

DIVERSIFICATION OF INSURANCE COMPANIES' PRODUCTS AS SUPPORTING INFRASTRUCTURE DEVELOPMENT INSTITUTIONS IN INDONESIA

Wisudanto^{1,2*}, Bagus Mohamad Ramadhan^{2,3}, Tika Widiastuti^{2,3},
Irfan Andi^{1,2}, Muhammad Ubaidillah Al Mustofa³

¹*Departement of Management, Universitas Airlangga, Surabaya, 60286, Indonesia*

²*Social Fund Management Center, Universitas Airlangga, Surabaya, 60286, Indonesia*

³*Departement of Islamic Economics, Universitas Airlangga, Surabaya, 60286, Indonesia*

(Received: November 2019 / Revised: December 2019 / Accepted: December 2019)

ABSTRACT

This paper analyses the product diversifications of insurance companies as supporting facilities for infrastructure development. In Indonesia, infrastructure development needs protection or guarantee and insurance as a medium that hinders risk transfer during the construction process. Product diversification carried out by insurance companies to support infrastructure development harms the company's financial performance. In addition, the more diversified the business lines owned by insurance companies, the lower their financial performance, which negatively impacts on its ability as a medium of risk transfer. Conversely, huge ownership of market share and reinsurance positively affect the financial performance of general insurance companies in Indonesia.

Keywords: Diversification; Infrastructure; Insurance

1. INTRODUCTION

Insurance is one of the specialized non-bank financial institutions in Indonesia, along with pension funds, overseen by the Financial Services Authority (OJK). According to the Central Statistics Agency (BPS) in 2017, the gross domestic product (GDP) in the insurance and pension funds sectors experienced an increment from 0.88% to 0.94%, from the first to fourth quarter. In 2017, their GDP amounted to 5.48% from the previous year, and 9.79% in the 2nd quarter. This shows how the insurance sector and pension funds in Indonesia are projected to grow continuously.

Generally, the increasing rate of financial literacy in Indonesia is marked by better knowledge and skills in financial decision making, thereby, leading to a higher demand for access to services related to financial management, ranging from savings deposits to portfolio investments. Increased demand for insurances helped trigger higher demand for a variety of insurance products to meet the diverse needs of the community, while an increase in diversification of general insurance companies enhances market needs, and the amount of premium income collected.

*Corresponding author's email: wisudanto@feb.unair.ac.id

This diversification ranges from the creation of fire, disaster, and motor vehicle insurance which has become common today. Product diversification is also carried out by insurance companies to expand market coverage, and improve financial performance (Elango, Ma, & Pope, 2008). Insurance companies often see this phenomenon as an opportunity that needs to be immediately exploited, with the hope of obtaining more benefits from product diversification policies and answering market demands that have not been met.

Infrastructure development as one of the drivers for economic growth plays a vital role to assure the acceleration of the national development process. In addition, the rate of movement and economic growth of a country is inseparable from the availability of infrastructures such as transportation, telecommunications, sanitation, and energy. The development of infrastructure has become the foundation of further economic creation, both directly and indirectly, which is a prerequisite for the development of other sectors through interpersonal relationships. Empowerment of resources to build infrastructure tends to trigger economic processes and lead to social impacts (Elen, 2006).

Currently, the Indonesian government is building massive infrastructure in various regions to strengthen the connectivity of various economic potentials, equalize development, foster new economic activities, and increase the distribution of goods and services. In 2019, the government allocated 415 trillion Rupiah for infrastructure development, which has slightly increased compared to the 410 trillion Rupiah allocated in 2018. This infrastructure development targets at the construction and reconstruction of roads, new airports, irrigation networks, bridges, and railroads.

Over the past 5 years, the budget allocation for infrastructure development is only 5% of the GDP. This percentage is low compared to the budget allocation of Thailand and Vietnam each at 7% and China at 10%. Finance is the greatest obstacle faced by the government in building infrastructure, with gaps created due to insufficient budget. The government has the ability to finance 42% of the total cost of infrastructure development, while the rest need to be supported by non-government or other funding sources.

Supports are needed from various parties, such as financial institutions, along with many infrastructure developments to protect or guarantee minimum risk transfer due to large investment value. The main purpose of the existence of this infrastructure insurance product is to protect operational facilities such as roads, bridges, docks, and dams, against damage or physical losses that occur suddenly and uncertainly caused by many risks that are usually mentioned in the insurance policy guarantee. This paper provides an overview to determine insurance companies' ability to support the development of infrastructure development in Indonesia through product diversification.

2. LITERATURE STUDY

2.1. Insurance Company

According to Law Number 40 of 2014, insurance is defined as an agreement between the company and policyholder, which is the basis for receiving premiums, providing compensation due to loss, damage, incurred costs, or legal liability to third parties due to uncertain events. Law No. 40 paragraph 4 defined insurance as any business related to risk management, reinsurance, marketing and distribution of products. General it is defined as a risk insurance service business that provides reimbursement to the insured or policyholder due to loss, damage, incurred costs, or legal liability to third parties due to an uncertain event.

2.2. Infrastructure Development

Infrastructure includes all social/physical basic structures and facilities such as buildings, roads, and electricity supplies that are needed for operational activities of a community or company. It is also defined as the various facilities needed by the public to support various daily community activities. Therefore, infrastructures are the physical and non-physical facilities built by the government and individuals to meet the basic needs of the community in the social and economic sphere. Infrastructure generally refers to the physical development of public facilities such as highways, airports, seaports, electricity, telecommunications, clean water, sewage treatment, hospitals, schools, etc. In addition, infrastructure also refers to technical matters that support community activities, such as modes of transportation, distribution of goods, services, and others.

2.3. Company performance

The financial performances of companies are measured using return on assets (ROA). The greater a company's ROA, the better its performance in accordance with the total amount of assets with equal profits, and fewer assets. Risk-adjusted ROA is used as a benchmark for a company's financial performance. According to Sharpe (1994), ROA is a measurement of return obtained by a company to the risks described by the standard deviation obtained from each period in accordance with the Sharpe Ratio. The use of risk-adjusted ROA variable is based on the objective to eliminate its effect with the focus on income related to the business. Bo, Etti G, Dalit, and Thomas W (2015) stated that it is more suitable to use during diversification.

$$\text{Return on Asset (ROA)} = \frac{\text{Total Return}_{i,t}}{\text{Total Asset}_{i,t}} \quad (1)$$

$$\text{RiskAdjROA} = \frac{\text{ROA}}{\sigma_i} \quad (2)$$

Note: ROA= Return on Asset, σ = a standard deviation from the returns or Risk on Asset for the company i

The standard deviation in equation 6 is obtained from the return on assets of a general insurance company for a specified period. It is used to show the stability of the company, and how high the risks faced by the company in the stated timeframe.

2.4. Product diversification

Product diversification is a form of the business strategy carried out by companies to expand their businesses and increase sources of incomes. According to Cummins and Weiss (1991), companies that have diversified their business lines, tend to benefit from economies of scope with the ability to charge higher prices for customers opting for special treatment such that one-stop shopping systems. Seol (2000) stated that product diversification in insurance companies is expected to increase the ability to cross-sell and persuade customers to buy other insurance commodities, which leads to an increase in profits while saving costs.

Product diversification is expected to develop or create new market channels for companies. According to Aivazian, Rahaman, and Zhou (2019), product diversification strategy of a firm provides a natural hedge against adverse economic conditions. However, Berger and Ofek (1995) reported that companies that diversify higher products possess performance similar to those with lower products, thereby, leading to a reduced growth rate. These negative functions are also found in the study carried out by C.-Y. Lee (2017). The formula used to measure product diversification is as follows:

$$PD_{i,t} = 1 - \text{Herfindahl-Hirschman Index (HHI)}_{i,t} \quad (3)$$

$$HHI_{i,t} = \sum_{i=1}^N \left(\frac{\text{SegSales}_{it}}{\text{TSales}_{it}} \right)^2 \quad (4)$$

Note: HHI = Herfindahl – Hirschman index of company I in t period. $PD_{i,t}$ = diversification of company's products i in t period. $\text{SegSales}_{i,t}$ = sales - gross premiums, each company i product line in year t . $\text{TSales}_{i,t}$: total sales – gross premium, each company i product line in year t

According to studies, product diversification affects the insurance company's profitability, therefore, the following hypothesis was obtained:

H1: Product diversification affect positively to the profitably of insurance companies.

2.5. Market share

Market share is often used to describe a company's influence, its coverage in the competitive business, and determine its positive influence on company profitability (Berger & Ofek, 1995; Choi & Weiss, 2005). Companies with higher market shares are more dominating, able to use its market power to fix the price of products and achieve higher profits. Measurement of this variable is obtained by using the following equation:

$$\text{Market Share}_{i,t} = \frac{\text{TSales}_{i,t}}{\text{TSales}_t} \quad (5)$$

Note: $\text{TSales}_{i,t}$ = Total Sales of company i in t period. TSales_t : Total Sales of the market in t period

According to studies, market share affects the insurance company's profitability, therefore, the following hypothesis was obtained:

H2: Market share affect positively to the profitably of insurance companies.

2.6. Reinsurance

Law number 40 of 2014 paragraph 7 explains the various methods used by insurance companies to regulate reinsurance businesses. Based on these regulations, reinsurance is defined as the risks faced by insurance companies with a slight difference in how the policyholder pays a premium to insurance. The buyers of insurance policies are the companies that buy protection for risk coverage. According to H.-H. Lee and Lee (2012) companies with a high level of dependency on reinsurance often have lower financial performance, compared to those with low dependency. Shiu (2019) reported that insurance companies using more reinsurance tend to have inferior financial performance. This occurs due to the increased opportunity costs that arise from the company's decision to divert premiums earned from customers for reinsurance purposes, rather than using these premiums for investment in more profitable fields, such as stocks, mutual funds, and bonds. The degree of insurance dependencies on reinsurance is obtained by using the following formula:

$$\text{Reinsurance}_{i,t} = \frac{\text{Paid Reinsurance Premium}_{i,t}}{\text{Total Preium}_{i,t} + \text{Paid Reinsurance Premium}_{i,t}} \quad (6)$$

According to studies, the dependency on reinsurance affects the financial performance of the insurance company, therefore,

H3: Reinsurance affect negatively to the profitably of insurance companies.

3. METHODOLOGY

This quantitative research uses panel regression with fixed effect and group estimator approach (Baltagi, 2008). This approach was selected due to the lack of dummy variables in the model. In addition, the method was selected to examine the influence of determining factors which includes the market share of the company, product diversification and reinsurance on insurance companies' profitability proxied by risk-adjusted ROA. This study uses secondary data in the form of annual frequency from 2011 to 2016 for 67 insurance companies. The direct relationship between independent and dependent variables are written in the following equation:

$$\text{Risk-adjustedROA}_{i,t} = \beta_{0it} + \beta_1\text{MS}_{it} + \beta_2\text{PD}_{it} + \beta_3\text{RE}_{it} + \varepsilon_{it} \quad (7)$$

Note: *Risk-adjustedROA* = Return on Asset of company i in year t divided by standard deviation. β_{0it} = Constanta. β_1, \dots, β_3 = Coefficients. *MS_{it}* = Market share of company i in year t. *PD_{it}* = Product Diversification of company i in year t. *RE_{it}* = Company Reassurance of company i in year t. ε_{it} = error-term.

4. RESULT AND ANALYSIS

Table 1 shows the descriptive statistics for the variable of Risk-adjusted ROA, HHI inversed, market share and reinsurance rate obtained from 67 general insurance companies in Indonesia. Based on the result in table 1, the average number of inversed HHI, which showed the level of product diversification owned by the company from 2010-2017, is 0.5030383, with the highest, slowest and standard deviated values of 0.71487, 0.15844, and 0.16829753, respectively. Risk-adjusted ROA which reflects the company's financial performance shows an average, lowest, and highest values of 2.6730, -2.02077, and 7.88883. The standard deviation of the risk-adjusted ROA variable, which is also the dependent variable, has a value of 1.789280, with an average reinsurance rate, and market share of 0.3557, and 0.0102910 is respectively.

Table 1 Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation
Risk-Adjusted ROA	67	-2.02077	7.88883	2.63730	1.789280
HHI Inversed	67	0.15844	0.71487	0.5250458	0.15378838
Market Share	67	0.00050	0.02420	0.0102910	0.19415819
Reinsurance Rate	67	0.03800	0.84600	0.33557	0.194158

Table 2 shows the panel regression result, with the negative coefficient of product diversification on the profitability of insurance companies, as proxied by risk-adjusted ROA. This provides a clear clue on general insurance companies in Indonesia, which uses a high level of product diversification to obtain a lower rate of return as the product diversification increases. This occurs due to cross-subsidization, and formation of new costs. Cross-subsidization in company with diverse business lines reduced the profits obtained which are used to provide subsidies to those experiencing losses.

The low rate of return obtained by companies with high levels of product diversification is due to the high costs incurred. To implement product diversification policies, the company need to borne several research additional costs to investigate the amount of premium charged to customers, such as high reinsurance while addressing prospective customers. Therefore, companies with high levels of product diversification acquire lower rates of return, compared to those with lower levels. This finding is in line with the study carried out by Berger and Ofek (1995), C.-Y. Lee (2017) argue that the determination of the negative function of product contribute to the diversification on financial performance.

Table 2 Panel Regression Result

Independent	β Coefficient	Sig. t	Note
Constant	3.339	0.001	
HHI Inverse	-5.070	0.000	Significant at 5% confidence level
Reinsurance rate	3.199	0.000	Significant at 5% confidence level
Market Share	86.225	0.002	Significant at 5% confidence level
F statistics	23.349		
R ²	0.526		
Sig α	0.05		
Dependent Variable	<i>Risk-Adjusted ROA</i>		

Market share has a positive effect on risk-adjusted ROA. Companies with larger market shares have the power to set prices according to their decisions, thereby, leading to the provision of greater profits. The results of this study are consistent with the research conducted by (Berger & Ofek, 1995) and Choi and Weiss (2005), with a positive correlation between the portion of the market share owned by the company and its profitability level. In addition, the variable of reinsurance rate forms a positive coefficient which inclines on reinsurance with the ability to boost the financial performance of insurance companies. This proves that most insurance companies participated in activities with high risks of exposure, thereby, possessing more reinsurances with higher benefits to the insurance companies' financial performances.

5. CONCLUSION

In conclusion, product diversification has the ability to harm the level of the financial performance of general insurance companies in Indonesia due to the cross-subsidization and additional cost of many business lines. The results of the study indicate that a company's policy to possess lower levels of product diversification optimally leads to the generation of higher profits. Therefore, it is important to open new or additional business lines to increase the financial performances, due to the costs tends to arise thereafter.

6. ACKNOWLEDGEMENT

The authors are grateful to the anonymous reviewers for their great advice and comments which improved the quality of this research. The authors also grateful to the Faculty of Economics and Business Universitas Airlangga for their support and assistance.

REFERENCES

- Baltagi, B. (2008). *Econometric analysis of panel data*: John Wiley & Sons.
- Berger, P. G., & Ofek, E. (1995). Diversification's effect on firm value. *Journal of financial economics*, 37(1), 39-65.
- Bo, S., Etti G, B., Dalit, B., & Thomas W, S. (2015). *Does Diversification Benefit Health Insurers?* Paper presented at the World Risk and Insurance Economic Congress (WRIEC), Munich, Germany. http://www.wriec.net/wp-content/uploads/2015/07/1D1_Shi.pdf
- Choi, B. P., & Weiss, M. A. (2005). An empirical investigation of market structure, efficiency, and performance in property-liability insurance. *Journal of Risk and Insurance*, 72(4), 635-673.

- Cummins, J. D., & Weiss, M. A. (1991). The structure, conduct, and regulation of the property-liability insurance industry. *The financial condition and regulation of insurance companies*, 117-154.
- Elango, B., Ma, Y. L., & Pope, N. (2008). An investigation into the diversification–performance relationship in the US property–liability insurance industry. *Journal of Risk and Insurance*, 75(3), 567-591.
- Elen, S. (2006). *Effects of Basic Infrastructure Development on Indonesia's Regional Economic Growth (8 Provinces in Sumatra)*. (Master), Universitas Indonesia, Depok. Retrieved from <http://lib.ui.ac.id/file?file=pdf/abstrak-103863.pdf>
- Lee, C.-Y. (2017). Product diversification, business structure, and firm performance in Taiwanese property and liability insurance sector. *The Journal of Risk Finance*, 18(5), 486-499.
- Lee, H.-H., & Lee, C.-Y. (2012). An analysis of reinsurance and firm performance: Evidence from the Taiwan property-liability insurance industry. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 37(3), 467-484.
- Seol, K. (2000). Japanese Insurer Alliance Set. *National Underwriter/Property & Casualty Risk & Benefits*, 104(39), 4-5.
- Sharpe, W. F. (1994). The sharpe ratio. *Journal of portfolio management*, 21(1), 49-58.
- Shiu, Y.-M. (2019). How does reinsurance and derivatives usage affect financial performance? Evidence from the UK non-life insurance industry. *Economic Modelling*.