ANALYSIS OF DETERMINANTS FOR DETERMINING FINANCIAL INNOVATION AND ITS IMPACT ON BANKING FINANCIAL PERFORMANCE

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ABSTRACT

This study aims to determine the determinants of innovation in the financial sector namely size, age, cooperation with external parties and Training and R & D Expenditure and its impact on financial performance. The sample used is 13 banks that have the largest market capitalization and actively innovate every year for 5 years. While the population is a bank listed on the Indonesia Stock Exchange. The data used is secondary data. and using path analysis. The result of testing jointly the influence of size, age, cooperation with external parties and Training and R & D Expenditure and its impact on financial performance, through the ability of innovation, is equal to 0.364 or 36.4%. While the rest of 63.6% is the influence of other factors outside the independent variable. Testing on the basis of the variables of cooperation with external parties have a significant effect on performance through the ability of innovation. While size, age, and Training and R & D Expenditure does not effect the financial performance through the ability of innovation

Keywords : Size, Age, Cooperation, Expenditure for Training, Research Development and Financial Performance

1. INTRODUCTION

One of the main challenges of corporate organizations, especially banking, is how to always superior in competition. Research into the importance of maintaining competitive advantage as conducted by Varadarajan & Fahy, (1993); Mahonney & Pandian, (1992), that companies must know how to maintain competitive advantage and be able to implement strategies that are resistant to competitive action and imitation. While other researchers such as; Gaya et al (2013); Azorín et al (2015; 41); Ferreira (2013), concluded that in the face of competition, there needs to be efforts that lead to sustainable competitive Advantage (SCA), such as establishing new relationships, building creativity, strengthening business synergies, and effective and efficient processes. If the company always excels it will have an impact on improving performance which will ultimately be able to provide a satisfying investment value for shareholders. Thus the bank is able to become a leader in creating the best quality and high-value services/ products/ services in each market segment it serves.

Several surveys of the banking sector in Indonesia, which are published through awarding each year until 2017, are a manifestation of external assessments of banks that have the best performance, including financial performance, products and services such as savings, deposits, credit cards, credit products, various internet banking services, mobile banking, sms

banking, phone banking, launching e-banking products and excellence in getting awards for innovative products. This award spurs banks in increasing competition.

Besides losing the size of the national bank from Indonesia, it also lost the start in expanding into other ASEAN countries, such as Singapore and Malaysia. Although there are already national banks operating in other ASEAN countries, the number is not commensurate with the number of foreign banks (from other ASEAN countries) operating in Indonesia. As of the end of 2017, banks from Singapore had 5 banks, 2180 offices and 2500 ATMs in Indonesia, while banks originating from Indonesia in that country only had 1 full branch, 1 offshore and 1 ATM. Furthermore, Malaysian Banks in Indonesia have 4 banks, 1500 offices and 4350 ATMs. While in Malaysia there are only 1 sharia office, 1 remittance office and 1 ATM.

Table 1
Expansion Capability of Indonesian Banks and Other ASEAN Banks

Country of origin	Ability to expand in other ASEAN countries	
	destination country of expansion	Number of banks, offices and ATMs
Singapore	Indonesia	5 banks, 2180 offices and 2500 ATMs
Malaysia	Indonesia	4 banks, 1500 offices and 4350 ATMs
Indonesia	Malaysia	1 full branch, 1 offshore and 1 ATM
Indonesia	Singapore	1 sharia office, 1 remittance office and 1 ATM

Source: Infobank Research Bureau February 2017

Based on Bank Indonesia's report, during 2017 most banks were more focused on improving efficiency, maintaining credit quality and securing liquidity conditions, rather than encouraging credit growth. The impact is a decrease in the number of loans in 2017. In addition to some of the above, this is due to an economic slowdown accompanied by tight liquidity that forces banks to reduce lending. The slowdown was also driven by a slowdown in the amount of third party funds (DPK).

Based on data from annual reports that banks are actively innovating, only a small part of the total of 120 banks or 41 banks listed on the Indonesia Stock Exchange. Innovation activities occur in banks with large capitalization, so the results of this study are expected to be a model of what will be the determining factor for innovation in the financial industry, henceforth to become a model for banks that are less active to improve innovation capabilities.

The ability of banks to produce good performance, of course, depends on the ability to manage assets efficiently, such as the results of research by Abdullah et al (2014); Amare, 2012; Lipunga (2014); Bukhari et al. (2012), that profitability is determined by higher cost efficiency. According to Gavin Cameron (1998: 22). Policies that make a significant contribution to economic growth are innovation, which occurs through spillovers between countries, companies and industries.

Meanwhile, to increase global competitiveness, countries can design science-technology-innovation strategies and economic policies that are oriented towards achieving sustainable global competitiveness and growth in the long term, (Sener & Sarıdogan 2011: 112). In terms of the application of new technology, several banks adopted, as stated by Malhotra and Singh, (2007: 323). Banks with lower market share see Internet banking technology as a means of increasing market share that can attract more customers through new distribution channels, and the adoption of inter-net banking by other banks is likely to increase the decision to determine adoption.

The level of competitiveness of a country as a global competitiveness report, is determined by the score of several pillars where one of the pillars is innovation. Financial innovation is defined as the creation of financial instruments (both products and processes) through the discovery or diffusion of products, services or ideas, or new forms of services and organizations (Frame and White; Tufano 2003). The study of how the impact of financial innovations on the financial system, especially banking, has been the subject of debate when how to shape the global financial system in the future. Financial innovations have an impact on better allocation of financial risks, more efficient markets, economic growth and easier access to credit (Miller (1986); Adu & Idun (2014). Financial innovations are also used to avoid regulation capital (Pagnotta & Philippon 2011).

Furthermore, technological advances have an impact on improving the quality of banking services. As Berger (2003) states that technological advancements help facilitate industry consolidation on improving the quality of various services. Through technological innovation, especially in the financial sector according to Germany 2006, it allows for greater financial flexibility, resulting in lower output volatility, as well as higher corporate financial structure volatility. Some researchers claim that financial innovation influences the increase in employee performance, customer satisfaction, sustainable profits and improve industry competitiveness, for example Dauda & Akingbade, (2011); Aduda and Kingoo (2012); Atalaya (2013); Gakure & Ngumi (2013); Mwangi (2014) and Yang (2014). However, the use of financial innovation does not always have a positive impact as stated by Biaisy & Hoerovax (2011), that the occurrence of financial crises, there are some reassessments or restrictions on the use of financial innovations, including financial innovation causes the creation of risk. The same thing was stated by Sabrina Studery (2013), that financial innovation also results in a waste of resources. So that the crisis experience encourages banks to work more carefully in choosing financial innovations.

The positive impact of financial innovation is stated by several researchers, including Rahman (2007), that companies that adopt technological innovations have improved performance more than companies that have not adopted technological innovations. Furthermore, the results of the Dauda & Akingbade study (2011); Aduda and Kingoo (2012); Atalaya (2013); Gakure & Ngumi (2013); Mwangi (2014) and Yang (2014) stated that financial innovation can increase Return On Investment (ROI), Return On Equity (ROE). In fact, innovation activities will have an impact on superior financial performance if done actively, consistently and differently from competitor banks (Robert & Amit, 2003).

Regarding efforts to maximize company value, Shin et. al, (2011) states that innovative companies can maintain a higher value than non-innovative companies, because they receive various benefits from innovation policies that support credit services, funding policies, investment businesses, insurance programs, and so on.

At present the bank is transformed into a financial services company that provides a one-stop supermarket service with a 7 x 24-hour service concept through Telebanking, ATMs, Internet Banking, Mobile Banking and E-Banking to fulfill customer service (Aker and Mbiti, 2010 page 229; Singh, 2011). In addition, technological developments now allow banks to make it appear as if there is a branch office in the lobby of a building in the business area that can provide services without labor for manual operations. Innovation activities place bankers and customers in a win-win situation. (Ho and Mallick, 2010 p. 219). The services provided by banks must meet the safety, comfort and convenience factors (Liao and Wong, 2008,: 1209).

Understanding the determinants of financial innovation becomes important when wanting to find out how the impact of financial innovation on financial performance. Some study results relating to the determinants of financial innovation provide mixed results.

Heffernan et.al (2008), concluded that the possibility of financial innovation increases through several indicators such as company size, employee education, greater expenditure on research and development (R&D Expenditure), financial availability, and the extent to which companies work together with one another. Whereas Thorsten Beck, et.al (2012), a higher level of financial innovation is associated with a stronger relationship between a country's growth opportunities, capital growth, GDP growth per capita and higher growth rates in industries that rely more external funding. Meanwhile improvement in the process of financial innovation often comes at the initiative of public power (Mabrouk Abir et.al 2010).

According to J. Lerner (2003), companies that have an academic relationship are stronger in innovating, while another important determinant is patent. Whereas Arnaboldi (2010), concludes that market share has an impact on higher innovation, while low quality loan portfolios increase incentives for banks to innovate. Besides that Anne Wu (2005) explains the structure of family ownership has a negative impact on organizational innovation. Meanwhile, foreign capital has a positive impact on corporate innovation.

In the process of corporate financial innovation can not be separated from cooperation in adopting new technologies, where outsourcing policy plays an important role for companies that adopt new technologies and provide access to new technologies, but does not guarantee companies integrate technology in accordance with existing business processes and utilize it in the market, while greater dependence on outsourcing can reduce learning by doing and hamper the company's integrative ability (Weigelt, 2009, p. 610). According to Xiaohui Liu, et.al (2010: 195) in investigating the impact of employee mobility on innovation in high-tech companies in China, concluding that there is a significant knowledge spillover effect related to employee mobility of multinational companies and the impact of international human mobility components and local companies on mutually reinforcing innovations. Yet to innovate requires strong human resources and integrity to achieve sustainable competitiveness.

From the explanation above, it is necessary to conduct a deeper study of the factors that drive the banking sector in carrying out innovation activities. The banking sector in Indonesia has used innovation to improve performance in the context of facing competition between domestic and overseas banks. However, the effectiveness of financial innovation in the banking sector in Indonesia to improve financial performance does not always run as expected. For this reason, deeper research is needed by conducting a study of the determinants of innovation and their impact on the performance of banks in Indonesia.

Research Purposes

The purpose of investment is to get the maximum profit with the least risk. Likewise, investment in innovation activities, especially in technology and information, requires substantial funding. So that innovation activities require management that can maximize the results of innovation so that it will have an impact on maximum company value. Knowing the determinants of financial innovation becomes important for banks that will innovate so that the results are effective and efficient.

Based on the identification of the problem and the formulation of the problem, the objectives of this study are:
a. Want to know the determinants of financial innovation in the banking sector in Indonesia
b. Want to know the impact of financial innovation on banking performance in Indonesia.

Research Use

Theoretical uses, this research is useful for the development of science, especially strategic management science, financial management science and banking science. So it is

expected to strengthen and develop existing theories, especially theories of innovation, especially financial innovation.

Encouragement to financial innovations for the banking sector such as increasing market share and improving portfolio quality, increasing customer loyalty, and even attracting other potential customers will strengthen and increase market share. Managers must realize that innovation is not limited to services / products, but understanding the nature of the innovation construct is important, because of the different dimensions or types of innovation. This research fills the research gap in the banking sector considering that similar research is mostly carried out in the manufacturing industry.

For managers and bank leaders, in maintaining competitive advantage, managers have a mission of continuously generating extra value for customers, as well as cost savings and increased productivity. The results of this study also provide input on the importance of the involvement of managers and leaders in managing and innovating and, where innovation performance is the main vehicle to provide a positive effect of the type of innovation for financial performance. As well as providing the fact that innovation is the only way for companies to gain sustainable competitive advantage and to improve.

For Bank Indonesia: In accordance with Bank Indonesia Regulation Number 10/15 / PBI / 2008, concerning the provision of various financial instruments that can be developed through innovations in the financial sector. It is expected to contribute thoughts on regulations that encourage the implementation of effective and efficient innovations.

2. LITERATURE REVIEW

According to Joseph Schumpeter (1934) economic development is driven by innovation through a dynamic process where new technology replaces the old one, which is labeled "creative destruction". In Schumpeter's view, "radical" innovation makes big changes, while "additional" innovations continue to advance the process of change. It was further said that there were five types of innovation, namely: (1) new products, (2) new production methods, (3) new sources of supply, (4) new market exploitation and (5) new ways to regulate business. While the invention is the basis for innovation and initial ideas for new products or processes, while innovation is an effort to implement these ideas in practice. Property rights to inventions can be protected by patents.

According to the European Central Bank (ECB) (2003), financial innovation is product and organizational innovation, which enables the reduction of costs or risks for banks and / or improvement of services for the financial industry as a whole. Meanwhile, according to Frame and White (2004) and Tufano (2002; 2003), financial innovation is the creation of financial instruments (both products and processes) with the discovery or diffusion of products, services or ideas. So in broad outline, financial innovation is the act of creating, then popularizing instruments, as well as new financial technologies to institutions and markets.

Innovations such as the double-edged sword that use appropriate and profitable innovations can spur banks to invest in new technology and will help the financial system to fulfill its function and growth, but if too many innovations or not used properly, can have serious consequences on internal conditions and the economy as a whole (Beck et al, 2012). The banking sector is the end user of innovations developed by other sectors. Sometimes banks together with non-financial companies develop innovations, such as housing loan software or company-specific technology. Financial innovation uses several key concepts, namely market incompleteness, overcoming agency problems and asymetric information. Financial innovation also provides concepts on reducing transaction costs, pool of funds,

providing tools to serve investor demands, responses to taxation & regulatory changes, as well as technological risks and shocks. Financial innovation comes from a combination of two or more of the factors mentioned above.

Some writers such as Lerner (2006) and Tufano (1989) note that unlike the manufacturing industry, the nature of information related to financial innovation cannot possibly be used to achieve sustainable competitive advantage because it is easily imitated. Lerner (2006) argues that if financial institutions can take advantage of the limited opportunities to obtain a patent. The same applies to copyright and informal protections such as confidentiality or complexity of the design. The literature on financial innovation to date is relatively little available. Though the financial services industry is historically different from most manufacturing industries in terms of the ability of innovators to back up an invention. Until now, financial companies were very limited in their ability to protect new ideas through patents. As a result, new product ideas have spread quickly throughout competitors (Tufano, 1989). Grouping companies in certain areas may be an important source of innovation in the future. Differences in innovations in the financial sector and innovations in the manufacturing industry sector according to the characteristics of products and activities of Research & Development.

Measuring innovation activities in the financial sector is more challenging, given the problem of patents in the financial sector is still rarely found (Frame and White, 2004). Likewise Thorsten Beck, (2012), in his research at the European Union, he did not find data on R&D expenses and research staff, because they were not usually collected for the benefit of financial institutions. Lack of data has hampered studies on financial innovation in several countries. Thorsten Beck's research (2012), fills gaps by collecting R&D Expenditre data from the Analytical Business Enterprise Research and Development Database (ANBERD) which then consistently develops a collection of R & D expenditure data for the industry over time. In his research, R&D expenses consist of total intramural and extramural expenditure on R&D, which includes all R&D costs incurred by the company and reported in the R&D survey. Intramural expenditure consists of R&D acquisitions and grants given to others to carry out R&D activities.

In most businesses, innovators protect their property rights in various ways, they can try to maintain innovation as a trade secret, like Coca-Cola with its famous recipe. They can attach labels of property (copyright, trademark or service marks). And try to capture profits as the first mover (first movers) in the form of higher prices or greater market share based on their innovation. Furthermore, financial innovators place brands on the services and products of some of the first mover's advantages, because trade secrets and patents are deemed impossible to protect. Maintaining confidentiality, it is difficult for innovative securities because Investors and regulators usually demand disclosure of bid requirements. So financial innovation is considered a "business process" that is difficult to patent.

Innovation studies in traditional manufacturing industries focus on research & development (R&D) and R&D output (R&D Expenditure). However, R&D is not a satisfactory measure in the banking sector, because banks usually do not have R&D departments that launch new products and services. Most new services are developed in a phased manner, and often through "trial and error" in all parts of the business. Many innovations in financial services are not related to public securities, such as insurance and banking products (Lerner, 2006 and Tufano, 2011).

A measure of financial innovation was also developed by Lerner (2006) financial innovation based on news in the Wall Street Journal related to new products, services, or financial institutions. However, some innovations may not be reported in the media because they do not have direct appeal to the reader. Research on innovations in the banking industry

can be known through a catalog of one type of innovation, such as credit default swaps or securitization (Tufano, 2003).

In Indonesia, Indonesian Bank seeks to complete the presentation of bank information to the public through an Annual Report that is made at the end of each year. The Annual Report includes information on innovation activities such as the number of product launches for a year

3. RESEARCH METHOD

Operational variables for the determinants of financial innovation consist of :
a. Bank internal operational variables (bank specific), namely:
   1) Bank Size (X1) in this study Bank size variables are measured by Total Assets (TA) in accordance with Nickerson and Sullivan (2003).
   2) Age of the Bank (X2) is the year the bank began to be established until 2017 as measured by the Log number of years from which it was established until 2017.
   3) Cooperation / Collaboration (X3), According to Lerner (2006) financial companies involved in various forms of cooperation (for example joint ventures for securities syndication). Josh Lerner (2003), concluded that companies that have strong academic relationships innovate again, and academic relationships are more important. While companies that have a greater reliance on outsourcing can reduce learning by doing. (Weigelt, 2009, p. 610). Sharieh et.al (2012). Collaboration is a requirement for developing financial innovation. However, to collaborate, financial companies need to ensure that their knowledge is well protected when disclosed to their collaborators. Legal protection of intellectual property can be in semi-formal forms, such as contracts, or informal, such as technological protection measures. So the dimensions that can be used for cooperation variables in this study are cooperation contracts through academic relations, outsourcing, and technology protection cooperation cooperation contracts.
   4) R&D Intensity (X4) Hasan Ayaydin (2014), proves the positive effect of R&D intensity on company performance, the positive and significant effect of R&D expenditure (R&D Expenditure), on companies that operate with high technology, while remaining negative for technologists low. Heffernan et al, (2008), R&D expenditure (R&D Expenditure), are the main variables driving the success of financial innovation. Heshmati & Lööf (2008), that investment in R&D was found to be a good predictor of future earnings growth. R&D Intensity is calculated by R&D Expenditure / Total Assets (T Beck, 2012)
b. Operational variables for financial innovation (Y) as follows:
   Operational variables are measured based on the number of electronic banking product launches such as Automated Teller Machines (ATMs), Credit Cards, Debit Cards, Electronic Fund Transfers, Internet Banking, Mobile Banking, Prepaid Cards, which are carried out every bank in Indonesia every year for 5 years . The operational variables for financial innovation are in accordance with those developed by Lerner (2006) based on the news in the Wall Street Journal and the obligation for banks in Indonesia to report innovation activities through the Annual Report (Annual Report annually)
c. Variable (Z), i.e. Financial Performance
   Operational variables for bank performance consist of:
   1) Third Party Fund Growth,
   2) Credit Growth,
   3) ROA growth.

Hypothesis test

a. First Hypothesis

H_1: Determinants influence Innovation

H_0: The determining factor does not affect Innovation

To prove the hypothesis it is necessary to do a regression with the following regression equation:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + ... + b_nX_n + \varepsilon, \text{ where :}$$

Y = Number of e banking product launches

B_1, b_2, b_3, b_n = Determinants of financial innovation

$X_1, X_2, X_3 ... X_n$ = Regression Coefficient

b. Second Hypothesis

H_1: Use of Innovation affects ROA Growth

H_0: The use of innovation has no effect on ROA growth

Equation Regression II

$$Z = a + b_1Y_1 + b_2Y_2 + b_3Y_3 + ... + b_nY_n + \varepsilon, \text{ where :}$$

Z = ROA growth rate

B_1, b_2, b_3, b_n = Regression Coefficient

$Y_1, Y_2, Y_3 ... Y_n$ = Total investment in the use of innovation divided by Total Credit

4. RESULTS AND DISCUSSION

Effect of X_1, X_2, X_3 & X_4 on Z through Y

Furthermore, in accordance with the objectives of the study, namely to test the effect of X_1, X_2, X_3 and X_4, on Z through Y. This data processing uses path analysis with the following equation:

$$Y = \rho_{yx1}X_1 + \rho_{yx2}X_2 + \rho_{yx3}X_3 + \rho_{yx4}X_4 + \varepsilon_1$$

$$Z = \rho_{zy}Y + \varepsilon_1$$

Information :

Z = ROA growth

Y = Product Launching

X_1 = Total Assets

X_2 = Age

X_3 = Number of cooperation with external parties

X_4 = Expenditure Training and R&D

In accordance with the proposed research hypothesis, the data will be tested using path analysis. Path analysis examines the structural causal relationship of the independent variable to the dependent variable by considering the interrelationships between the independent variables.

Testing the effect of X_1, X_2, X_3 & X_4 on Y

The first hypothesis to be tested is the influence of the determining factors on financial innovation in the banking sector, both jointly and partially.

Based on the results of data processing obtained path coefficients of each independent variable, namely: X_1, X_2, X_3 and X_4, against Y which is seen in the table below.

Table 2
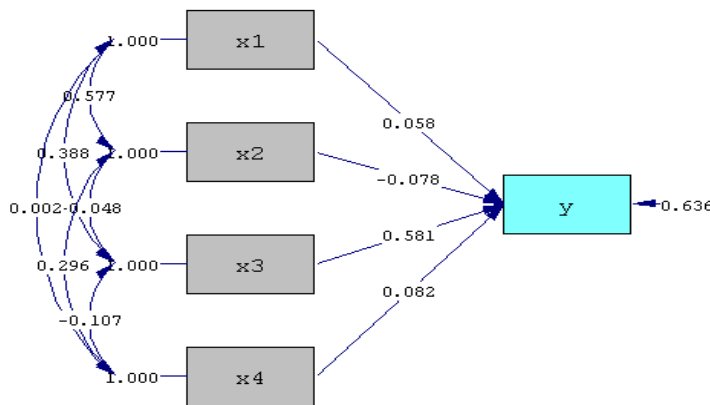**Path coefficient of each independent variable on product launching**

Variabel	Path coefficient	T$_{count}$	P-value	
X_1	0,058	0,388	0,700	$R^2 = 0,364$
X_2	-0,078	-0,539	0,592	

X_3	0,581	4,847	0,000	
X_4	0,082	0,742	0,461	

Source :data processing result

From the above table, the total influence of variables X_1, X_2, X_3 and X_4 on Y is 0.364 or 36.4%. While the remaining 63.6% is the influence of other factors outside the independent variable. Visually the path diagram of the influence of X_1, X_2, X_3 and X_4 on Y is shown in the following figure:

Picture 1 : line diagram X_1, X_2, X_3 and X_4, against Y

Through the values contained in the picture above, the influence of each independent variable (X_1, X_2, X_3 and X_4) can be calculated on Y.

$Y_1 = 0,058*X_1 - 0,078*X_2 + 0,581*X_3 + 0,082*X_4$

After the path coefficient is calculated, then to prove whether X_1, X_2, X_3 and X_4 have a significant effect either partially or simultaneously on Y, then hypothesis testing is performed.

Partial Path Coefficient Testing

Partial testing is carried out to prove whether partially X_1, X_2, X_3 and X_4 against Y. To test the path coefficient of each independent variable the t test statistic is used where the value of t_{value} is compared with the value of t_{table} at an error rate $\alpha = 5\%$ and the degree of freedom   (db = n-k-1) = 60 in a two-way test that is equal to 2,000 ($t_{table} = 2,000$).

To partially test the path coefficient, the hypothesis formulation is first determined as follows:

$H_0 : \rho_{yx_i} = 0$ There is no significant effect on the i (X_i) independent variable on Y

$H_1 : \rho_{yx_i} \neq 0$ There is a significant influence on the i (X_i) independent variable on Y

Test statistics used are:

$$t_i = \frac{\rho_{yxi}}{\sqrt{\dfrac{(1-R^2)CR_{ii}}{n-k-1}}} \quad i = 1, 2, 3, 4 \text{ and } 5$$

Test criteria :

Reject H_0 if $t_{count} > t_{table}$ ($t_{\alpha;n-k-1}$)

The calculation results can be seen in the following table:

Table 3
Partial testing

No.	Hypothesis	T_{count}	T_{table} (db:60)	p-value	H_0	Conclusion
1.	$P_{yx1} = 0$	0,388		0,700	H_0 accepted	Not significant
2.	$P_{yx2} = 0$	-0,539	±2,000	0,592	H_0 accepted	Not significant
3.	$P_{yx3} = 0$	4,847		0,000	H_0 rejected	Significant
4.	$P_{yx4} = 0$	0,742		0,461	H_0 accepted	Not significant

From the table above, we can know that the calculated t value for variable X_3 is greater than the t table value. Its means that the variable X_3 partially gives a significant effect on Y. While the calculated t value for the variables X_1, X_2 and X_4 is smaller than the value of t table. So it can be concluded that the variables X_1, X_2 and X_4 partially do not have a significant effect on Y.

Testing the Effect of Y Against Z

The next hypothesis to be tested is the effect of Y on Z. Based on the results of data processing, the path coefficient from Y to Z can be seen in the table below:

Table 4
Path Y Coefficient Against Z

Variable	path coefficient	T_{count}	p-value	
Y	0,060	0,046	0,635	$R^2 = 0,004$

Source : data processing result

From the above table, the total effect of Y on Z is 0,004 or 00.4%. While the remaining 99.99% is the influence of other factors outside of Y Visually, the path diagram of the effect of Y on Z is shown in the following figure.
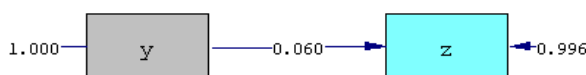
Picture 2 : Diagram of the Influence of Y Path to Z

Through the values contained in the picture above can be calculated the influence of the independent variable Y Against Z.

Z = 0,060*Y

After the path coefficient is calculated, then to prove whether Y has a significant effect on Z, then partial hypothesis testing is performed.

$H_0 : \rho_{y1y2} = 0$ Y no effect on Z.

$H_2 : \rho_{y1y2} \neq 0$ Y effect on Z.

Table 5
Test Results on the Effect of Y_1 on Y_2

Path coefficient	T_{count}	$T_{table (db:98)}$	p-value	H_0	conclusion
0,060	0,046	±2,017	0,635	accepted	Not significant

Based on the test results in the above table, it can be seen that the tcount value of innovation ability variable is 0.046 and t_{table} is 2.017, where t_{count} = 0.046 <t_{table} = 2.017.

Because the t_{count} is smaller than the t_{table} and the p-value is 0.635 (greater than 0.05%) which indicates that there is no significant effect of the Y variable on Z.

So based on the test results it can be concluded that Y has no significant effect on Z.

Direct and Indirect Effects

Table 6
Direct and Indirect Effects

Variable influence	Effect on Z		Influence Against Z Through Y
	Direct	Indirect Through Y	
X_1-Y_1	0,058	0,003	0,061
X_2-Y_1	-0,078	-0,005	-0,082
X_3-Y_1	0,581	0,035	0,615
X_4-Y_1	0,082	0,005	0,087
Y-Z	0,06	-	0,06
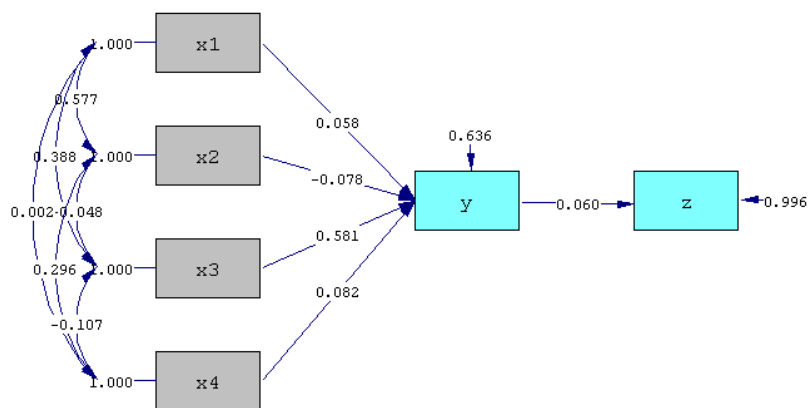
Picture 3: Influence Diagram of X_1, X_2, X_3 and X_4 Against Z Through Y_1

Based on the above table, it can be seen that:

a. The effect of X_1 on Y is 0.058. While the indirect effect of X_1 on Z through Y_1 is 0.003. So, the Total Effect of X_1 on Z is 0.061.

b. The effect of X_2 on Y is -0,078. While the indirect effect of X_2 on Z through Y is -0.005. So, the Total Effect of X_2 on Z is -0,082.

c. The effect of X_3 on Y is 0.581. While the indirect effect of X_3 on Z through Y is 0.035. So, the Total Effect of X_3 on Z is 0.615.

d. The influence of X_4 on Y_1 is 0.082. While the indirect effect of X_4 on Z through Y_1 is 0.005. So, the Total Effect of X_4 on Z is 0.087.

e. The effect of Y_1 on Z is 0.06.

From the results of the analysis of the discussion of the determinants of innovation partially, the effect is only the variable of cooperation with external parties, indeed from a theoretical review of several studies conducted that the banking sector does not prepare specific funding for innovation activities, the provision of funds for employee training and research and development (R&D) costs, but the amount is still small when compared to other operational costs. From the results of this study it is found that it is important to note that the banking sector in carrying out more innovation using network development with external parties such as the use of consultants, experts and build cooperation in every activity including innovation activities. This is indeed a suggestion from Bank Indonesia and the government to collaborate and build synergies in creating products, especially syndicated

credit products, in channeling and developing credit to boost credit growth and economic growth targets. Especially in the context of facing competition in the ASEAN Economic Community zone. As for the effect of innovation on performance, it is necessary to develop a more complete model that is by considering internal factors and external factors that affect performance, considering there are still many other factors that influence it. Although the innovation factor is important in maintaining performance and competitive advantage, there are still many other factors that affect performance, such as macroeconomic conditions that are of concern in the study period. As we know the economic conditions such as inflation rates, growth rates, interest rates. Given the banking sector is a sector that is vulnerable to economic development. Where in several countries in the study period there has been an economic slowdown which led to a decrease in the level of productivity which ultimately is a decrease in performance.

5. CONCLUSION

From the results of testing together, in accordance with the objectives of the study, namely to test the effect of X_1, X_2, X_3 and X_4, on Z Through Y, the result is 0.364 or 36.4%. While the remaining 63.6% is the influence of other factors outside the independent variable. Through the values calculated from the magnitude of the effect of each independent variable (X_1, X_2, X_3 and X_4), on Y, the equation $Y_1 = 0{,}058 * X_1 - 0{,}078 * X_2 + 0{,}581 * X_3 + 0{,}082 * X_4$
The partial test is carried out to prove whether partially X_1, X_2, X_3 and X_4 against Y. The result is the calculated t value for variable X_3, greater than the t table value. Then it can be concluded that the X_3 variable, namely the Number of Collaboration with external parties, partially has a significant influence on Y. While the calculated t value for each variable X_1, X_2 and X_4 is smaller than the value of t table. This means that variables X_1, X_2 and X_4 partially have an insignificant effect on Y.

Meanwhile the results of testing the effect of Y on Z, based on the results of data processing the path coefficient obtained from Y to Z is only 0.004 or 00.4%. While the remaining 99.99% is the influence of other factors outside Y. Based on the test results in the table above, it can be seen that the tcount value of the innovation ability variable is 0.046 and t_{table} is 2.017 where the $t_{count} = 0.046 < t_{table} = 2.017$. Because the t_{count} is smaller than t_{table} and the p-value is 0.635 (greater than 0.05%) which indicates that there is no significant effect of the variable Y on Z. Meanwhile, based on the test results it can be concluded that Y has no significant effect on Z.

Direct and Indirect Effects
a. The effect of X_1 on Y is 0.058. While the indirect effect of X_1 on Z through Y_1 is 0.003. So, the Total Effect of X_1 on Z is 0.061.
b. The effect of X_2 on Y is -0,078. While the indirect effect of X_2 on Z through Y is -0.005. So, the Total Effect of X_2 on Z is -0,082.
c. The effect of X_3 on Y is 0.581. While the indirect effect of X_3 on Z through Y is 0.035. So, the Total Effect of X_3 on Z is 0.615.
d. The influence of X_4 on Y_1 is 0.082. While the indirect effect of X_4 on Z through Y_1 is 0.005. So, the Total Effect of X_4 on Z is 0.087.
e. The effect of Y_1 on Z is 0.06.

REFERENCES

Anil, K & Kapoor, S 2008, 'Determinants of Dividend Payout Ratios a Study of Indian Information Technology Sector', *International Research Journal of Finance And Economics*, p.63-71.

Appannan, S & Lee, WS 2011, 'A Study on Leading Determinants of Dividend Policy in Malaysia Listed Companies for Food Industry Under Consumer Product Sector', *2nd International Conference On Business And Economic Research Proceeding*, p.945-976.

Bursa Efek Indonesia, *Laporan Keuangan Tahunan*, Diakses 20 Maret 2018.
http://www.idx.co.id/idid/beranda/perusahaantercatat/laporankeuangan&tahunan.aspx

Chen, CR. & Steiner, TL 1999, 'Managerial Ownership and Agency Conflicts: a Nonlinear Simultaneous Equation Analysis of Managerial Ownership, Risk Taking, Debt Policy, and Dividend Policy', *The Financial Review,* Feb 1999, p.119 – 136.

Dewi, SC 2008, 'Pengaruh Kepemilikan Managerial, Kepemilikan Institusional, Kebijak-an Hutang, Profitabilitas dan Ukuran Perusahaan Terhadap Kebijakan Divi-den', Jurnal Bisnis dan Akun-tansi, Vol.10, No.1, April 2008, hlm.47-58.

Dwi, RH & Bambang, H 2009, 'Pengaruh Kepemilikan Manajerial, Kebijakan Hutang, ROA, Ukuran Perusahaan Terhadap Kebijakan Dividen (Studi Kasus Pada Perusahaan Manufaktur Yang Terdaftar Di BEI Tahun 2001-2005)'. Fokus Mana-jerial. Vol.7, No.1, 2009, hlm.64-71.

Fahmi, I 2017, *Analisis Kinerja Keuangan*, Alfabeta, Bandung.

Franklin, SJ &Muthusamy, J 2010, 'Leverage, Growth and Profitability as Determinants of Dividend Payout Ratio-Evidence from Indian Paper Industry', *Asian Journal of Business Management Studies* 1(1), hlm.26-30.

Habib, DS & Andri, P 2012, 'Analisis Faktor-Faktor Yang Mempengaruhi Kebijakan Dividen (Stu-di Empiris Pada Perusahaan Manufaktur Yang Terdaftar Di Bursa Efek Indonesia Periode 2007-2009)', Diponegoro Journal of Accoun-ting, Vol. 1, No. 1, Tahun 2012, hlm.1-12.

Ikbal, M, Sutrisno, & Djamhuri, A 2011, 'Pengaruh Profitabilitas dan Kepemilikan Insider Terhadap Nilai Perusahaan Dengan Kebijakan Hutang dan Kebijakan Dividen Sebagai Variabel Intervening (Studi Pada Perusahaan Manufaktur Di Bursa Efek Indonesia)', Simposium Nasional Akuntansi XIV Aceh 2011, hlm.1-36.

Ismiyanti & Hanafi 2003, 'Pengaruh Kepemilikan Manajerial, Kebijakan Hutang, Profita-bilitas, Ukuran Perusahaan dan Kesempat-an Investasi Terhadap Kebijakan Dividen', Simposium Nasional Akuntansi VI Surabaya.

Jensen, MC. & Meckling, WH 1976, 'Theory of the Firm : Managerial Behavior, Agency Costs and Ownership Structure', *Journal of Financial Economics*, Vol. 3, No. 4, hlm.365-378.

Karina, PN 2012, 'Analisis Pengaruh Kepemilikan Institusional, Kebijakan Dividen, Profitabilitas, Pertumbuhan Perusahaan Terhadap Kebijakan Hutang (Studi Pada Perusahaan Manufaktur Yang Terdaftar Di Bursa Efek Indonesia Tahun 2008-2010)'. Progam sarjana (S1), Universitas Diponegoro.

Lucyana, J & lilyana 2009, 'Pengaruh Free Cash Flow dan Struktur Kepemilikan Terhadap Dividen Payout Ratio', *Jurnal Dinamika Akuntansi*, Vol.4, No.2, September 2012, p.129-138.

Nuringsih, K 2005, 'Analisis Pengaruh Kepemilikan Manajerial, Kebijakan Hutang, ROA dan Ukuran Perusahaan Terhadap Kebijakan Dividen studi 1995-1996', Jurnal Akuntansi dan Keuangan Indonesia, Vol.2, Juli-Desember 2005, p.103-123.

Rehman, A & Takumi, H 2012, 'Determinants Dividend Payout Ratio: Evidence From Karachi Stock Exchange (KSE)', *Journal of Contemporary Issues InBusiness Research*, Vol.1, No.1, 2012, p.20-27.