


## BOARD OF COMMISSIONERS AGE DIVERSITY, PROFITABILITY, AND BANK RISK-TAKING

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### ABSTRACT

**Introduction:** The age of the board of commissioners is one of the personal characteristics of commissioners that can affect the level of bank profitability and risk-taking. This study examines the effect of the board of commissioners' age diversity on bank profitability and risk-taking.

**Methods:** The author uses the multiple linear regression method using a total of 223 observations in banking companies listed on the Indonesia Stock Exchange for the period 2008-2017.

**Results:** The dependent variables used in this study are Return on Assets (ROA), Return on Equity (ROE), and bank risk investment, with the independent variable being the age diversity of the board of commissioners. The results of this study indicate that the age diversity of the board of commissioners has a significant negative effect on the level of bank profitability, as measured by ROA and ROE. However, the age diversity of the board of commissioners has a significant positive effect on bank risk-taking.

**Conclusion and suggestion:** The selection of the Board of Commissioners needs to pay attention to the ages of the members of the Board of Commissioners as a whole because the results of this study indicate that high age diversity in the scope of commissioners can worsen bank profitability and higher risk-taking.

### INTRODUCTION

Risk and profitability are two factors investors often consider when determining their investment decisions. When carrying out business activities, business people always encounter risks. According to Bank Indonesia Regulation (PBI) number 11/25/PBI/2009,

"risk is the potential loss due to the occurrence of a certain event." Therefore, risk is an important factor that must be managed by companies.

In managing risk, companies are always faced with risk-taking decisions. The company is expected to not take the wrong step in investing its resources. Taking risks is very important to consider hence that the risks are not too high or too low, according to the conditions of the company. Therefore, companies must have good risk-assessment skills to obtain optimal returns. Profitability is one of the factors that affects businesspeople. The level of profitability shows a company's ability to generate profits through business activities carried out (Sudana, 2015: 25). By having a high level of profitability, the company can increase investor confidence to generate profits in the future.

Banks are financial institutions that play an important role in the Indonesian economy. Banks play a role in collecting funds from the public in the form of savings and channeling them to the public in the form of credit (UU No. 10 of 1998 concerning banking). In this regard, the level of profitability and risk of each bank will be a consideration for the public in saving their funds in banks and seeking sources of funds from banks. Banks with high levels of profitability and low risk indicate that the bank has good performance. BCBS (Basel Committee on Banking Supervision) issued "Guidelines on Corporate Governance Principles for Banks" to emphasize that it is important to implement the diversity of a bank's board of commissioners because it reflects the capabilities and experience of the board of commissioners. Mannheim (1949), and Talavera et al. (2018) state that the age of the board of commissioners is a dynamic proxy that reflects a person's experience. The age diversity of the Board of commissioners may facilitate a bank's access to adequate resources, but it can also create barriers to communication within the board of commissioners.

Previous research was conducted by Garcia-Meca et. al (2014) with the dependent variable of company performance, one of which is proxied by ROA, and the independent variable is the gender of the commissioner. Liang et al. (2013) also examined the effect of the characteristics of the board of commissioners proxied by the number of meetings and proportion of independent commissioners on a bank's ROA. Talavera et al. (2017) conducted an empirical study that raised the issue of the effect of age diversity on the boards of commissioners for financial companies in China. This study supports the hypothesis that the age diversity of commissioners causes a decrease in bank profitability. However, the effect of commissioners' age diversity on bank risk-taking is not significant. Other evidence raising the same issue was presented by Arioglu (2019), which supports that the age diversity of the board of commissioners influences bank profitability.

## LITERATURE REVIEW

### Definition of Bank

According to Law no. 10 of 1998 concerning banking, a bank is a business entity that collects funds from the public in the form of savings and distributes them to the public in the form of credit or other forms to improve the standard of living of the common people. The banking industry plays a role in the development of the national economy, which is constantly moving rapidly, competitive, and integrated with increasingly complex challenges and an increasingly advanced financial system. Based on Law No. 10/1998 Article 3, the main function of Indonesian banking is as a collector and distributor of public funds. From this provision, it can be seen that the bank functions as an intermediary between parties who have excess funds (surplus of funds) and parties who are lacking and need funds (lack of funds).

### Definition of Risk

All the activities carried out by individuals or companies pose risks. Business activities are closely related to risks. Risk in business activities is also associated with the amount of taking that will be accepted by the risk-taker. According to Bank Indonesia Regulation (PBI) number 11/25/PBI/2009, the risk is the potential loss due to the occurrence of a certain event. According to Sudana (2015:40), risk is a deviation from the actual results of the expected results.

Based on this understanding, it can be concluded that risk is a situation faced by companies, especially banks, where there is a possibility of loss. Risk is something that leads to uncertainty over the occurrence of an event during a certain time interval where the event causes a loss, whether it is a small loss that is not significant or a large loss that affects the survival of a company.

### Age Diversity of the Board of Commissioners

Herrmann and Datta (2005) argue that age can be considered a proxy for assessing experience and risk-taking. The age diversity of the board of commissioners is the composition of old and young commissioners in a company, especially banks. The older the average age of the board of commissioners, the lower the risk borne by the bank. This can happen because the older the board of commissioners, the better their ability to assess risks. In addition, older commissioners are equipped with skills, maturity of thought, extensive experience, and information that tend to be risk-averse (Gervais and Odean, 2001). In contrast, younger commissioners have a greater appreciation for innovation and new ideas and tend to be less interested in steady progress (Cheng et al., 2010) therefore they tend to take greater risks.

### **Effect of Age Diversity of the Board of Commissioners on Bank Profitability**

Indonesia implements a two-board system, in which a company is divided into a board of commissioners and a board of directors. The board of directors controls managerial processes, whereas the Board of commissioners supervises and provides input to the board of directors. One of the factors that influence the effectiveness of commissioners' supervision of directors is the diversity of ages on the board of commissioners (Talavera et al., 2018).

The various ages of the board of commissioners tend to create in-groups and out-groups Brown and Turner (1981) in Ali et al., (2013) on the board of commissioners. Old and young commissioners tend to interact with members of other commissioners of the same age group because they think that individuals of the same age group are more likely to interact with and share their values and expectations (Twenge et al. 2010). Conversely, out-group members are perceived as less trustworthy, dishonest, and less cooperative (Brewer 1979). Westphal and Bednar (2005) stated that different perspectives can lead to conflicts between the boards of commissioners. Conflicts can become an obstacle to the monitoring process and worsen company profitability. Talavera et al. (2018) stated that age diversity can cause conflict and low harmony between members of the board of commissioners, which hurts company profitability. Ali et al. (2013) find that age diversity causes a decrease in company profitability.

### **Effect of Age Diversity of the Board of Commissioners on Bank Risk-Taking**

Age diversity can affect the supervisory process within the scope of the board of commissioners (Talavera et al., 2018). High age diversity can cause conflict and make it difficult to achieve consensus. The emergence of this conflict caused the supervisory process carried out by the board of commissioners on the board of directors to become increasingly ineffective. This causes the board of directors to make mistakes when making decisions. The convoluted decision-making process can put the bank at a higher risk if it is not properly handled. Moscovici and Zavalloni (1969) argued that in the practice of supervision carried out by a group, diversification of opinions naturally arises. This can occur because each individual has a different ability to process information.

Concerning the relationship between age and risk, Cheng et al. (2010) state that young commissioners are challenged to make risky decisions because they have a greater incentive to increase the income earned by the company. In contrast to older commissioners, they tend to make less risky decisions because they have more experience and information; thus, the returns are not too high (Nguyen et al., 2015). Berger et. al. (2009) stated that older managers tend to choose lower risk because it can have an impact on worsening company performance.

## Previous Research

Talavera et al. (2018) examined the effect of diversity on the board of commissioners on bank profitability and risk-taking. The researchers used a sample of 97 banks in China from 2009 to 2013. In this study, it was found that the independent variable had a negative effect, namely the age diversity of the board of commissioners, on the dependent variable, namely bank profitability. Arioglu (2019) examined the effect of the independent variable age diversity of the board of commissioners on the dependent variable company performance, proxied by ROA and company risk. This study used a sample of non-financial companies in Turkey registered with Borsa Istanbul from 2009 to 2017. The results indicated that the age diversity of the board of commissioners had a significant negative effect on company performance but did not have a significant effect on company risk.

Additionally, Garcia-Meca et al. (2014) examined the influence of the independent variables, namely gender and nationality of the board of commissioners, on the dependent variable of bank performance proxied by Tobins-Q and ROA. The research used a sample of 159 banks in nine different countries in the Americas and Europe for the 2004-2010 period. The results indicate that gender diversity within the scope of the board has a significant positive effect on bank performance, while the nationality of the board of commissioners has the opposite effect.

Another study by Liang et al. (2013) used a sample of 50 banks in China from to 2003-2010 period. The independent variables used in this study are the characteristics of the board of commissioners and the dependent variable of bank performance, proxied by ROA. The results of this study indicate that elements of the characteristics of commissioners, such as the number of meetings and the proportion of independent commissioners, have a significant positive effect on bank performance, while the size of the board of commissioners has a significant negative effect on bank performance.

## Hypotheses

- H1: *Board of commissioners' age diversity has a negative effect on bank profitability.*  
H2: *Age diversity of the board of commissioners has a positive effect on bank risk-taking.*

## RESEARCH METHODS

### Sampling Procedure

A purposive sampling method was used for sample collection. This sampling method has certain criteria limitations that are expected to be based on the research objectives. The criteria used were as follows.

1. The sample companies are banking companies listed on the Indonesia Stock Exchange for the 2008-2017 period.
2. Publish financial and annual reports and have complete information for the 2008-2017 time period.
3. Companies that use the rupiah currency in their financial reports.

### Definition of Operational Variables

The operational definition of this variable regarding the meaning of each variable used in the study is as follows:

#### 1. Dependent Variable

Bank profitability is the bank's ability to generate profits for each asset by managing company resources, which can be calculated using the ROA and ROE formulas (Setiawan dan Gestanti, 2022; Setiawan dan Syarif, 2019; Setiawan dan Gestanti, 2019; Setiawan dan Shabrina, 2018).

- a. Return on Assets (ROA) is a profitability ratio that shows a company's ability to generate profits by managing its assets, here is the ROA formula:

$$ROA_{i,t} = \frac{Net\ Income_{i,t}}{Total\ Asset_{i,t}}$$

- b. Return on Equity (ROE) shows the company's ability to generate profit after tax by using the capital owned by the company, following the ROE formula:

$$ROE_{i,t} = \frac{Net\ Income_{i,t}}{Total\ Equity_{i,t}}$$

- c. Bank risk-taking is defined as risk-taking carried out by banks to increase profits, which can potentially cause risk. In this study, bank risk-taking can be measured using the inverse Z-score using the following formula:

$$RISK_{i,t} = \frac{1}{\left[ \frac{ROA_{i,t} + ETA_{i,t}}{\sigma(ROA_{i,t})} \right]}$$

In this case, the standard deviation of the ROA is calculated using the following formula:

$$\sigma ROA_{i,t} = \sqrt{\frac{\sum (ROA_{i,t} - \overline{ROA_{i,t}})^2}{n - 1}}$$

#### 2. Independent Variables

The age diversity of the board of commissioners is the composition of old and young commissioners in a company, especially banks. Herrmann and Datta (2005) argue that

age can be considered a proxy for assessing experience and risk-taking. In this study, the Board of Commissioners' age diversity variable (AGEDIV) was measured using the coefficient of variance with the following formula:

$$AGEDIV_{i,t} = \frac{\sigma(AGE_{i,t})}{mean(AGE_{i,t})}$$

### 3. Control Variables

- a. The size of the board of commissioners is the number of members on the board of commissioners in the company. The size of the board of commissioners (BS) was measured using the following formula:

$$BS_{i,t} = Ln(\text{Number of the board commissioners}_{i,t})$$

- b. Bank size is the business scale of a bank, proxied by the total assets bank size (SIZE) in this study, and is measured using the following formula:

$$SIZE_{i,t} = Ln(\text{Total Asset}_{i,t})$$

- c. The proportion of credit is the ratio of the amount of credit or loans extended by the bank to the total assets. The proportion of credit (LOAN) was calculated using the following formula:

$$LOAN_{i,t} = \frac{\text{Amount of Credit}_{i,t}}{\text{Total Asset}_{i,t}}$$

## RESULT AND ANALYSIS

**Table 1. Profitability Descriptive Statistics**

	<i>N</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
<b>ROA</b>	223	-0,0283	0,0341	0,0127	0,0089
<b>ROE</b>	223	-0,1133	0,3128	0,1051	0,0707
<b>AGEDIV</b>	223	0,0050	0,1286	0,0264	0,0200
<b>BS</b>	223	0,6931	2,1972	1,5314	0,3857
<b>SIZE</b>	223	27,3758	34,5768	31,0922	1,7508
<b>LOAN</b>	223	0,3093	0,7909	0,6206	0,1081
<b>Valid (N)</b>	223				

Source: Data processed in SPSS

This study uses the independent variable in the form of the age diversity of bank commissioners (AGEDIV), the dependent variable consisting of Return on Assets (ROA), Return on Equity (ROE), and risk (RISK), and the control variable, namely the size of the bank's board of commissioners (BS), bank size (SIZE) and loans (LOAN). Based on the results of this study in Table 1 and Table 2 it can be seen the minimum, maximum, average, and standard deviation values of each variable from the bank sampled in the 2008-2017 period.

As shown in Table 1, the number of observations (N) is 223. ROA shows a bank's ability to generate net profit, as measured by the proportion of net income to total assets; the greater the value of ROA, the better the company is at utilizing assets to earn net profit. The results of the descriptive analysis show that the highest ROA value of the sample used in this study was 0.0341, the lowest ROA value was -0.0283, and the average ROA was 0.0127.

ROE shows a bank's ability to obtain net profit using bank equity, as measured by the proportion of net income to equity. The greater the ROE value, the more effective and efficient the bank's management is in using its capital. The results of the descriptive statistics show that the highest ROE value of the sample studied was 0.3128 and the lowest value was -0.1133, with an average ROE of 0.1051 and a standard deviation of 0.0707.

AGEDIV shows the age diversity of the Board of Commissioners as measured by the coefficient of variance by proportioning the standard deviation of the age of the Board of Commissioners to the average age of the Board of Commissioners. The greater the coefficient of variance, the more diverse the age of the commissioners. The coefficient of variance had the highest value of 0.1286, the lowest value of 0.005, and an average of 0.0264, with a standard deviation of 0.02.

BS refers to the size of the bank's board of commissioners as measured by the natural logarithm of the number of members of the board of commissioners. The largest bank board of commissioners in this study was 2.1972, and the smallest board of commissioners was 0.6931, with an average of 1.5314 and a standard deviation of 0.3857. SIZE indicates the size of the bank used as the sample in this study, measured by the natural logarithm of the bank's total assets. The largest bank size was 34.5768, the smallest was 27.3758, and the average bank size used as a sample was 31.0922, with a standard deviation of 1.7508.

LOAN refers to loans provided by banks, measured by proportioning the amount of loans extended to the bank's total assets. The greater the value of the loan proportion, the more credit a bank provides to customers. The highest credit proportion is 0.7909, with the lowest being 0.3093, an average credit of 0.6206, and a standard deviation of 0.1032.



As shown in Table 2, the number of observations (N) is 214. RISK refers to bank risk-taking. The greater the RISK value, the greater the possibility of a company experiencing insolvency. The RISK value in this study had the highest value of 0.0682, the lowest value of 0.0008, and an average risk of 0.0207, with a standard deviation of 0.0139.

**Table 2. Risk Descriptive Statistics**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>RISK</b>	214	0,0008	0,0682	0,0207	0,0139
<b>AGEDIV</b>	214	0,0050	0,1286	0,0242	0,0197
<b>BS</b>	214	0,6931	2,1972	1,5346	0,3852
<b>SIZE</b>	214	27,9690	34,5768	31,1738	1,6420
<b>LOAN</b>	214	0,3093	0,7909	0,6253	0,1019
<b>Valid (N)</b>	214				

Source: Data processed in SPSS

AGEDIV shows the age diversity of the Board of Commissioners as measured by the coefficient of variance by proportioning the standard deviation of the age of the Board of Commissioners to the average age of the Board of Commissioners. The greater the coefficient of variance, the more diverse the age of the commissioners. The coefficient of variance had the highest value of 0.1286, the lowest value of 0.0050, and an average of 0.0242, with a standard deviation of 0.0197.

BS refers to the size of the bank's board of commissioners as measured by the natural logarithm of the number of members of the board of commissioners. The largest bank board of commissioners in this study was 2.1972, and the smallest board of commissioners was 0.6931, with an average of 1.5346 and a standard deviation of 0.3852.

SIZE indicates the size of the bank used as the sample in this study, measured by the natural logarithm of the bank's total assets. The largest bank size was 34.5768, the smallest was 27.9690, and the average bank size used as a sample was 31.1738, with a standard deviation of 1.642.

LOAN refers to loans provided by banks, measured by proportioning the amount of loans extended to the bank's total assets. The greater the value of the loan proportion, the more credit a bank provides to customers. The highest credit proportion is 0.7909, with the lowest being 0.3093, an average credit of 0.6253, and a standard deviation of 0.1019.

**Model Analysis and Hypothesis Proof**

It can be seen in Table 3 which is the result of multiple regression analysis of model 1 and model 2. The regression results of Model 1 show a coefficient of determination (R<sup>2</sup>) of 0.293, which means that Return on Assets (ROA) can be explained by the age diversity of the board of commissioners (AGEDIV); the size of the board of commissioners (BS), bank size (SIZE), and credit (LOAN) are 29.3%, while the remaining 70.7% is influenced by other variables not examined in this research model.

**Table 3. Profitability Regression Analysis Results**

	<i>ROA</i>	<i>ROE</i>
<i>AGEDIV</i>	-0,059** (-2,183)	-0,351* (-1,718)
<i>BS</i>	-0,002 (-0,740)	-0,002 (-0,149)
<i>SIZE</i>	0,003*** (6,146)	0,023*** (6,676)
<i>LOAN</i>	0,002 (0,334)	-0,034 (-0,866)
<i>R Square</i>	0,293	0,351
<i>N</i>	223	223

\*\*\*, \*\*, \* significance at 1%, 5%, 10% levels

( ): t-statistical value.

Source: Data processed in SPSS

Model 1 shows that the age diversity of the board of commissioners has a significant negative effect on ROA at the 5% significance level; thus, it accepts H1 and rejects H0. This shows that the more diverse the age of the board of commissioners in a bank, the higher the ROA. Bank size, as a control variable, has a significant positive effect on bank ROA at the 1% significance level. This shows that the greater the assets owned by the bank, the higher the bank's ROA. The size of the board of commissioners and the proportion of credit used as control variables in Model 1 do not affect bank risk-taking.

The results of regression model 2 show a coefficient of determination (R<sup>2</sup>) of 0.351, which means that Return on Equity (ROE) can be explained by the age diversity of the board of commissioners (AGEDIV), size of the board of commissioners (BS), bank size (SIZE), and credit granted (LOAN) of 35.1%, while the remaining 64.9% is influenced by other variables not examined in this research model. The results of the regression analysis

of Model 2 show that the age diversity of the board of commissioners has a significant negative effect on ROE at the 10% significance level, rejecting H0 and accepting H1. This shows that the more diverse the age of the board of commissioners at a bank, the higher the ROE. Bank size, as a control variable, has a significantly positive effect on bank ROE at the 1% significance level. This shows that a larger bank size can increase the bank's ROE.

**Table 4. Results of Risk Regression Analysis**

	<i>RISK</i>
<i>AGEDIV</i>	0,091* (1,773)
<i>BS</i>	-0,002 (-0,600)
<i>SIZE</i>	0,002* (1,734)
<i>LOAN</i>	0,002 (0,191)
<i>R Square</i>	0,032
<i>N</i>	214

\* significance at 1%, 5%, 10% levels

( ): t-statistical value.

Source: Data processed in SPSS

As shown in Table 4, the results of the regression analysis of Model 3 show that the value of the coefficient of determination ( $R^2$ ) is 0.032, which means that bank risk-taking (*RISK*) can be explained by the age diversity of the board of commissioners (*AGEDIV*), size of the board of commissioners (*BS*), size of the bank (*SIZE*), and loans (*LOAN*) of 3.2%. The remaining 96.8% were influenced by other variables that were not examined in this research model.

The results of regression analysis Model 3 show that the age diversity of the board of commissioners has a significant positive effect on risk-taking at a significance level of 10%, thus rejecting H0 and accepting H2. This shows that the more diverse the age of the board of commissioners at a bank, the higher the bank's risk-taking. As a control variable, bank size has a significant positive effect on risk at a significance level of 10%, which indicates that the more assets a bank has, the higher the bank's risk. The proportion of credit extended as a control variable in Model 3 does not affect bank risk.

## Discussion

### *Effect of Age Diversity of Commissioners on Bank Profitability*

The age diversity of commissioners has a significant negative effect on bank profitability in terms of both ROA and ROE. This shows that the age of the board of commissioners, which is increasingly diverse in a bank, causes a decrease in bank profitability. The results of this analysis are consistent with those reported by [Talavera et al. \(2017\)](#), where the various ages of the board of commissioners will increase differences in opinion within the board of commissioners thus communication becomes less effective. This can result in the main task of the board of commissioners, namely, supervising and providing input to the board of directors, being ineffective, resulting in suboptimal performance and reducing bank profitability.

### *Effect of Age Diversity of Commissioners on Bank Risk*

Commissioners' age diversity has a significant positive effect on the risk of bank insolvency. This shows that the age diversity of the members of the board of commissioners of a bank increases the risk of bank insolvency. [Moscovici and Zavalloni \(1969\)](#) stated that the more heterogeneous the members in a group, the more perspectives and differences in opinion will arise. This can have an impact on ineffective monitoring and decision-making processes, which results in the increased risks that banks face. The greater differences in opinions and perspectives of thought within the scope of the commissioners can make it difficult to reach a consensus therefore the supervision carried out becomes ineffective.

### *Effect of Control Variables on Bank Profitability*

The size of the bank's board of commissioners has no significant effect on ROA and ROE, which is following the research conducted by [Onali et al. \(2016\)](#). Bank size has a significantly positive effect on bank profitability. This shows that the larger the bank, the greater the company's ability to generate profits. The proportion of bank credit had no significant effect on bank profitability.

### *Effect of Control Variables on Bank Risk*

The size of the commissioner's board has a significant positive effect on bank risk. The increasing number of commissioners in a bank can increase the heterogeneity of opinions ([Moscovici and Zavalloni, 1969](#)) within the scope of the commissioners, which can hinder the supervisory and decision-making processes, resulting in deteriorating bank performance. Bank size has a significant negative effect on bank insolvency risk. The proportion of bank credit has no significant effect on bank insolvency risk.

## CONCLUSION

Based on previous research that has been done, diversity in the age of commissioners has a significant negative effect on bank profitability as measured by Return on Assets (ROA) and Return on Equity (ROE). The higher the age diversity of the members of the board of commissioners in a bank, the lower its ability to manage its assets and capital. Commissioners' age diversity has a significant positive effect on bank risk, as measured by the inverse Z-score. This means that the more diverse the ages of the members of the board of commissioners of a bank, the higher the bank's risk-taking.

## Suggestion

Based on the research conducted, suggestions from researchers are as follows:

1. Shareholders, when choosing a board of commissioners, should pay attention to the age range of the members of the Board of Commissioners as a whole, because the results of this study indicate that a wide range of ages within the Board of Commissioners can worsen bank profitability and the risks taken are higher.
2. It is preferred by shareholders to give attention to the age range of the members of the Board of Commissioners as a whole when selecting a board of commissioners, as the results of this research indicate that varying ages within the scope of commissioners may adversely impact the bank's profitability and the risks taken are more substantial.
3. Investors should pay attention to the age diversity of the board of commissioners of a bank in making investment decisions because based on the results of this study, it is proven that the age diversity of the board of commissioners hurts profitability and negatively affects bank risk-taking.
4. Future researchers, it is better not only to use a sample of banking companies but financial companies as a whole to obtain more comprehensive results about the effect of age diversity on the board of commissioners on bank profitability and risk-taking.

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