt, remittance inflows, and financial development in the short run. However, the relationship between FDI and financial development in the short run was not significant. The study was only limited to Ghana. However, the study will help countries particularly developing countries in analysing inflows of capital and their effect on the development of financial sector for policy purposes. Furthermore, this study provides avenues for policy makers to properly formulate policies containing capital inflows for effective financial sector development. Also, the study will help policy makers in terms of how issues of capital flight must be addressed and how to take pragmatic steps to channel remittances inflows to productive sectors of the economy.

***Keywords**: Capital inflows, Financial development, Cointegration analysis*

JEL classification: C01, C32, F21

INTRODUCTION

The financial systems of most economies have witnessed remarkable development over the past two decades (Ma & Lin, 2016). Ghana's financial sector deteriorated considerably during the late 1970s and the 1980s due to economic misalignment and mismanagement often blamed on the series of military coup that took place during this period (Fosu, 2002; Owusu, 2008). The poor state of the country and the financial sector then, led to implementation of the economic recovery programme (ERP) followed by the structural adjustment programme (SAP) (Fosu & Aryeetey, 2008). The financial sector structural adjustment programme (FINSAP) was part of SAP aimed at transforming the financial sector. This development was characterised by a big development in business and policy practice that saw rapid growth in the number of bank and non-bank financial institutions, products offered and regulation of the financial sector (Kwakye, 2012; Ncanywa & Mabusela, 2019). A well-developed financial system is fundamental in achieving viable and sustainable economic growth (Esso, 2010). Developed financial system intensifies the availability of capital by mobilising savings from the surplus spending unit, expediting transactions as well as attracting foreign investments. Such markets are characterised by efficient allocation of monetary resources and better risk management, enhanced transparency and good corporate governance practices (Kwakye, 2012; Ayadi, Arbak, Ben-Naceur & De Groen, 2013). Furthermore, a developed financial

sector could ease access to credit to first-time businesses as well as low-income (low collateral) borrowers such as small- and medium enterprises (Ayadi, Arbak, Ben-Naceur & De Groen, 2013).

The savings-investment gap theory suggested that, inadequate savings mobilization in developing economies translate into inadequate investment resulting in savings investment constraints as well as balance of payment deficit (Adepoju, Salau & Obayelu, 2007). Hence, the need to source for external capital flows to complement domestic savings so as to achieve the desired level of growth and development of the economy. These foreign capital inflows in perspective could be in the form of foreign direct investment (FDI), foreign remittances, external debt, and foreign portfolio investment among others. Capital inflows and mobility of capital across economies generally allow economies with limited savings to attract finance for industrious investment projects, promote diversification of investment risk, encourage international trade, and more importantly contribute greatly to financial markets development (IMF, 2010).

Proponents of foreign capital inflows suggest that foreign capital inflows to developing economies could be of great benefit to receiving economies as it augments domestic investment. This would ultimately stimulate economic growth and development as well as ease prospective balance of payments constraints (Siddiqui, 2014). Some authors also argue that multinational companies, via foreign capital inflows, could assist in filling the gap existing between developed and developing economies (Romer, 1993). Added to the above, foreign capital inflows are essential for the stability of the macro economy as they influence a number of macroeconomic variables such as the exchange rates, the interest rates of borrowing, foreign exchange reserves, monetary policy mechanisms as well as national savings and investments. Foreign capital inflows stimulate economic development; support employment; encourage the development of human capital; improve income level of citizenry; encourage capital formation among others. To speed up the rate of fixed capital formation via investment, there is the need for domestic savings mobilization to be improved far beyond the percentage point recorded in Ghana (Angmortey & Tandoh-Offin, 2014).

Improvement in growth and development of the economy further attracts investment and more investments invite further inflows of foreign capital. Ghana as a developing economy is characterised by huge current account deficit, which triggers the enormous inflow of foreign capital (Angmortey & Tandoh-Offin, 2014). Domineering capital inflows to developing economies is perceived to enhance external constraints confronting such economies. Feldstein (1994) argued that theoretically, the effect of foreign capital influxes on domestic investment is materially ambiguous. Suggesting that, incoming capital may promote domestic investment, nonetheless it could also escalate imports and hence, can reduce domestic production and investment. He further contends that, if access to foreign capital permits a firm to raise capital for investment, that firm's growth may cause another firm to decrease investment.

This study is motivated by the fact that, literature on the role foreign capital plays in the development of developing economies is inconclusive. The empirical question that however arises is the implication of foreign capital inflows for financial development of developing economy like that of Ghana. This is compelled by the misgivings being raised as to whether the enormous inflows of foreign capital into developing economies like Ghana over the period have translated to financial development. Further, empirical evidence on the factors that influence financial development in Ghana to govern policy makers is few (Takyi & Obeng, 2013; Acheampong, 2007; Adam & Tweneboah, 2009). Given this background, the role of foreign capital inflows in influencing financial development in the Ghanaian economy needs to be examined critically, since the financial sector is found to have played a significant role in stimulating economic growth. The rest

of the paper is organised as follows: section 2 considers the literature review, section 3 presents the methodology, section 4 discusses the empirical results, and the last section presents the conclusion and recommendations of the study as well as the references.

LITERATURE REVIEW

There exist a number of theories offering justification for the movement of capital across borders. Capital inflow theories are mainly based on imperfect market situations but for a few among them which are based on imperfect capital market conditions. Others are based on institutional factors. Others as well explained the arrival of Multi-National Corporations (MNCs) entirely in developing economies. The current study is grounded on the MacDougall-Kemp theory.

The MacDougall-Kemp theory is one of the initial theories of capital inflows developed by MacDougall (1960) and consequently expounded by Kemp (1964). According to the MacDougall-Kemp hypothesis, in a two-country model – one representing an investing economy and the other representing host economy, when the price of capital is assumed to be equal to the countries' marginal productivities, capital would move liberally from a capital abundant economy to a capital scarce economy. When this happens, the marginal productivity of capital will in turn equalize between the two economies. This would lead to enhancement in efficiency in the usage of capital across nations. Even though the output in the investing economy decreases as a result of foreign investment outflow, Gross Domestic Product (GDP) does not drop in so far as the investing economy receives returns on the capital invested overseas, which is practically equivalent to the marginal productivity of capital invested times the volume of foreign investment. As long as the income received from foreign investment is more than the loss in output, the investing economy should continue to invest overseas as it enjoys greater national income prior to foreign investment. The host economy on the other hand would as well witness rise in national income as a result of greater level of investment, which could not have been possible in the absence of foreign capital inflow.

Empirically, Takyi & Obeng (2013) examined the determinants of financial development within the Ghanaian economy using ARDL. Using quarterly data for the period 1988 to 2010, they found a relationship between FDI inflow and financial development. They concluded that FDI inflow is an essential cause of financial development in Ghana.

Aurangeb & Haq (2012) examined the influence of FDI inflow in bringing about growth of the Pakistan economy using annualised data for the period of 1981 to 2010. Unit root test confirms the stationary of all variables at first difference. As a result of adopting the multiple regression estimation technique, their results showed FDI inflow has a positive and significant association with growth of the Pakistanis economy. They resolved that FDI inflow is actually essential for the growth of any economy.

Adeniyi, Omisakin, Egwaikhide & Oyinlola (2012) studied the causal relationship between FDI and financial development in Ghana, Gambia, Nigeria, Cote d'Ivoire and Sierra Leone for the period of 1970 to 2005 by applying Granger causality test. Measuring financial development by three variables - liquid liabilities/GDP, banking sector credit/GDP and credit to the private sector/GDP, the findings support the view that FDI matters for financial development in the economies considered except for Nigeria.

Adam & Tweneboah (2009) adopted a multivariate cointegration and the vector error correction model to ascertain the effect of FDI on stock market development in Ghana. The result showed that there exists a long run relationship between FDI and stock market development. Girma & Gong (2008) found FDI inflow to various sectors to be positively related with domestic innovative activity and improve access to domestic finance.

Baltagi, Demetriades & Law (2007) conducted a study using annual panel data methods and their findings indicate that trade openness and financial openness collectively determines financial development across different economies. Their outcomes revealed that economies that are slightly open could benefit greatly in relation to financial development if they are open to trade or foreign capital accounts. These economies could have greater benefits if they open both trade and capital accounts, even though opening at least one could still influence financial development.

Acheampong (2007) also examined the work of McKinnon-Shaw within the context of the Ghanaian financial sector. He specifically examined the savings-real interest rate nexus; the investment-real interest rate relationship as well as the investment-growth link by employing the VAR methodology and making use of quarterly data from 1988 to 2004. His results justified the savings-real interest rate relationship, the investment-real interest rate connection as well as the investment-economic growth interconnection in the long run. Moreover, the causality test authenticated the real interest rate-savings nexus and the investment-financial development nexus while an inverse causality runs from growth to savings. Capital inflows do not only lead to financial development but also to overall economic growth.

METHODS

Model

The study aimed at analysing the effect of capital inflows on financial development in Ghana. The study employed the quantitative research approach with the help of causal research design and secondary data. To examine the role played by capital inflows in influencing financial development; the study followed the approach in Obeng & Takyi (2013); Huang (2010); Chinn & Ito (2006); McKinnon & Shaw (1973) to estimate an economic model for financial development. The study used access to credit by the private sector and liquid liability as proxies for financial development. The models are stated Model 1 and Model 2:

Model 1: Access to credit by the private sector and capital inflows

$$\begin{aligned}\Delta ACC_t = {} & \beta_0 + \beta_1 ACC_{t-1} + \beta_2 FDI_{t-1} + \beta_3 ED_{t-1} + \beta_4 RI_{t-1} + \beta_5 GDPPC_{t-1} + \\ & \beta_6 BD_{t-1} + \beta_7 BM_{t-1} + \beta_8 INFL_{t-1} + \beta_9 LLB_{t-1} + \sum_{i=1}^{p} \alpha_1 \Delta ACC_{t-i} + \\ & \sum_{i=1}^{p} \alpha_2 \Delta FDI_{t-i} + \sum_{i=1}^{p} \alpha_3 \Delta ED_{t-i} + \sum_{i=1}^{p} \alpha_4 \Delta RI_{t-i} + \\ & \sum_{i=1}^{p} \alpha_5 \Delta GDPPC_{t-i} + \sum_{i=1}^{p} \alpha_6 \Delta BD_{t-i} + \sum_{i=0}^{p} \alpha_7 \Delta BM_{t-i} + \\ & \sum_{i=0}^{p} \alpha_8 \Delta INFL_{t-i} + \sum_{i=0}^{p} \alpha_9 \Delta LLB_{t-i} + \pi ECM_t + \epsilon_t \quad \text{..... (1)}\end{aligned}$$

Model 2: Liquid liability and capital inflows

$$\begin{aligned}\Delta LLB_t = {} & \beta_0 + \beta_1 LLB_{t-1} + \beta_2 FDI_{t-1} + \beta_3 ED_{t-1} + \beta_4 RI_{t-1} + \beta_5 GDPPC_{t-1} + \\ & \beta_6 BD_{t-1} + \beta_7 BM_{t-1} + \beta_8 INFL_{t-1} + \beta_9 ACC_{t-1} + \sum_{i=1}^{p} \alpha_1 \Delta ACC_{t-i} + \\ & \sum_{i=1}^{p} \alpha_2 \Delta FDI_{t-i} + \sum_{i=1}^{p} \alpha_3 \Delta ED_{t-i} + \sum_{i=1}^{p} \alpha_4 \Delta RI_{t-i} + \\ & \sum_{i=1}^{p} \alpha_5 \Delta GDPPC_{t-i} + \sum_{i=1}^{p} \alpha_6 \Delta BD_{t-i} + \sum_{i=0}^{p} \alpha_7 \Delta BM_{t-i} + \\ & \sum_{i=0}^{p} \alpha_8 \Delta INFL_{t-i} + \sum_{i=0}^{p} \alpha_9 \Delta ACC_{t-i} + \pi ECM_t + \epsilon_t \quad \text{.....(2)}\end{aligned}$$

Where:

Δ = denotes the first difference operator,
β_0 = the constant,
$\beta_1 - \beta_8$ = long run coefficients,
α_1- α_8 = parameters of the short run dynamic model,
π = the error correction term and
ε_t = the error term
t = time period
ACC = access to credit by the private sector/GDP
LLB = Liquid liability/GDP
FDI = FDI /GDP
ED = External debt/GDP
RI = Remittance inflows/GDP
GDPPC = Gross Domestic Product per capita
INFL = Inflation Rate
BM = Broad money supply
BD = Bank deposit/GDP

Data source

Secondary data was used. Data on access to credit by private sector per GDP, banks liquid liability per GDP and remittance inflows per GDP, gross domestic product per capita (GDPPC), Consumer price index (inflation) and bank deposit per GDP were obtained from Global Financial Development Dataset. Data on FDI, external debt and broad money supply were obtained from the World Bank World Development Indicators. Data spanned from 1970 to 2014.

Mostly, time series data contain unit root (non-stationary) at levels (Engle & Granger, 1987). To avoid spurious regression results, a unit root test was conducted. The results showed that, the variables were stationary at first difference (Table 3). This informed the decision to estimate the cointegration within the Johansen and Juselius (1990) multivariate cointegration model. This model allows combination of variables stationary at first order of integration I (1) in the same model. It permits the model to take adequate number of lags that captures the data generating procedure from a general to a more specific modelling framework. It supports the derivation of Dynamic Error Correction Model (ECM) from the multivariate cointegration model that helps integrate the short-run dynamics with the long-run equilibrium without losing long-run information.

Measurement of the variables

Endogenous variables: Financial development was the endogenous variable in the study and was proxied by access to credit by the private sector credit/GDP and banks liquid liability/GDP. In seeking to collectively test the hypotheses advanced above so as to achieve the objective of the study.

Exogenous variables: The exogenous variables of the study included capital inflows proxied by FDI inflows/GDP, external debt/GDP and remittance inflows/GDP.

Control Variables: The study employed a number of macroeconomic variables as control variables. These included economic growth per capital; year on year inflation; broad money supply and banks deposit/GDP. These control variables are said to have considerably contributed to financial development.

The description of the above-mentioned variables is summarized in Table 1.

Table 1. Description and explanation of variables and source of data

Variables	Explanation	Data source
Access to credit by the private sector/GDP	Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment	Global Financial Development Dataset 1970-2014
Liquid liability/GDP	Ratio of liquid liabilities to GDP. Liquid liabilities are also known as M3.	Global Financial Development Dataset 1970-2014
FDI/GDP	FDI inflows to Ghana as a percentage of GDP	World Bank World Development Indicators 1970-2014
External debt/ GDP	Total external debt stocks to gross national income. Total external debt is debt owed to non-residents repayable in currency, goods or services.	World Bank World Development Indicators 1970-2014
Remittance inflows/GDP	Workers' remittances and compensation of employees comprise current transfers by migrant workers and wages and salaries earned by non-resident workers.	Global Financial Development Dataset 1970-2014
Broad money supply	Demand deposits other than those of the central government.	World Bank World Development Indicators 1970-2014
Bank deposit/GDP	The total value of demand, time, and saving deposits at domestic deposit money banks as a share of GDP.	Global Financial Development Dataset 1970-2014
GDPPC	Gross Domestic Product Per the total population	Global Financial Development Dataset 1970-2014
Inflation	Year on year percentage change in consumer price index	Global Financial Development Dataset 1970-2014

Source: World Bank, World Development Indicators

RESULTS AND DISCUSSION

Descriptive statistics of the variables

Table 2 presents the descriptive statistics of the variables. The average level of domestic credit to the private sector is 8.4 units with a standard of deviation of 5.2. This mean is however characterized by a median, minimum and a maximum of 5.9, 1.5 and 19.9 units respectively. It is, therefore, apparent that outliers do not have any significant impact on the mean value of domestic credit to the private sector. Over the period under review, the average of liquid liability to GDP was 20.4 with variability of 5.6, and a range of 10.2 units to 29.3 units. The mean of FDI of the economy was about 2.3 units (σ=2.9) while recording median, maximum and minimum values of .96, 9.52 and -.7 units respectively.

Table 2. Descriptive statistics of the variables

Variables	Mean (μ)	Median	Maximum	Minimum	Std. Dev. (σ)	Obs.
ACC	8.389	5.903	19.907	1.542	5.214	45
LLB	20.418	19.770	29.332	10.162	5.635	45
FDI	2.286	.956	9.517	-.660	2.899	45
ED	54.561	44.894	129.315	18.109	30.689	45
RI	.634	.115	5.395	.010	1.297	45
BD	13.456	13.419	23.015	4.520	5.223	45
BM	23.004	22.858	34.108	11.305	6.395	45
GDPPC	461.596	431.941	763.938	320.781	106.763	45
INFL	30.836	22.296	122.875	3.030	28.440	45

Source: World Bank World Development Indicators

Note: ACC = domestic access to credit by the private sector, LLB = liquid liability, FDI = FDI, ED = external debt stock, RI= remittance inflows, BD = bank deposit, BM = broad money supply, INFL = inflation and GDPPC = for gross domestic product per capita.

The country recorded an average external debt stock of 54.6 (σ=30.7) units during the period. The minimum external debt value was 18.1 units and a maximum value of 129.3 units. The average remittance inflows into the economy during the period were 0.6 units (σ=1.3). The minimum remittances were of 0.01 units and maximum were 5.4 units. The results also showed an average bank deposit to GDP of 13.5.

Regarding the control variables, bank deposit to GDP, broad money supply (μ=23.0, 13.6; σ=6.4; 5.2) respectively, GDP per capital (μ=461.0, σ=107) and inflation (μ=30.8, σ=28.4). An average of 30.8 in inflation is a cause for concern in terms of the changes in consumer prices. The variations in the variables (σ) show the level of volatility in the macroeconomy of Ghana.

Trend analysis of financial development

The trend analysis of a variable offers a pictorial view of the behaviour of the variable over a period of time. Trend analyses are essential as they reveal any pattern developed by the variables over a period. Over the years, the Ghanaian economy witnessed a much more increase in domestic credit to the private sector and banks liquid liability. However, there have been discrepancies in domestic access to credit by the private sector and banks liquid liability in the Ghanaian economy over the years. This section presents the trend of how the Ghanaian economy fared regarding domestic access to credit by the private sector and bank liquid liability over the period 1970 to 2014.

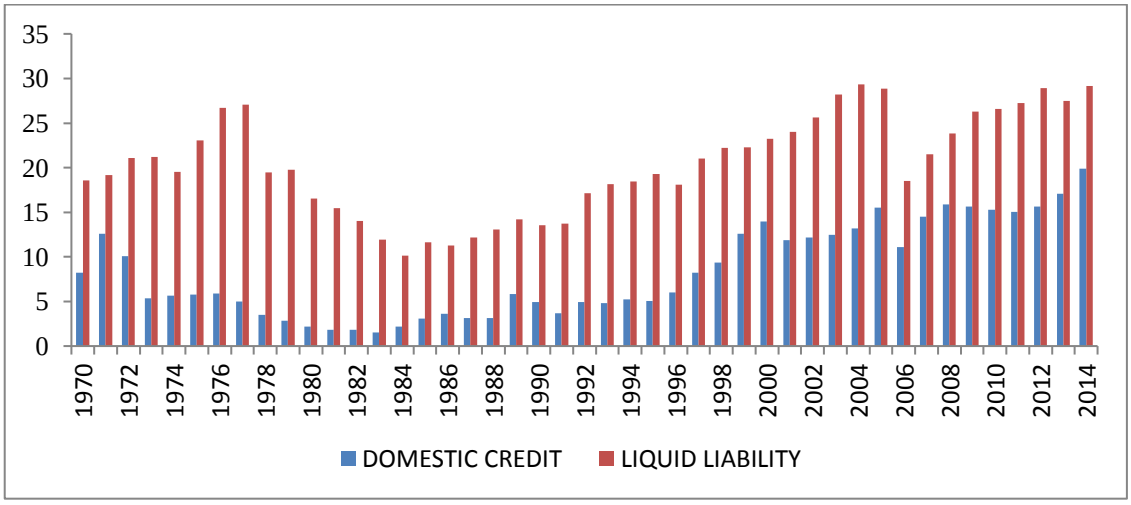

Figure 1. Trend of financial development variables
Source: World Bank World Development Indicators

Figure 1 presents the trend of domestic access to credit by the private sector from 1970 to 2014. The curvature of the domestic access to credit by the private sector plots shows the economy has been erratic over the period. The graph shows a downward trend in access to credit from 1972 to 1982. This is the period the country suffered its major economic setbacks. This period was characterized by volatile political and economic situations including frequent changes in governments through political coup d'état. This situation could impact adversely on the ease of doing business. This could impair savings mobilization and ultimately access to credit. To correct the imbalances in the economy, the Structural Adjustment Programme (SAP) was rolled out to propel growth in the entire economy including the financial sector. Following the introduction of the SAP, the there was a rise in financial development (access to credit) for the period 1982 to 2000. However, there was a dip in the period between 1990 and 1992. The reason for the dip during this period was attributed to impending general elections under the 4th Republican constitutional rule. Certainly, financial institutions acted cautiously during such periods. This could be a constraint to the private sector. Subsequent to the change in government in the year 2000 that saw a slight fall in access to credit, the economy witnessed an increased access to credit by the private sector from the year 2000 to 2014. However, there are still some occasional dips as indicated in the years 2004 to 2006. From Figure 1, the changes in access to credit are largely influenced by events such as general elections and major economic policies of the country such as SAP.

Similar to the trend of domestic access to credit by the private sector (Figure1), the trend of liquid liability was erratic. The periods when this peaked includes 1976-1978; 2003-2005 and 2012-2014. The political instability of the late 1970s and early 1980s has been found to have had country experienced a rise in liquid liability from 1970 to 1978 after serious negative effect on the economy (Fosu & Aryeetey, 2008; Ncanywa & Mabusela, 2019). Consequent to this downturn, the Ghanaian economy began to experience an upward trend of financial development-liquid liability as it endeavoured to outperform previous year's average. It is however clear from Figure 1 that, from the start of 1983 to 2014, liquid liabilities of banks have been increasing except for the period 2004 to 2006 where there was a sharp fall in liquid liability of banks.

It is argued that the rise in the trend of financial development variable is as a result of a rise in FDI, external debt and remittance inflows (Comes, Bunduchi, Vasile & Stefan, 2018; Njangang, Nembot, Noubissi & Fosto, 2018). However, this assertion is hypothetical and required empirical examination.

Test for stationarity of variables

Table 3 presents the results of the stationarity test using the Augmented Dickey-Fuller test with lag length of 9. This was chosen based on the Schwarz Information Criterion (SIC). The test for stationarity of the variables was subjected to the null hypothesis that the data have a unit root. The results indicated that the variables were not significant at levels 1%, 5%, and 10% level of significance. It is obvious from Table 3 that none of the variables under discussion; dependent and independent variables is stationary at levels I (0) when the Augmented Dickey-Fuller test was deployed. However, at 1 percent significant level, Augmented Dickey-Fuller test results indicate that all the variables under consideration are stationary at first order I (1).

Table 3. ADF unit root test

Variables	ADF results at levels I(0)	ADF results at first difference I(1)
ACC	-.0010	-7.0390
	(.9533)	(.0000)***
LLB	-1.1397	-.6243
	(.6916)	(.0000)***
FDI	-.5993	-6.4159
	(.8603)	(.0000) ***
ED	-10.4957	-5.1395
	(.5265)	(.0001)***
RI	4.1533	-4.9355
	(1.0000)	(.0002)***
BD	-.4318	-5.8971
	(.8945)	(.0000)***
BM	-1.0881	-6.2461
	(.7123)	(.0000)***
INFL	-2.5246	-11.6812
	(.1169)	(.0000)***
GDPPC	.9372	-3.9553
	(.9951)	(.0038)***

*Notes: ***; **; * significant at 1%; 5%; 10%*

The study further used Philip-Perron (PP) unit root test to examine the robustness of the ADF results. The PP test results confirmed the variables were not stationary at level. This means the study fails to reject the null hypothesis that the variables contain unit. The variables attained stationarity upon first difference. This confirms a prerequisite assumption of cointegration. Hence, the study proceeds to test for the presence of cointegrating relationship between the variables.

Table 4. Philip-Perron unit root test

Variables	Philip-Perron results at levels I(0)	Philip-Perron results at first difference I(1)
ACC	.2453	-7.0158
	(.9725)	(.0000)***
LLB	-1.2028	-6.2401
	(.6650)	(.0000)***
FDI	-.4906	-6.4765
	(.8833)	(.0000)***
ED	-1.7782	-5.1191
	(.3861)	(.0001)***
RI	-1.5372	-8.2244
	(.5057)	(.0000)***
BD	-.5110	-5.8623
	(.8792)	(.0000)***
BM	-1.2086	-6.2510
	(.6625)	(.0000)***
INFL	-4.3829	-13.8872
	(.1100)	(.0000)***
GDPPC	1.7481	-3.9179
	(.9996)	(.0042)***

*Notes: ***; **; * significant at 1%; 5%; 10%*

Johansen cointegration test

To test for cointegration, the study employed the unrestricted cointegration rank (trace) test and the unrestricted cointegration rank (maximum eigenvalue) test. The significant trace statistics and max-eigen statistics indicate the presence of cointegration relationship between the variables. Table 5 presents the results of Johansen unrestricted cointegration rank (trace) test. The outcome of the Unrestricted Cointegration Rank (Trace) test indicates the presence of 3 cointegration relationship between financial development components and capital inflows variables at 5 percent significance level. This outcome means that there exist short and long-run associations between financial development components and capital inflows variables.

Table 5. Johansen cointegration Test: Unrestricted test cointegration rank (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	.05 Critical Value	Prob.**
None *	.9107	188.7422	69.8189	.0000
At most 1 *	.6508	84.8727	47.8561	.0000
At most 2 *	.5208	39.6279	29.7971	.0027
At most 3	.1528	7.9929	15.4947	.4662
At most 4	.0199	.8649	3.8415	.3524

Trace test indicates 3 cointegrating equation at .05 significance level

Table 6. Johansen cointegration test: Unrestricted cointegration rank test or maximum eigenvalue test

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	.05 Critical Value	Prob.**
None *	.9107	103.8696	33.8769	.0000
At most 1 *	.6508	45.2447	27.5843	.0001
At most 2 *	.5208	31.6349	21.1316	.0012
At most 3	.1528	7.1280	14.2646	.4741
At most 4	.0199	.8649	3.8415	.3524

Maximum Eigenvalue test indicates 3 cointegrating equations at the .05 significance level.

Table 6 presents the results of the unrestricted cointegration rank (maximum eigenvalue) test. The results were tested against the hypothesis that there is no cointegrating relationship between financial development components and capital inflows variables. The results show that at most, two of the max-eigen values are statistically significant at 5% level of confidence. This means that the unrestricted cointegration rank (maximum eigenvalue) test confirms the presence of three (3) cointegration equation as observed by the trace test. This implies that, there exist long-run relationships between financial development components and capital inflows variables.

Long run cointegration relation between capital inflows and domestic access to credit

Table 7 presents the results of model 1 and 2 using Johansen's multivariate cointegration test. This test was conducted after controlling for bank deposit to GDP, broad money supply, GDP per capita (GDPPC) and inflation (INFL). Added to the above, statistical significance of the variables is pegged at an absolute value of two and above.

Table 7. Long-run cointegration results

VARIABLES	MODEL 1	MODEL 2
FDI(-1)	-1.6519 (-3.6111)*** [.0057]	.6623 (3.6919)*** [.0079]
ED (-1)	-.0443 (-2.2293)** [.0199]	.0296 (3.5502)*** [.0083]
RI(-1)	-2.3293 (-2.2239)** [.0474]	-.2692 (-.7297) [.3689]
C	-.5836	-23.2621

FDI (-1) refers to long-run FDI lag one, ED (-1) stands for long-run external debt stock lag one, RI (-1) refers to long-run remittance inflows lag one and C denotes the constant value. Values in bracket '()' are the t-statistics, figures in parenthesis '[]' are the standard errors whiles values other than those in bracket and in parenthesis are the coefficients.

Hypothesis 1: There is no significant long run relationship between foreign direct investment and financial development in Ghana.

Column 2 (model 1) of Table 7 presents the results of the long run relationship between capital inflows components and access to credit by the private sector in Ghana. The absolute t-statistics of 3.611 units indicate that, FDI inflows have a significant negative long run relationship with financial development (access to credit by the private sector). The results suggest a unit change in FDI inflows to the Ghanaian economy would cause a 1.652 units decrease in financial development (access to credit by the private sector) in the long run. Even though the study found a significant relationship between FDI inflows and financial development the relationship is negative.

The study, therefore, rejects the hypothesis that there is no significant long run relationship between FDI and financial development in Ghana. This implies that improvement in FDI inflow to the Ghanaian economy deters financial development in the long run. FDI inflows to the various sectors of the Ghanaian economy do not pass through the financial system. It is however argued that the results could be justified by the repatriation of profit by foreign investors to their home countries at the expense of reinvestment in the Ghanaian economy. Additionally, the finding could be as a result of the fact that FDI inflows to the economy have not been directed to the real sectors of the Ghanaian economy to trigger the development of the economy. The result corroborates the findings of Jilenga, Xu & Gondje-Dacka (2016); Azeez, Oladapo & Aluko (2015) where they found a significant but negative effect of FDI.

Hypothesis 2: There is no significant long run relationship between external debt stock and financial development in Ghana.

Further, the results in Table 7 (model 1) show a statistically significant but inverse (absolute t-statistics = 2.229 units) relationship between external debt and financial development in the long run. Therefore, hypothesis two that says there is no long run relationship between the variables is not supported. Specifically, a unit change in external debt stock to the Ghanaian economy would lead to .044 units fall in financial development in the long run. This implies that, increasing domestic debt accumulation depresses financial development especially if the FDI inflows are not applied in productive sector. Furthermore, in most cases, external investors tend to repatriate profit to their home country. This tends to affect the volume of credit and ultimately credit to the private

sector. The other possible implication is when government borrows from the external source and exceeds certain thresholds and so would have to rely on domestic financial markets for credit. Since government is the biggest client of financial institutions, an attempt to contract credit from the domestic financial market crowds out private sector. Factors such as corruption could account for such happenings (Ahmed, 2017), especially if external funds inflow are mismanaged or misapplied. Similar results were obtained in Arshad, Aslam, Fatima & Muzaffar (2015) where they observed an inverse relationship between external debts.

Hypothesis 3: There is no long run significant positive relationship between remittance inflows and financial development in Ghana.

Table 7 (models 1) show a statistically significant but inverse (absolute t-statistics = 2.224 units) relationship between remittance inflows and financial development in the long run. Therefore, hypothesis three that says there is no long run relationship between the variables is not supported.

Particularly, a unit change in remittance inflows to the Ghanaian economy would cause a 2.329 units decrease in financial development in the long run. This means that the higher the level of remittance inflows, the lower the level of financial development in the long run. It is, therefore, argued that remittance inflows are not channelled to the real sector of the Ghanaian economy to trigger the desired level of economic growth. This result is similar to the findings of Chami, Jahjah, Fullenkamp (2003) and Barajas, Gapen, Chami, Montiel, & Fullenkamp (2009) where they found an inverse relationship between remittance and economic growth.

Long run relationship between capital inflows variable and liquid liability

Table 7 (model 2) highlights the results of the relationship between capital inflows and financial development (liquid liability). With a t-statistics of 3.69, FDI has a significant positive relationship with financial development (liquid liability) in Ghana. Precisely, a unit change in FDI leads to .66 units increase in financial development (liquid liability) in Ghana. Also, by adopting a different measure of financial development, external debt has a significant positive relationship with financial development (liquid liability). Specifically, a unit change in external debt stock leads to a .03 unit increase in financial development (liquid liability). However, the relationship between remittances and financial development (liquid liability) was not significant. The implication is that although FDI, external debt and remittance inflows deter financial development in the long run, the first two increase the amount of liquidity in the Ghanaian economy in the long run.

Short run dynamic results of the effect of capital inflows on financial development

Table 8 presents the short-run dynamic results of the relationship between FDI, external debt stock, and remittance inflows and financial development using the Johansen's multivariate cointegration. From the short run estimation, any disequilibrium as a result of shocks in the short run can be corrected by the error correction term. Hence, the error correction term measures the speed of adjustment from disequilibrium to equilibrium. It should however, be statistically significant with negative sign.

From Table 8, the model shows that, about 62.3% (R^2 =.623) of the changes in the financial development is explained by the predictor (FDI, external debt and remittance inflows). An F-Statistic value of approximately 3.561 units is significant for that matter affords a good fit for the model estimated.

To check for the period of adjustment to both short run changes in variables and deviations from equilibrium, Vector Error Correction Model (VECM) framework was

used. From the results, the error correction term (ECT) was significant at a t-statistics of 4.801 units. The estimated model is dynamically reliable and stable due to the negative coefficient of the ECT. Moreover, the statistical significance of the ECT is a sign of dual significance of the measurements in VECM. The projected coefficient of the ECT of -.406, suggest that shocks in the short run is corrected by less than 5 periods to restore equilibrium in the long run.

The results presented in model 1 of Table 8 indicate that both ACC (-1) and ACC (-2) of domestic access to credit by the private sector have insignificantly positive and negative relationship with present days' domestic access to credit by the private sector in Ghana respectively. This means that previous years' credit granted does not affect present year's credit grant to the private sector.

It was observed that, GDP per capita (t-statistics = 2.111) has a significant negative relationship with financial development. This means that, a unit change in GDP per capita leads to a .009 unit fall in financial development.

Table 8. Vector Error Correction Model results

Variables	Model 1	Model 2
ACC(-1)	.0315	
	(.2264)	
	[.1390]	
ACC(-2)	-.1080	
	(-.8859)	
	[.1219]	
LLB(-1)		-.0258
		(-.3456)
		[.0746]
LLB(-2)		-.0086
		(-.1246)
		[.0686]
FDI(-1)	-.1782	.1402
	(-.8885)	(1.0915)
	[.2006]	[.1285]
FDI(-2)	-.0879	.1117
	(-.5199)	(.8847)
	[.1689]	[.1263]
ED(-1)	-.0729	.044945
	(-3.8363)***	(3.10557)***
	[.0019]	[.0015]
ED(-2)	-.0292	.0293
	(-1.1803)	(1.9203)
	[.0248]**	[.0153]**
RI(-1)	-.9782	.1597
	(-3.878)***	(1.0241)
	[.0053]	[.1559]
RI(-2)	-.5847	.0615
	(-1.8537)	(.3054)
	[.3154]	[.2012]

Table 8. Vector Error Correction Model results *(cont.)*

Variables	Model 1	Model 2
ECM	-.4693	-.9191
	(-4.8014)***	(-13.1726)***
	[.0098]	[.0069]
C	2.1418	-16.5477
	(1.3627)	(-7.3861)***
	[1.5717]	[.0024]
BM	.1423	.2733
	(1.3069)	(3.0010)*
	[.1089]	[.0911]
BD	-.0146	.9045
	(-.2525)	(7.1674)
	[.1648]	[.1262]
GDPPC	-.0086	-.0085
	(-2.1110)***	(-2.2889)***
	[.0094]	[.0037]
INFL	-.0151	-.0133
	(-1.9759)	(2.0678)***
	[.0077]	[.0065]
R-squared	.6231	.9278
Adj. R-squared	.4481	.8904
F-statistic	3.5606	24.7811
Log likelihood	-59.5897	-44.6361
Akaike AIC	3.5043	2.8398
Schwarz SC	4.0835	3.4604
Mean dependent	.2344	.1928
S.D. dependent	1.6484	2.6379

FDI (-1) refers to long-run FDI lag one, EXD (-1) stands for long-run external debt stock lag one, RMT (-1) refers to long-run remittance inflows lag one and C denotes the constant value. Values in bracket '()' are the t-statistics, figures in parenthesis '[]' are the standard errors whiles values other than those in bracket and in parenthesis are the coefficients.

Hypothesis 4: There is no short run significant positive relationship between foreign direct investment and financial development in Ghana.

The results presented in Table 8 (model 1) indicate that, FDI has an insignificant negative relationship with financial development (access to credit) in Ghana. The insignificant negative relationship observed is consistent with hypothesis 4 that there is no short run significant positive relationship between FDI and financial development. The short run verdict of the relationship between FDI and financial development contradict that there is a long run negative relationship between FDI and financial development.

The domination of resource seeking firms and its inadequate interaction with the real domestic economy restricts the Ghanaian economy from garnering the benefits of FDI. They rather siphoned and repatriated all their profits by this means; impeding the economic growth of the Ghanaian economy (Orji, Uche & Ilori, 2014). This finding however, corroborates the findings of David, Mlachila & Moheeput (2014) who concluded that there is no relationship between FDI and financial development in Sub Saharan African economies.

Hypothesis 5: There is no short run significant positive relationship between external debt and financial development in Ghana.

Further, the results presented in Table 8 (model 1) highlight that, with an absolute t-statistics values of 3.836, 1.180 units respectively; the pass values ((-1), (-2)) of external debt have significant negative relationships with financial development in Ghana. Specifically, a unit change in external debt ((-1), (-2)) would result in .073, .029 units decreases in financial development in Ghana. Although there is a significant relationship between external debt stock and financial development, this relationship is negative, inconsistent with hypothesis 5 that there is no significant positive relationship between external debt stock and financial development. These results are however consistent with the position of the long run results that external debt negatively influences financial development in Ghana.

This implies that, as government persistently borrows from the external source, domestic credit to the private sector falls in the short run. Government is the biggest client of most financial institutions therefore an attempt to contract credit facilities from external market means a fall in the domestic credit granted to the private sector in the short run. These results confirm that increase government external borrowing crowds out domestic credit to the private sector. Factors such as corruption of public official could account for the fact that external borrowings are not channelled to the real sector of the economy to generate the required growth (Tachiwou, 2014). The results are similar to the findings of Azeez, Aladapo & Aluko (2015) who also found that external debt negatively affects economic growth.

Hypothesis 6: There is a short run significant positive relationship between remittance inflows and financial development in Ghana.

In addition, the results in Table 8, column 2 (model 1) indicate a short run relationship between remittance inflows and access to credit by the private sector in Ghana. Thus, an absolute t-statistics value of 3.888 units means that remittance inflows have significant negative relationship with financial development (access to credit by the private sector) in the short run. Particularly, a unit change in remittance inflows to the Ghanaian economy would cause a 0.978 units decrease in financial development (access to credit by the private sector) in the short run. Even though the study documented a significant relationship between remittance inflows and financial development (access to credit by the private sector), this relation is negative and thus contradict the hypothesis 6. The study therefore, rejects the hypothesis 6 that there is no short run significant positive relationship between remittance inflows and financial development in Ghana.

This implies that higher level of remittance inflow deters financial development in Ghana in the short run. In line with the long run relationship, it is argued that remittance inflows are not channelled to the real sector of the Ghanaian economy to generate the required level of financial development. This result is similar to the findings of Chami, Jahjah & Fullenkamp (2003) and Barajas, Gapen, Chami, Montiel, & Fullenkamp (2009) who found a negative relationship between remittance inflows and economic growth.

Short run relationship between capital inflows variables and liquid liability

The results presented in Table 8 (model 2) displayed an R-squared of 0.928. This indicates that FDI, external debt and remittance inflows together account for about 92.8% of the variations in liquid liability in the Ghanaian economy. An F-statistic value of approximately 24.781 units is significant hence, affords a good fit for the model estimated. The projected coefficient of the Error Correction Term was significant with a t-statistics of 13.173 units generated an expected inverse value. The estimated model is

dynamically reliable and stable due to the negative coefficient of the Error Correction Term.

The estimated coefficient of the Error Correction Term (ECT) value of -.919 units suggest that, shocks in the short run takes about 9 periods to restore equilibrium in the long run. The results presented in model 2 of Table 8 indicate that external debt has a significant positive relationship with financial development (liquid liability) in Ghana. This means that when the study adopts liquid liability as surrogate measure of financial development, a unit change in the pass values ((-1), (-2)) of external debt would mean a .045, .029 units respectively increases in financial development. FDI and remittance inflows have an insignificant relationship with liquid liability in Ghana from 1970 to 2014.

In order to ascertain the role capital inflows variables, play in influencing financial development in Ghana, the study controlled for some macroeconomic variables; gross domestic product per capita, inflation, money supply and bank deposits. The results displayed in Table 8 show that gross domestic product per capital have a significant negative relationship with financial development in the short run in all instances. Also, the results indicate that money supply and inflation have significant positive and negative effects on financial development in the short run. Thus, unit increases in broad money and inflation lead to .273, -.013 units increase and fall respectively in financial development. However, bank deposit has an insignificant relationship with financial development in Ghana.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This section presents the conclusions relating to the empirical analysis of the role capital inflows variables play in influencing financial development in Ghana. The Johansen's multivariate cointegration test by Johansen & Juselius (1990) was used to test the long-run and short-run impact of the independent variables on the dependent variable. Annual data from 1970 to 2014 was used. The Augmented Dickey-Fuller (ADF) test and the Philip Perron (PP) unit root tests were used in examining the presence of unit root and the results show that the variables are stationary at I (1). The study documents significant negative relationships between FDI, external debt, remittance inflows and financial development in the long run. In the short run however, the study documented a significant negative relationship between external debt, remittance inflows and financial development in Ghana but found an insignificant relationship between FDI and financial development.

Recommendations

Since the study revealed that FDI has a negative relationship with financial development, the study recommends that, for FDI to fully contribute to financial development, issues of capital flight must be addressed by the government. This can be done by policy makers making policies that address issues of repatriation of profit made by foreign firms. The results of the study mean that heavy dependence on external borrowing must be discouraged. In order to speed up financial development, policy makers must adopt policies that are expected to reduce the level of debt burden, as well, the level of external debt must not reach unsustainable threshold. External debt must be kept at a level that avert debt overhang. Policy makers should take pragmatic steps to channel remittances inflows to productive sectors of the economy. Policy makers should make policies that will make foreign capital inflows complement domestic investment but not to replace domestic investment.

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Gotong royong (cooperation) transformation of rural communities in Jambi Province, Indonesia

Rosyani[1*]; Fuad Muchlis[1]; Dompak Napitupulu[1]; Heiko Faust[2]

[1)] Agriculture Faculty, Universitas Jambi, Indonesia
[2)] Human Geography Goldschmidtstr, Goettingen University, Germany

**To whom correspondence should be addressed. Email: rosy1762@yahoo.com*

Abstract
One nowadays un denied phenomena is that society changed. Jambi Province rural community has also changed toward modernization. The main goal of this research is to analyze factors effect *gotong royong* (cooperation) transformation in Jambi Province rural communities based on its remoteness from urban area. The research analysis used in this research is the Delphi method. Research found that there has been a change in the value of *gotong royong* in Jambi Province. It was also found that there are differences in changes in rural locations that are close to city and that are far from city. Some factors effecting the transformation are information technology, household income and accessibility while some factors that keeps *gotong royong* alive are family, harmony and help. The strategy to keep *gotong royong* value remain solid in Jambi Province's villages should be to wisely accept global technology, income increases and better accessibility while still maintain the social capital strength.

Keywords: *Rural community, Cooperation, Delphi method, Social capital*

JEL Classification: O18, O35, R20

INTRODUCTION

There is no society that does not change. Every society has changed. Harper (1989) argues that social change is a significant change of social structure based on the cycle of time travel. Blau's (1998) then explains that there are two types of structural change parameters, namely nominal parameters and gradual parameters. The nominal parameters distinguish members of the population into discrete categories, such as gender, ethnicity, and religion. The gradual parameters distinguish members by a certain development level, such as income, age, wealth, power, socioeconomic status, and prestige. Heterogeneity or diversity is a social differentiation based on nominal parameters. The social gap is a differentiation based on gradual parameters known as social stratification or social coating in society.

In rural communities in Jambi Province, the modernization of agriculture can be interpreted as a transformation or change in the management of farming from traditional to more advanced agriculture with the use of new technologies. Transformation in this case not only covers changes that occur in the outer form, but includes the basic form, function, structure, or characteristics of economic business activities of a community (Pranadji, 2000). Within this framework the advance changed in technology in Jambi has brought its own impacts to rural society.

The impacts of information technology, transport and transparency have resulted in social and cultural changes in rural communities especially *gotong royong*. In general, the meaning inherent in *gotong royong* is to work together to achieve a desired

outcome. This term comes from the word "*gotong*" means to work and "r*oyong*" means together, there for gotong royong is defined as working together (Koentjaraningrat, 1974). Another meanings of gotong royong is one of the characteristics of village communities owned by almost all regions of Indonesia is mutual cooperation or in Javanese society better known as "sambatan or gotong royong" (Adi, 2016). Uniquely, without having to be asked for help, they will immediately "nyengkuyung" or work together to relieve the burden of their neighbors who are having "gawe" or "work". They do not take into account the material losses incurred to help others. Their principle: "loss sathak, bathi sanak". Which is more or less meaningful: it is better to lose material but not relatives.

The impacts will certainly be different between rural communities close to urban area and rural communities far from towns. The impacts can result in changes in education, lifestyle, relationships, livelihood patterns, and local wisdom. The process of change will likely result in differences in the process of adaptation to the life of various rural communities. Industrialization as a modernization project, including the development of information technology, transportation and openness of the region as a symbol of the progress of civilization has gradually shifted social, economic and cultural system of society in rural Jambi. *Gotong royong* institution as a form of social, economic as well as cultural has slowly goes out from the rural society.

Considering that almost 70 % of Jambi people live in rural areas, any changes in social economic and cultural in rural area could significantly change the Jambi Province economic performance. Parsons (1985) in functional structural theory said that the changes in rural areas cannot be avoided, such as changes in the value of social capital which is important for development of rural development. Anticipating the effect of the changes, it is important to know the patterns changing. Parsons (1985) also proposed an evolutionary theory that explains the movement of primitive societies to modern through four major structural change processes, namely differentiation, adaptation upgrading, inclusion, and generalization of values. The structural differentiation and developmental processes associated with influencing evolutionary processes such as the emergence of social stratification systems, bureaucratic organizations, the money system, impersonal market networks, and the patterns of democratic associations are called evolutionary universal, which play a role in enhancing people's capacity in their adaptation. The objective of this research is to analyze factors of *gotong royong* transformation on rural communities based on its remoteness from urban.

METHODS

This research was conducted in Jambi Province at Year 2018. The sample locations are Sumber Jaya and Talang Belido Village in Muara Jambi District, Giriwinangun and Muara Sekalo Village in Tebo District, Muara Madras and Dusun Tuo village in Merangin District, Pulau Pauh and Adi Purwa Village in Tanjung Jabung Barat District. Respondents are villagers with total of respondents were 160 household.

The research analysis used in this research is the Delphi Method. The method that can describe problems and solve the problems through the opinion of community leaders in different villages and effective in describing the socio-cultural transformation in the rural area (Linstone & Turoff, 1979). Variables studied were economics variable consists of household income and income sources in addition to various social culture variables. The phases of Delphi approach are the same question should be asked in three phase in order to check the validity the answer. Furthermore, the answers from the villagers for the three phases are averaged.

Data from survey results will be cross tabulated and analyzed descriptively, while the data of observations and in-depth interviews will be analyzed qualitatively. Data analysis in this research took place along with the data collection process by providing a

review or interpretation of the data obtained so that it becomes more clear and meaningful. The analysis steps include data reduction, presentation of data with charts and text, and drawing conclusions to reveal facts, circumstances, phenomena, variables and circumstances that occur when research runs (Miles & Huberman, 1994).

RESULT AND DISCUSSION

Gotong royong avoiding changes factors

As it was declared by theory, there is no society left unchanged. The research showed that change in the value of *gotong royong* even though it shows up differently, it was found happen both in rural area close to urban area and far from urban area. In rural communities close to the cities it was characterized by a force factor to maintain the value of *gotong royong*, or more precisely expressed to be a factor driving the emergence of *gotong royong*.

There is a quite different between high sense of family factor in close to and far from city area. It can be seen that the high sense of family factor score was 328 in the first phase then went down to 324 in the second phase and reversed back to 328 in the third phase (Table 1). The average score of high sense of family factor was 326.6. This factor pattern was very much different found in remote to city area where the score first went up from 371 to 375 before decreased back to 371 in third phase with the average score 372.3. This means that family sense factors to encourage the *gotong royong* value remain unchanged is higher in the remote area compared to the factor value in urban area.

Table 1. The average scores of the emergence of *gotong royong* driving factors in Jambi Province villages

Gotong royong avoiding changes factors	Close to city area				Far from city area			
	Phase I	Phase II	Phase III	Average	Phase I	Phase II	Phase III	Average
High sense of family	328	324	328	326.7	371	375	371	372.3
Workload	200	192	204	198.7	242	242	251	245.0
Value of Money	272	264	268	268.0	291	291	291	291.0
Harmony	328	320	324	324.0	360	364	360	361.3
Willingness to Help	320	324	324	322.7	331	329	331	330.3

Note:

Criteria:		*Score*	*Criteria*		*Score*
Very willpower	:	*337 – 400*	*Sufficient willpower*	:	*209 – 272*
Willpower	:	*273 – 336*	*Less willpower*	:	*145 – 208*
Sufficient willpower	:	*209 – 272*	*No willpower*	:	*80 – 144*

The second willpower in encouraging the *gotong royong* transformation in Jambi Province was workload factor. There is a different pattern of workload factor score between two research locations. Workload factor of community in area close to city area was 200 in the first phase, went down to 192 in the second phase before went up back to 204 in the third phase. The average score workload factor was 198.6, means the workload factor does not encourage the *gotong royong* to remain. On the other hand, it looks like that score of workload of community far from city during the research somehow more stable compared to the community close to city. The score of workload factor of far from city community was 242 in the first and second phases before went up to 251 in the third phase. The average in the three phases with a score of 245. This means that workload factors encourage the survival of *gotong royong*.

The third willpower that could encourage the *gotong royong* to remain in Jambi Province was value of money. The more people needs are satisfied by money exchange the easier cultural value to transform. Research finding showed that the moving pattern of community value of money in close to city villages somehow consistent to high sense

of family and workload factors. It scores first went down from 272 in the first phase to 264 in the second phase before went up back to 268 in the third phase. On the other hand, quite differs from the above factors, the score of value of money to the community remote from the city is stable from phase one until phase three.

Another close factor that theoretically could keep the *gotong royong* values unchanged in certain community is the community harmony. Harmony that could be defined as cooperation between various factors in such a way that can produce such a pleasant unity is very close to *gotong royong*. Just likes some previous discussed encourages factor, the score of community harmony was 328 in the first phase and went down to 320 in the second phase before went up again to 324 in the third phase. The average score of community harmony in area close to city was 324 means this factor could be treated as very willpower in encouraging the *gotong royong* value remain unchanged.

On the other hand, the pattern of harmony factor‘s score in far from city was upside down to the pattern of the same factors in close villages to city. The harmony factor’s score of community far from city was 360 in the first phase, 364 in the second phase and 360 in the third phase. The average score of Harmony factors in far from city area was 361.3 higher than the score of the same factor of close to city community score. In short, it could be said that Harmony factor both in close to and far from city area could be treated as a powerful factor in encouraging *gotong royong* values remain unchanged.

The other factor that theory said as encouraging factor in keeping *gotong royong* values remain unchanged is willing to help. *Gotong royong* that basically colored by helping each other minded of course exists based on willingness to help. Research showed that the pattern of willingness to help factors goes inversely than the other factors. The score of willingness to help factor in community closed to city in Jambi Province was 320 in the first phase. This score then went up to 324 in the second and third phases. The average score of willingness to help in these three phases was 322.6 which means that the desire factor to help is a factor that encourages the strength of the *gotong royong* value remain unchanged.

Goes inversely to the other factors, the willingness to help factor score in community far from city was first went down from 331 in the first phase to 329 in the second phase and went up back to 331 in the third phase. The average in three phases of willingness to help was 330.6, which means that this factor was a powerful encourages for *gotong royong* to remain unchanged.

Gotong royong transforms driving factors

Besides revealing the factor encouraging *gotong royong* values remain unchanged in Jambi Province community area, this research was also aimed to find out factors effecting the *gotong royong* transform based on the remoteness of community area. The first factor hypothesized to be the driving factor of *gotong royong* transformation in rural area in Jambi Province was accessibility. Table 2 shows that the score of accessibility of rural area community was 324 in the first phase. The score then went up by five points to 329 in the second phase and even went up to 335 in the third phase. Furthermore, the average score of accessibility as a main *gotong royong* driving transformation factor was 329.3 which means that this variable has a very good effect in transforming the *gotong royong* values in Jambi Province communities.

The second driving factor of *gotong royong* transformation in Jambi Province was technology. Score of technology tend to be flatten in the third phase. The score of technology in driving *gotong royong* transforms was 332 in the first phase and went up to 341 in the second phase. The score of technology then went up 342 in the third phase. The average score in the three phases was 338.3 which means that the technological factors in pushing up *gotong royong* transform from time to time in Jambi Province was

very powerful.

The third driving factor of *gotong royong* transformation was local knowledge. The role of local knowledge on to *gotong royong* transformation in village area in Jambi Province some how goes different way to technology factor. Quite different to other driving factors discussed previously, the score pattern of local knowledge first went down from 229 in the first phase to 211 in the second phase before went up back to score 319 in the third phase. Based on these three phases observation, the average score of local knowledge was 219.6. This means that the factor of increasing local knowledge of the community power to encourage *gotong royong* transformation in rural area in Jambi Province is sufficient.

Table 2. The Average scores the transforms of *gotong royong* driving factors in Jambi Province villages

Gotong royong transforms driving factors	Close to city area				Far from city area			
	Phase I	Phase II	Phase III	Average	Phase I	Phase II	Phase III	Average
Accessibility	324	329	335	329.3	222	221	218	220.3
Technology	332	341	342	338.3	287	291	284	287.3
Increasing local knowledge	229	211	219	219.7	301	305	296	300.7
Communication access	256	261	261	259.3	292	305	296	297.7
Income increase	345	352	344	347.0	288	286	291	288.3

Another factor in driving *gotong royong* transformation in rural area in Jambi Province is communication access. Some villagers said that the role of *gotong royong* values reduction was somehow caused by advanced increase in communication technology that made communication access better. Never the less, the score of communication access as a driving factor based on the research goes to sufficient willpower level.

The score of communication access as a driving factor in transforming *gotong royong* values in Jambi Province rural area was 256 in the first phase and went up to 261 in the second and third phases. The average score in the three phases was 259.3. This means that the communication access factors could be categorized as sufficient willpower in encouraging gotong royong values of rural area community in Jambi Province.

The other driving factor to *gotong royong* transformation predicted in Jambi Province rural community was income increase. Increase in household income could make the value of *gotong royong* in the community fades out. The first phase in Delphi method, the score of income increase was 345. The score than increased to 352 in the second phase before decreased back to 344 in the third phase. From the three visits, the average score was 347 which is categorized to strong willpower. The meaning is very dilemma, while community in villages want income increase along with a change in the value of mutual cooperation.

Value of *gotong royong* as social capital in villages area

In traditional community it could be mention that the value in *gotong royong* Institution plays a very strong role in every social economic community activity. *Gotong royong* value for example could be seen in establishing work in rice farming from preparing farm work until harvesting activity. However, the value of *gotong royong* is now days has been found fading out not only in urban community but also in rural area. The changing value of the *gotong royong* as a social capital in Jambi Province countryside is described in the following discussion.

Gotong royong value as social capital, which is obtained from the culture of the village community comes in various understanding as presented below:

- Mutual help is to help ease the burden on others, for example suffering or hardship.

Mutual help also means helping in doing something, which can be in the form of help from energy, time or funds. An action that produces or benefits others (Sarwono, 2009). Actions that are more beneficial to others than oneself (Wrightsman & Deaux, 1981).

- Collaboration is a work done by two or more people to achieve a goal or that has been agreed upon together or can be interpreted for mutual benefit.
- Volunteering is their own willingness to work on their own without being mandatory.
- Kinship is family, coming from the origin of Sanskrit, which means members of a group or relatives, who are still blood relations.
- Empathy is derived from Greek which means physical attraction, defined as ability with a variety of different definitions covering a broad spectrum, revolving around others that create a desire to help others, experience emotions like those of others, know what others feel and think, blur the line between yourself and others. Empathy also includes the ability to feel the original state of others, feel and try to solve problems, and take the perspective of others.
- Social equality is a social political order, where all people in a certain community or group have the same status. Includes the right to feel security, the same right under the law.
- Altruism is prioritizing the interests of others, attitudes that exist in humans, which may be instinctive in the form of encouragement to do services to other humans.
- Social identity is part of an individual's self-concept, which comes from the results of perceptions that are in accordance with membership in a group.
- Trust is a person's ability to rely on other people where we have confidence in him (Robinson, Kraatz & Rosseau, 1994). This is a psychological area that is a concerned to accept what is based on expectations of good behavior from others. Morgan and Hunt, 1994 interpret trust: it occurs when someone is convinced of the reliability and integrity of the person who is trusted.
- Time efficiency according to Mulyadi & Puradiredja (1998) is the level of time savings in terms of time when carrying out work, until the job is completed.
- Reciprocity is reciprocal. For example, if someone helps someone else at the time of harvest, then the person who is assisted will reply to the person he helped. (Reciprocal action or arrangement involves two people or groups of people who behave in the same way or agree to help each other and give each other advantages) (James Scout, 1989).

Based on eleven parameters of the *gotong royong* as a social capital, it shows that there has been a change in the meaning of the *gotong royong* in the lives of rural communities both in close to the city and rural communities far from the city (Table 3).

Table 3. The average scores of *gotong royong* social capital transformation in Jambi Province villages

Parameter	Close to city area		Far from city area	
	Average Score	Percentage	Average score	Percentage
Familiar Relationship	80.00	12.06	80.00	11.29
Voluntary	48.00	7.24	52.00	7.34
Mutual Assistance	80.00	12.06	80.00	11.29
Empathy	51.00	7.69	54.00	7.62
Cooperation	71.67	10.80	72.00	10.16
Social Equality	64.33	9.70	66.00	9.32
Altruism	34.33	5.18	37.33	5.27
Social Identity	70.00	10.55	72.33	10.21
Trust	51.67	7.79	55.67	7.86
Time Efficiency	60.33	9.10	72.33	10.21
Reciprocal	52.00	7.84	66.67	9.41

The results of the analysis show that the value of *gotong royong* and kinship *gotong royong* social capital has exposed some changes. Changing in *gotong royong* value exposed in the same pattern in both rural near to and far from the city. In fact, despite the location of rural communities near to and far from the city, this value is very original in the life of Indonesian people that are actually difficult to change. *Gotong royong* is a symbol of the life of Indonesia people.

The same opinion about the value of *gotong royong* explained above was also in line with the results of Julaikha & Bahri (2014) study which showed that the value of *gotong royong* is largely influenced by a sense of togetherness among community members that is done voluntarily without any collateral in the form of wages or other forms of payment. These collaborations do not always need to be formally formed by the committee but rather there is enough notice to the community members about the activities and the time of its implementation, then the work is carried out after it has broken up on its own, more voluntary in nature. The results of this study indicate the value of *gotong royong* could decreases due to the influence of technological factors, increased in access as well as income. The three influential factors must also be attached to the life and development of village progress, the value of family strength, harmony and togetherness to help one another. All of this in its term can well maintain the values of *gotong royong*. Furthermore in line with this findings, one of activities carried out by the communityin term of togetherness, especially in rural communities is help each other in agricultural activities especially in busy seasons such as planting and haevesting seasons. In those busy seasons if the main or extended family is not available to complete all the work in the fields, farmer ususally ask for help from fellow community members or hire additional workers to help doing the job. This system actually is universal in all communities in the world particularly in small communities. Any compensation paid for services rendered is not judged as wages but as aid workers (Koentjaraningrat, 1985)

The value of *gotong royong* that experiences changes are mainly in social identity and the efficiency of the time, while aspects experiences major changes are the value of altruism, voluntariness, empathy, trust and reciprocal. In line with the results, Suandi (2007) also found that any improvement in the economy of farmers can increase family participation in their surrounding social activities which means increase social capital. In line with the result of the study Mohammed & Lee (2014). Cooperative s recognized by UN and others international organization, as a solution for equality, poverty reduction, building social capital, improving marketing and financing system, empowering producers and women. At the same time, such community development facilitates the retention of local control of cooperative decisions (Brennan & Luloff, 2005).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

There has been a change in the value of the *gotong royong* in rural community in Jambi Province. There are differences in changes in rural locations that are close to the city and that are far from the city. The values that drive the emergence and which trigger to fade differ depending on factors.

Some reducing factor are technology, increased income and accessibility. The factor that keeps *gotong royong* remain un-changing are family, harmony and help. In remote rural area the value of mutual assistance values still exists, if there is a change in the value it is smaller than the change in village location close to the city.

The value of social capital supports the people close to the city and those far from the city for family and harmony factors, although the values are still the same. But for voluntary factors, cooperation, empathy, social equality, altruism, social identity trust, time and reciprocal efficiency there is a difference in value. The value of *gotong royong*

in community far from city area is stronger than that close to the city.

The strategy of the village community, both near and far from the city, is to accept global technology flows selectively, and still maintain the social capital strength of *gotong royong*. This approach shows that family factors, harmony and high willingness to help, are factors that strongly encourage *gotong royong* to remain in rural locations close to the city. The reality in the field even though the village community is close to the city is a sense of harmony, a sense of family, and a willingness to help stay still.

Recommendations

Based on the results of this study, it is suggested to conduct a series of counseling and guidance to the community to take advantage of economic growth through improved technology, accessibility and family income increased to strengthen the value of mutual cooperation in rural areas in Jambi Province. Strengthening the value of mutual cooperation in rural areas can also be circumvented by strengthening the value of social capital. This can be done by increasing the government's commitment to facilitate social activities and strengthen institutional values in rural areas.

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