JMP | Jurnal Manajemen Perhotelan, Vol. 8, No. 2, September 2022, 106–116 DOI: 10.9744/jmhot.8.2.106–116
ISSN 0216-6283 print / ISSN 2685-9408 online

BOARD DIVERSITY AND CORPORATE RISK: EVIDENCE FROM INDONESIAN LISTED MANUFACTURING COMPANIES IN 2016-2019

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Abstract

Recently, board diversity has become an essential part of the modern business environment. Its awareness rises since it affects how the board carries out its duties, the board's efficacy, and the risk-taking behavior, leading to companies' outcomes and value. Therefore, the researchers conducted the study to know the impact of board diversity, precisely, the Board of Commissioner and corporate risk with the diversity of gender, age, nationality, education, and tenure. Board size, market to book ratio, tangibility, leverage, and profitability were used as control variables. This study focused on Indonesia's manufacturing companies listed in the IDX during 2016-2019, with 300 sample data collected from 75 companies. The data gathered were further analyzed using multiple linear regression. As a result, nationality diversity, tangibility, leverage, and profitability significantly affect corporate risk. Inversely, diversity of gender, age, education, tenure, the board size, and market-to-book ratio do not significantly affect corporate risk.

Keywords: Gender Diversity; Age diversity; Nationality Diversity; Education Diversity; Tenure Diversity; Corporate Risk.

Abstrak

Selama beberapa tahun terakhir, keragaman dewan telah menjadi pusat perdebatan dan bagian penting dari lingkungan bisnis modern. Kesadaran akan hal ini meningkat karena mempengaruhi bagaimana dewan menjalankan tugasnya, efektivitas dewan, dan perilaku pengambilan risiko, yang mengarah pada hasil dan nilai perusahaan.. Oleh karena itu, peneliti melakukan studi untuk mengetahui dampak keragaman dewan, tepatnya, Dewan Komisaris dan risiko perusahaan dengan keragaman jenis kelamin, usia, kebangsaan, pendidikan, dan masa kerja sebagai variabel independen. Variabel terikat, risiko perusahaan, dioperasionalkan dengan menggunakan standar deviasi pengembalian saham tahunan. Jumlah anggota dewan, market-to-book ratio, tangibility, leverage, dan profitabilitas juga digunakan sebagai variabel kontrol. Penelitian ini difokuskan pada perusahaan manufaktur Indonesia yang terdaftar di BEI selama tahun 2016-2019, dengan jumlah sampel 300 data yang dikumpulkan dari 75 perusahaan. Data yang terkumpul memenuhi kriteria purposive sampling dan selanjutnya dianalisis menggunakan regresi linier berganda. Berdasarkan proses statistik, keragaman kebangsaan, tangibility, leverage, dan profitabilitas berpengaruh signifikan terhadap risiko perusahaan. Sebaliknya, keragaman jenis kelamin, usia, pendidikan, masa kerja, jumlah anggota dewan, dan market-to-book ratio tidak berpengaruh signifikan terhadap risiko perusahaan.

***Kata kunci**: Keanekaragaman Dewan; Keanekaragaman Gender; Keanekaragaman Usia; Keanekaragaman Kewarganegaraan; Keanekaragaman Pendidikan; Keanekaragaman Masa Jabatan.*

INTRODUCTION

When major corporate scandals such as Enron, Parmalat, and WorldCom were revealed to the public, the awareness of corporate governance was rising. Corporate governance is a concept to preserve the shareholders to get a fair return based on their company's investment from the directors who pursue their self-interests and lack accountability (Fama, 1980). Not only protecting the shareholders, but corporate governance is also established to protect internal parties like employees and external ones such as customers, suppliers, and society at large (The Governance Institute, 2017). This concept can be achieved by monitoring the company's structures like the board of directors, the board of committees, and their diversity such as gender, age, ethnicity, and other variables for monitoring purposes (Adams et al., 2005). Hence, by having a diverse board with numerous backgrounds as one of the most powerful ways to

strengthen corporate governance, those scandals can be tackled. By having board members who help the companies manage their day-to-day basis of the expected risk, companies can frequently have a plan of action, keep track of performance, and examine crucial business issues (*Corporate Risk*, n.d.). According to Epstein and Buhovac (2006) (in Mazumder and Hossain, 2018), the corporate risk is essential in disclosure for managers, such as the needs for a good reporting system to integrate risk evaluation into operational and capital investment decision making, performance evaluation, and decision for compensation (Duffy, 2014).

Many previous studies, Bernile et al. (2018) who discovered that "greater board diversity leads to lower stock price volatility, more consistent investment in R&D projects over time, and better performance overall." Tarigan et al. (2018) concluded that companies with their board members involving more women and educated people were more profitable and valued in the market. Bhat et al. (2019) has proven that there will be roughly 5.14% points of decrease in corporate risk in every one-standard-deviation increase in relation-oriented diversity (age and gender), similar results also found in Harjoto et al. (2018). Inversely, heterogeneous boards can also be a backfire factor since they can consume more integration costs and time in the company's decision-making process and demolish their value (Woschkowiak & Visser, 2018). Indonesia implements the dual (two-tier) system with a few requirements (*EMEA 360 Boardroom Survey Country Profiles*, 2016). *Dewan Komisaris* (board of commissioners) is responsible for supervising the company and advising the board of directors. While, the board of directors' duty is to make the final decision, such as deciding what to do in the business and approving the budgeting kept in check by the board of commissioners by signing the documents. Remarkably, although Indonesia is very diverse, the level of board diversity in Indonesia's public companies is utterly low, with only 1.6 average number of women per board with 15.4 average board size (Egon Zehnder, 2018a). Meanwhile, by the end of November 2015, the Financial Services Authority *(Otoritas Jasa Keuangan or OJK)* had set up a new regulation peculiar to the public companies' corporate governance implementation (Hadiputranto et al., 2016). With this, Indonesian public firms have to increase their corporate governance standard, otherwise, they have to state the reason in their annual report or get sanctions from *OJK*.

This research is intended to know the association between corporate risk and board diversity which consist of gender diversity, age diversity, nationality (instead of ethnicity) diversity, education (instead of expertise, as the variety is too broad in Indonesia) diversity and tenure diversity included several control variables previously proven to influence corporate risk: CEO duality, board independence, the board size, market to book ratio, tangibility, leverage, and profitability (Bhat et al., 2019) on Indonesian listed manufacturing companies for 2016-2019. The contribution to fill the research gap occurring related to this topic is that there has not been any paper yet that discusses this precisely the same topic in Indonesia's scope; a similar study by Nathaniel et al. (2019) only uses gender as the independent variable to measure board diversity. This research points to a study Indonesian listed manufacturing companies as it was the largest contributor to the economy in 2016 (Ribka, 2017) and Indonesia was ranked fourth out of fifteen countries globally whose manufacturing industry brings a notable contribution to its GDP in 2018 (Office of Assistant to Deputy Cabinet Secretary for State Documents & Translation, 2018). In this era, Jokowi, the president of Indonesia, also wanted to focus on transforming economic policies to sustain the business climate, investment, and competitiveness of this industry to decrease the dependency of Indonesia on other countries (Saubani, 2019).

The remaining of this paper will be structured as follows, second part is to explain the literature review and developing the hypotheses, third part is about data and methodology, forth part describes results, fifth is the discussion about the findings, and the last part is conclusion of the paper.

LITERATURE REVIEW

Corporate Risk

According to Doff (2008), corporate risk, in general, refers to the risk of financial loss that occurs because of the changes in the competitive environment and how timely and how far that business can adapt to these changes. There are three causes of business risk: natural, human, and economic causes. In this research, the risk caused by humans related to misconduct in management is chosen to be investigated. Further, Bhat et al. (2019) defines corporate risk by looking at the stock market return volatility. The use standard deviations for calculating corporate risk as it can project well the volatility of a company, and its consistency can also make precise predictions.

Gender Diversity

Gender is defined as how the social builds the behaviors, values, and norms for males and females. Gender here is more than just physical characteristics. Gender diversity in a boardroom is the proportion of all female directors on the board and consider their independence whether relates to ownership or controlling right (Poletti-Hughes and Briano-Turrent, 2019). As males dominate the board members, the risk-taking incentives of the corporation can be influenced by the interests of the controller group in which female directors may conduct themselves differently (Bianco, Ciavarella, & Signoretti, 2015) seeing that women also bring different professional capabilities and assessment. Female directors with more risk-averse behaviors possibly make the decision-making process longer (Berger et al., 2014; Khan & Javed, 2017).

Age Diversity

Age diversity in the workplace refers to the differences in age dissemination between one person and another (Pytlovany & Truxillo, 2015). Nonetheless, in this case, age can also be defined as the extension of experience and risk-taking approach (Herrmann & Datta, 2005). There have been contradicting views about the impact of age diversity. Studies mentioned that age diversity could positively impact the firms as young board members can understand new ideas more efficiently, more innovatively, and have lower interest in attaining the status quo than older board members (Cheng et al., 2008; Rose, 2007). However, as the senior board member has more experience and connections, they can also benefit the board member (Mahadeo et al., 2012). Contrastingly, several studies stated that age diversity brings an insignificant impact as people in the same age range have the same way of thinking; therefore, a board member tends to discuss issues with other board members in the same age range (Twenge, 2010).

Nationality Diversity

National diversity refers to the number of various nationalities on board members (Rodrigues, 2014). Although researchers stated that nationality diversity could lead to a higher chance of cross-cultural communication issues and interpersonal conflicts, others expect that it can create competitive advantages for the organization (Lehman & DuFrene, 2008). Also, directors of foreign nationalities originating from similar legal and economic backgrounds will have a positive impact on firm performance (Estélyi & Nisar, 2016). Hence, it is a critical factor of the board system and affects the firm risk (Maturo et al., 2019).

Education Diversity

A study by Dobbin and Jung (2011) mentioned that educational diversity could positively affect board members. A team with this type of diversity will easily overcome problems that arise. It can happen because board members with higher and limited educational backgrounds will collaborate and complement each other. Board members with higher education tend to have analytical thinking skills that are functional for gathering and processing ideas (Darmadi, 2013). Contrarily, board members with more limited education have more practical skills. Compared to previous research, Adnan et al. (2016) showed that education might be insignificant since many other factors might affect the members' performance, such as working experience and orderly attitude.

Tenure Diversity

Tenure diversity in a top management team (TMT) can be defined as the differences in how long a top-level manager joined a company or organization (Yi et al., 2014). Harjoto et al. (2018) mentioned that a team's cognitive and collective skills and knowledge could be expanded because of tenure diversity. Although tenure diversity is the least noticed compared to other types of diversity like educational or functional background (Jackson et al., 2003), this variable is crucial in assessing the effectiveness of teamwork (Gilson et al., 2013). Due to its importance, there are still many opposing views in analysing the influence of tenure diversity. De Poel et al. (2014) mentioned that board members with low tenure could bring innovative and up-to-date ideas to contribute to a team's success. Oppositely, board members with high tenure have high experience and sufficient knowledge of the industry. Hence, the collaboration between these two groups can also cause disagreements because low-tenured members still have less experience than high-tenured members.

Hypothesis

Levi et al. (2014) mentioned that women are more risk-averse than men, which makes them more cautious in making decisions and less aggressive in making acquisition strategies. The same results also found by Setiyono and Tarazy (2014) that female presence has a negative impact to the risk. Gender

diversity can be harmful to firms since it can increase conflict and less cooperative (Joshi et al., 2006). These risk-taking behaviors lead to differences in the decision-making process, which then impacted corporate risk (Poletti-Hughes et al., 2019) and lead to the first hypothesis:

H_1: Gender diversity could affect corporate risk

Younger managers have a higher tendency to take more risky strategies. They are reluctant to be in the status quo and career permanence since they always have higher adaptability and are constantly processing new ideas (Cheng et al., 2010). In reality, the connection itself is more complicated than that and the decline in the eagerness to take risks has happened because the majority of older people have experienced significant occurrences like getting married, having children, and having retirement (Josef et al., 2016). Another factor influencing risk behaviour caused by age diversity is that the difference in the risk-averse behavior of younger and older adults would depend on the framing. In a gain frame, both older and younger adults have equal behavior toward risk aversion (Albert and Duffy, 2012). With this perspective, the second hypothesis is:

H_2: Age diversity could affect corporate risk

Nenova et al. (2000) mentioned that different countries have different tolerances about risk. A company or organization in a common law country tends to be less risky. A diversity in nationality may lead to taking more risks and it can happen since foreign board members do not have a sense of attachment to the company (Setiyono & Tarazi, 2014). Therefore, they are not afraid of taking more risks in the decision-making process, so the third hypothesis is:

H_3: National diversity could affect corporate risk

Shalhoub (2019) stated that people with higher educational backgrounds have a higher tendency to make riskier financial decisions and invest deliberately in stock markets. Nonetheless, this concept does not always apply since the board members have different roles and responsibilities. Mahadeo et al. (2012), and Wellalage and Locke (2013) used social integration theory and stated that education diversity and corporate risk could be negative due to the educational divergence. That divergence can cause the rise of conflicts and communication problems between members since each of them has different thoughts, perspectives, and skills. Therefore, fourth hypothesis can be formulated as:

H_4: Education diversity could affect corporate risk

The tenure indicates the amount of time or how long the board members have been part of the organization (Shalhoub, 2019). Carson et al. (2004) stated that employees with higher tenure tend to stick with the status quo, take fewer opportunities, and result in less hazardous business risks. Tihanyi et al. (2000) stated that board members with higher tenure would be engaged in higher international diversification and enhance risk exposure that lead to fifth hypothesis as follows:

H_5: Tenure diversity could affect corporate risk

METHODS

The population in this research is all publicly listed manufacturing industries in IDX and found 142 companies that were listed in IDX continuously for the year of 2016-2019, given the total 568 observations. However further criteria are required to select the sample as details in the Table 1.

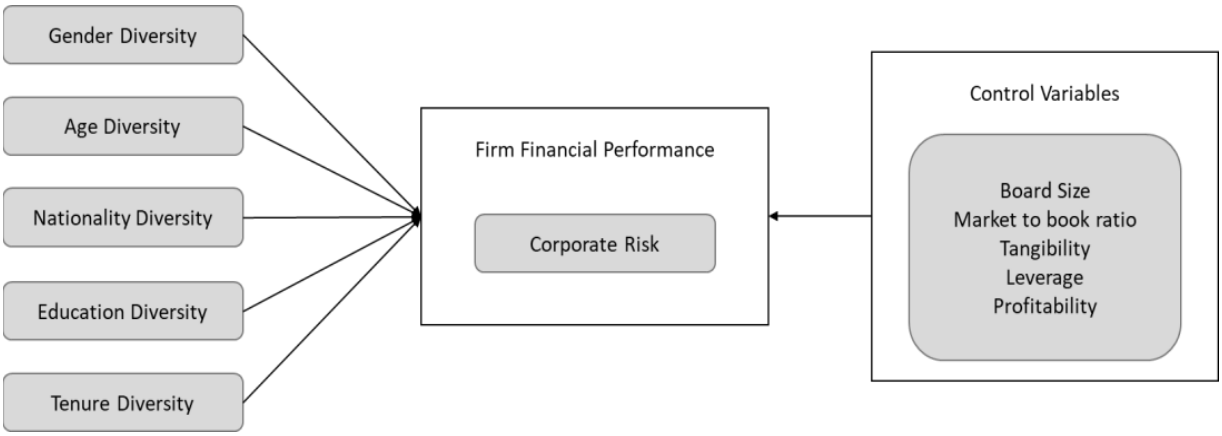

Figure 1. Research Framework

Table 1. Selected Sample

Sample Criteria	Number of Companies
The companies in manufacturing industry were listed in IDX continuously for the year of 2016-2019	142
(-) Companies with no complete set of data	60
(-) State Own Enterprise	6
(-) Company with negative market to book ratio	1
Total companies met the criteria	**75**

To measure corporate risk, this study uses daily values of the stock returns from Bloomberg to estimate the annualized standard deviation of stock returns from January 2016 to December 2019 since the more frequent the observations of stock returns, the more accurate the estimation of the standard deviation will be. The formula to measure the corporate risk as follows:

$$Standard\ Deviation\ of\ Annucal\ Stock\ Returns = \frac{\sqrt{\sum(r_i - r_{avg})^2}}{n-1} \quad (1)$$

Which

ri = the return perceived in one period
r_{avg} = the arithmetic mean of the returns perceived
n = the number of observations in the dataset

Meanwhile, the measurement of each independent variables or elements of board diversity can be seen in Table 2.

Table 2. Measurement of Board Diversity

	Categories	Classification
Gender Diversity	1,2	1=Male, 2=Female
Age Diversity	1,2,3,4,5	1=≤40 , 2=41-49 , 3=50-59 , 4=61-69 , 5=≥ 70
Nationality Diversity	1,2	1=Indonesian, 2=Foreigners
Education Diversity	1,2,3,4,5	1=≤ Technical secondary school 2=Associate degree 3=Bachelor 4=Master 5=≥ PhD
Tenure Diversity	1,2,3,4	1=≤ 3 years 2=4 years 3=5 years 4=> 5 years

Each of measurement above is then calculated using the formula of :

Blau Index = $1 - \sum_{t=1}^{n} Pi^2$

Pi^2 = the percentage of board members in each category
n = total number of categories used

Table 3. Control Variables

Control Variables	Measurement
Board Size	Total Number of Board Commissioners
Market to Book Ratio	Market to Book Ratio = Market Value of Equity/Book Value of Total Assets
Tangibility	Current Assets+Fixed Assets
Leverage	Total Liabilities/Total Assets
Profitability	Earnings before Interest and Taxes/(Current Asset+Fixed Assets)

Control variables mainly adopted from Bhat et al. (2019) as listed in Table 3 with its measurement. The multiple regression to formulate the relationship between corporate risk and board diversity, the following equation is used:

$$Corporate\ Risk = \beta_0 + \beta_1 Gender + \beta_2 Age + \beta_3 Nationality + \beta_4 Education + \beta_5 Tenure + \sum \beta_{it}\ Control + \varepsilon_{it} \quad (2)$$

Which

β_i = coefficient of each independent variable i
β_0 = constant
β_{it} = coefficient of each control variable
ε_{it} = error

RESULTS

Descriptive statistics results are displayed in Table 4 and it can be noticed that the dependent variable, which is corporate risk, had a mean value of 0.4673 with a standard deviation of 0.2595. Gender possesses a mean value of 0.1343 with a standard deviation of 0.1939. Four companies had equal gender between male and female board members, comprising the maximum ratio of gender, which is 0.5 at a specific year, especially in 2016. Age shows the highest mean value of 0.8379, the highest among other independent variables, and a standard deviation of 0.2762. Nationality has a mean value of 0.1583 with a standard deviation of 0.2097. The highest value is 0.5, which eight companies achieved. Education possessed a mean value of 0.7158 and a standard deviation of 0.3640. The last variable, tenure, shows a mean value of 0.5158 with a standard deviation of 0.3806. It has the highest standard deviation compared to others. The reason behind this fact is that there has been a vast difference between companies whose board members are incredibly diverse in tenure with companies whose board members do not have mixed tenure.

Before conducting the multiple regression analysis, the researchers evaluate the four classical assumptions necessary to be tested: no multicollinearity (VIF test), no autocorrelation (Durbin Watson test), homogeneous (Park test), and normal distribution

Table 4. Descriptive Statistics Results

	Minimum	Maximum	Mean	Std. Deviation
Corporate Risk	.0082644628	1.541805010	.4673133214	.2594823353
Gender	.0000000000	.5000000000	.1342997638	.1939151478
Age	.0000000000	.9960937500	.8379175908	.2762311753
Nationality	.0000000000	.5000000000	.1582574735	.2097468464
Education	.0000000000	.9907889660	.7157959091	.3640170026
Tenure	.0000000000	.9737654321	.5157598984	.3806453316
Board Size	2.0	12.0	4.243	1.8893
Market to book ratio	.0893607009	66.39577027	2.940661006	7.001452791
Tangibility	10.91582288	14.33098164	12.44116386	.7007207128
Leverage	1.12	11.53	2.1861	1.10624
Profitability	-.261320146	.6436515412	.0887203257	.1126413920

Table 5. Regression Results

CorporateRisk	Coefficient	Robust Std. Error	t	P>|t|
Gender	.0705037	.0736484	0.96	0.339
Age	.0092954	.0526477	0.18	0.860
Nationality	-.1464258	.0653581	-2.24	0.026
Education	.0442376	.0371542	1.19	0.235
Tenure	.0179703	.0396272	0.45	0.651
Board Size	-.0094298	.0093882	-1.00	0.316
Market to book ratio	.0019586	.0022489	0.87	0.385
Tangibility	-.0629152	.0229342	-2.74	0.006
Leverage	.0439365	.0168964	2.60	0.010
Profitability	-.6833175	.1620391	-4.22	0.000
Constant	1.213864	.2639414	4.60	0.000
N	300			
Prob > F	0.0000			
Adjusted R-Squared	0.1987			

(Z-kurtosis test). The data has passed all of classical assumptions tests, except homogeneous test then robust standard error regression is conducted to remedy this problem (Chen et al., 2003).

The overall model shows as significant as the p-value is 0.0000 and the adjusted R-Squared is 19.87%, indicating that almost 20% percent of the independent and dependent have a relationship. The remaining percentage comes from other factors or variables apart from the five independent and control variables. The t-test results show that nationality diversity, leverage, tangibility, and profitability are significant towards corporate risk with a p- value of 0.026, 0.006, 0.010, and 0.000, respectively. Gender, age, education, tenure, the board size, and market to book ratio are insignificant toward corporate risk as the p-value is above 0.05. To summarize, one out of five independent variables and three out of five control variables have a significant relationship with corporate risk.

DISCUSSION

Age diversity is discovered to have no specific relationship to corporate risk. The insignificant effect parallels the findings from Harjoto et al. (2018) by assessing 1898 firms from 1998 to 2014. The reason is defined in the study by Twenge (2010) which clarifies that people in the same range of age have the same way of thinking. Consequently, a board member tends to discuss issues with other board members in the same age range. Pangestu et al. (2019) also explained that the insignificant result due to the director's age and maturity level cannot guarantee decision-making effectiveness.

Nationality diversity is discovered to influence the corporate risk in a negative relationship. It stipulates that the more diverse the nationality of the board members is, the lower the corporate risk will be. However, the researchers cannot compare their results to that of other studies since this is the first study to identify the relationship between nationality diversity and corporate risk. One of the underlying reasons is clarified by Oxelheim & Randøy (2003), mentioning that the foreign nationals board members are presumed to support the well-being of a company by widening the international networks, strengthening the commitment to the rights of shareholders, and reducing the risk of managerial entrenchment. A board with diverse

nationalities may enable a company to expand its operations to various national or international markets, with said board members providing unique insights and knowledge based on their diverse backgrounds (Estélyi & Nisar, 2016).

Education diversity is insignificant concerning corporate risk. This verdict is the opposite of Harjoto et al. (2018), who have found that task-oriented diversity (one of which is education diversity) is significantly and negatively correlated with corporate risk. It can be explained by a study by Adnan et al. (2016), which explained that education might be insignificant since many other factors might affect the performance of the members, such as working experience and orderly attitude. Pangestu et al. (2019) further clarified that intelligence might be assessed from the level of education one has. However, the level of education cannot be directly related to someone's performance in the company since the work environment is not equal to the school or college environment.

Tenure diversity is portrayed to be insignificant concerning corporate risk. This insignificant outcome is unaligned with the findings from Harjoto et al. (2018) and Bhat et al. (2019), explaining that relation-oriented diversity (one of which is gender diversity) is significantly affecting the corporate risk negatively. The insignificant outcome can be defined further by a journal by Amin and Sunarjanto (2016). They clarified that tenure diversity has no significant impact due to the phenomenon in Indonesia. Most Indonesian companies give BOC the title as a form of respect or awards and are not issued based on capability and professionalism.

CONCLUSION AND RECOMMENDATION

After doing the analysis, the results showed that the adjusted R-square was 19.87%, indicating that 19.87% of the variation in the corporate risk can be explained by gender, age, nationality, education, and tenure diversity with control variables. Out of five independent variables, only nationality diversity is statistically significant in affecting the corporate risk. It indicates that whenever there is an increase in nationality diversity, the corporate risk will be lowered. It aligns with the study from Oxelheim & Randøy (2003) and Estélyi & Nisar (2016), explaining that foreign directors can widen the international networks, strengthening the commitment to the rights of shareholders and reducing the risk of managerial entrenchment. While for the other four independent variables, which are gender, age, education, tenure diversity, are insignificant towards the corporate risk. Gender diversity is insignificant due to the male as the predominant group can make the female in the minority group prone to achieve outcomes below expectations. The age diversity is insignificant since people in the same age range have the same way of thinking, as Twenge (2010) stated. Meanwhile, Adnan et al. (2016) explained that education diversity is insignificant due to many other factors that might affect the performance, such as working experience and orderly attitude. Lastly, tenure diversity has an insignificant impact due to the phenomenon in Indonesia where the BOC title is only given as a form of respect or awards and not issued based on capability and professionalism as researched by Amin and Sunarjanto (2016).

For the control variables, the board size and market-to-book ratio are insignificant towards the corporate risk, while leverage, tangibility, and profitability significantly impact corporate risk. The result stipulates that whenever a company's leverage decreases, the corporate risk percentage will also decrease, *vice versa*. However, regarding profitability and tangibility, the corporate risk will diminish if these two variables increase. These results provide enlightenment for business institutions regarding the relationship between board diversity and corporate risk. Additionally, Suri and Hadad (2014) emphasized that investors tend to consider board diversity as one of the corporate governance practices in the investment decision-making process. After all, although the Indonesian investors might not be interested in observing the board diversity, it would have been beneficial to penetrate the international market by attracting more foreign investors since they have different attitudes and behaviors.

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