



## The Impact of Board Gender Diversity on Firm's Credit Ratings

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### Article Information

#### Article History:

Received August 2021

Approved September 2021

Published September 2021

#### Keywords:

Resource Dependence  
Theory, Credit Rating,  
Agency Theory,  
Board Gender Diversity

### Abstract

Motivated by the agency theory and resource dependence theory, this study aims to examine the level of gender diversity on credit rating. This study uses a panel data sample of firms listed in BEI for the years 2014 to 2019. This study enlarges the literature by serving evidence on the role of gender diversity on firm's credit rating that was essentially neglected by the previous studies. This study contributes practically and theoretically to the existing credit rating literature. This finding shows board gender diversity is positively not significantly correlated with credit ratings. The evidence was contrary to the assumption that firms with increased board gender diversity are associated with fewer agency problems and information asymmetry, which can positively affect credit rating.

### INTRODUCTION

Recent literature on gender diversity impact on firm performance (Kanadlı et al., 2020; Ullah et al., 2020; Fernández-Temprano et al., 2019; Boadi, 2019; Repetti, 2020), increase financial outcomes (Reguera-Alvarado et al., 2020), more risk-adverse decision (Mazzotta et al., 2020). More diverse board integrated diverse ideas, science and perspectives, the organizational achievement (Fidanowski et al., 2014). Conversely (Pletzer et al., 2015; Wellalage et al., 2013;) suggest that women director reduce firm performance by enhance interpersonal conflicts, enlarge misperceptions on the boardroom about up-to-date strategy also default begin strategic change in reaction to poor firm performance (Petrovic, 2008).

Credit rating are rating agencies assumption about the presumably that issuer can fulfill its obligations (Milidonis, 2013), minimizing information asymmetries among lenders and borrowers (Chandera et al., 2020). Rate of firms are necessary for regulators and investors to know the factors affect of specific rating. Credit rating

agencies methodology can be modified by other aspect, for instance management/governance (Papadimitri et al., 2020).

Diversity of a board restrain investment inefficiency by discouraging sub-optimal investment (above- or below-investment) (Ullah 2020), can improve board functions (Fernández-Temprano, 2019). Board gender diversity has an effect on efficiency board (Wang et al., 2020). Female director related firms cost of debt. Outcome reveal company under high level diversity of gender may borrow at low level cost (Usman et al., 2019), present preferable monitoring roles in further-developed areas (Aint, 2020). Company with female on boards alleviate agency costs of debt, the presence of a gender-diverse board is a signal that firms have low default risk and better bond structure (Oyotode-Adebile et al., 2019), which correlates with lenders' insight about the possibility of loan default and the cost of debt. (Usman et al., 2019). (Jia, 2019) state that female are preferable at monitoring and minimize companies' exaggerated risk-taking behaviours, therefore decreases companies' risk of financial distress.

The purpose of credit rating is to minimize asymmetry of information between borrower and lender about creditworthiness. Credit rating agencies such as Pefindo include three major risk assesment, industri risk, business risk, and financial risk as base of the firm's possibly of default. Highlight company's business risk is the most qualitative aspects, such as excellent management can improve a company's business risk and convert into preferable credit strength more the long term and vice versa. Pefindo appoint an assessment toward the management's policy and strategy to support the company's business performance, there are several reason for which gender diversity probably an significant driving factor of excellent management that decrease risk of business, and accordingly higher rating.

The property sector has become one of the focuses of the Indonesian government since September 2015(setkab.go.id). Investments in the construction and property sectors have great potential in the future because the government will still boost infrastructure development in the country. The construction sector is also the foundation for absorbing state spending, because without government spending the economy will not growth (m.medcom.id, 2020). Nevertheless the proportion of female directors in this sector was only 12,45% in 2017; 12.53% in 2018; 12,38% in 2019.

**Table 1.** Female directors at sector construction and property in Indonesia

Period	2017	2018	2019
Percentage	12.45	12.53	12.38

Financial Reporting Council of UK adoption policy to improve gender diversity over a three-year period by ensuring that at least one third of the board (FRC, 2017). Norway and Spain propound 40% gender portion for women director (Adams et al, 2009). California requires two fifth women director by the end of 2021 (Greene et al., 2020) The presence of policy ensure the non-discriminating of female in the work force market, assist to a increase presence of female on boards (Heller., 2017).

There is a lack of studies about board gender diversity in emerging market. Gender diversity on boardroom are required to implement into their firms. This study conducted in Indonesia. Up to now, there are few studies about the role

of board gender diversity to be the basic driving factor that mitigate risk of business, and advance rating. Previous study examine other assign like market sector (Lopatta et al., 2019), environment, social and governance (ESG) disclosure (Bhattacharya et al,2019), location (Loon et al., 2020), economic growth (Mutize, 2020). This research examines effect of board gender diversity proxied by the percentage of women on board, impacts on firm's credit rating. This result also may be useful for creditor when take financing decisions.

**Table 2.**Other determining dependent variable (credit rating) based on previous literature

Independent Variable	Researcher	Finding
market sector	Lopatta et al (2019)	Diverse effects of sectors and credit rating agencies and downgrade possibility.
environment, social and governance (ESG) disclosure	Bhattacharya et al (2019)	ESG significant positive impact on credit rating.
location	van Loon et al (2020)	Location of Bank in member countries of Euro Area better credit rating than outside Euro Area.
economic growth	Mutize (2020)	Negative coefficients for African countries, however positive coefficients for non-African countries.

## Background Discussion

Pefindo's rating methodology includes three major, Industri Risk, Business Risk, and Financial Risk. Asessment for industry risk is based on five major risk:(i)growth and stability of the industry, (ii)revenue and cost structure of the industry, (iii)barriers to entry and competition in the industry, (iv)regulation of the industry, (v)financial profile. Business risk measure com-

petitive advantage of the firm. Financial risk based on financial policy, capital structure, cash flow protection and liquidity, financial flexibility (www.pefindo.com). Financial risk is about management decision. Industri risk is risk and yield potential firm in the market. Bussiness risk is competitive pressures of the firm. Accordingly management have a role for firm creditworthiness.

Agency theory stated, the directors on boardroom monitors the management on interest of the shareholders. Board of director maximize wealth of the principal in the long-term and ensure principals' and agents incentives are aligned (Jensen and Meckling, 1976). Female directors have preferable monitoring roles than male counterparts (Adams et al, 2009).

Resource dependence theory argues that company depends on source be possessed by outboard force for survival (Pfeffer and Salancik, 2003). This theorist extended the explanation by positing that members of board with diverse skills, cultural backgrounds, gender, and between others will serve as strategic resources to the company, which may effect to superior performance. This prove the theoretical base for corporate governance research on diversity on boardroom (Fidanoski, 2014)

Both of the theory prove that board gender diversity may help companies strengthen their relationship with stakeholders and the monitoring system. Gender diversity on boardroom are useful to maintain precious connection with outboard environment in order to get resource (Ain et al, 2020), better board functions (Temp-rano et al, 2019), associated with successful of firm and competitive advantage, diverse set of skills, cultures of inclusion, new strategies and ideas (Burgess et al, 2002), chance to pull a wider pool of talent, further responsive to the market and to strengthen policies of corporate governance (Mintah et al., 2019), minify the possibility of taking risky decisions (Oyotodate et al, 2019). More member of women on boardroom reduces risk (Hurley, 2020).

Gender diversity on boards connected with existing financial performance and future outcomes. Board gender diversity present as a proxy that will assist encounter internal pressure, external challenges, forthcoming financial performance.

Based on above study, this hypothesize that : female on board will be connected with better credit ratings.

## Data and Variables

Data firm credit rating are obtained from long-term debt instrument rating pefindo, which range from D to AAA. Gender diversity we use Annual Report from Indonesia Capital Market. The study sample includes property and manufacture sector listed on Indonesia Stock Exchange from 2012 to 2019.

Dependent variable is gender diversity. Hence, proportion of women on board to measure gender diversity (Zaid, 2020).

Return on asset to measure profitability. Debt ratio to total asset as an leverage indicator. Indicator of firm size is the natural logarithm of total income. Short-term liquidity measured by quick ratio. Board demographics: board size, board independence (papadimitri, 2020).

## Empirical Model

The baseline model credit ratings as a function of gender diversity, firm-specific.

Credit Rating = f (Gender diversity, Firm )

Pefindo credit rating scale: D = 1, CCC = 2, B- = 3, B = 4, B+ = 5, BB- = 6, BB = 7, BB+ = 8, BBB- = 9, BBB = 10, BBB+ = 11, A- = 12, A = 13, A+ = 14, AA- = 15, AA = 16, AA+ = 17, AAA = 18

## RESULT AND DISCUSSION

The normality test for residuals in this research used the Shapiro-Wilk (SW) test. The normality assumption is accomplished if the probability value of 0.05. The normality assumption is unaccomplished if the probability is <0.05

**Table 3.** Normality Test by Shapiro-Wilk Test

Sapiro-Wilk W test for normal data					
Variable	Obs	W	V	Z	Prob>Z
simpan_ dat-I	114	0.98	1.77	1.28	0.10

Based on Table 3, the probability value was 0.10009. Since the probability of (0.10009) was greater than the significancy level (0.05), this means that the normality assumption was accomplished.

The multicollinearity symptoms in this research can be seen by the VIF values. According to Ghozali (2003), multicollinearity is indicated if the VIF value is >10. Table 4 below presents the results of multicollinearity test.

**Table 4.** Multicollinearity Test by VIF

Variable	VIF	1/VIF
st_liquidity	1.50	0.668885
bind	1.37	0.732017
dta	1.35	0.742382
firm_size	1.31	0.766024
female	1.16	0.862201
roa	1.11	0.900994
Mean VIF	1.30	

Based on the results of multicollinearity test on Table 4, it was concluded that there was no multicollinearity symptom between independent variables due to the VIF values which were <10 (Ghozali, 2013).

Assumption regarding the independency against residuals (non-autocorrelation) can be tested by Runs test. There is no autocorrelation if the probability value of the Runs test is >0.05.

**Table 5.** Autocorrelation Test by Runs Test

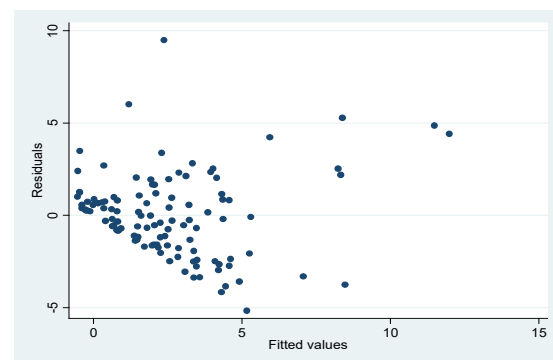
runtest simpan_data_residual	
N (simpan_dat-1<=0.01) =	57
N (simpan_dat-1>0.01) =	57
obs=	114
N(runs)=	48
z =	-1.88
Prob> zI =	.06

**Table 6.** Statistical Values of Determination Coefficient, F test, and t Test

				Number of obs =	114
Source	SS	df	MS	F( 6, 107) =	7.59
Model	12.272.238	6	20.45	Prob > F =	0.00
Residual	288.198.673	107	2.69	R-squared =	0.29
Total	410.921.053	113	3.63	Adj R-squared =	0.25
				Root MSE =	16.41
score	Coef.	Std. Err.	t	P> t	[ 95% Conf. Interval ]
roa	11.55	4.24	2.72	0.008	3.14 19.97
dta	1.36	1.14	1.20	0.235	-0.90 3.63
firm_size	0.41	0.09	4.56	0.000	0.23 0.59
st_liquidity	-0.05	0.30	-0.19	0.852	-0.66 0.55
female	0.10	0.13	0.79	0.429	-0.15 0.36
bind	0.06	0.19	0.36	0.721	-0.30 0.44
_cons	0.32	2.46	0.13	0.896	-4.55 5.20

Based on Table 5, the probability value of the Runs Test was  $0.06 > 0.05$ , and thus there was no autocorrelation.

Detection on whether or not there is heteroscedasticity can be done by looking at the presence or absence of certain patterns on the scatter plot graph between residuals on the axis-Y, and fitted values on the axis-X (Ghozali, 2013). As a basis of analysis according to Ghozali (2013), heteroscedasticity occurs when there is a certain pattern such as existing points forming a regular certain pattern. There is no heteroscedasticity if there is no clear pattern along with the points spread above and below the number-0 on the axis-Y.

**Figure 1.** Heteroscedasticity Test

Based on Figure 1, there was unclear pattern, and there was no heteroscedasticity due to the points spread above and below the number-0 on the axis-Y.

### Hypothesis Test

During the hypothesis test, there would be determination coefficient analysis, simultaneous effect test (F test), and partial effect test (t test). Table 6 below presents the statistical values of the determination coefficient, F test, and t test.

It was known based on Table 6 above that the determination coefficient value (R-squared) was . This value could be defined as ROA, DTA, FIRM\_SIZE, ST\_LIQUIDITY, FEMALE, BIND simultaneously affected SCORE at 29.87%, and the rest 70.13% was affected by other factors.

The test aimed to test the effect of independent variables simultaneously against the dependent variables. Based on Table 6, the value of  $Prob > F$ , which was 0.0000 0.05, it can be concluded that all the independent variables: ROA, DTA, FIRM\_SIZE, ST\_LIQUIDITY, FEMALE, and BIND, simultaneously affected the SCORE variable significantly.

Below is the multiple linear regression equation based on Table 6:

ression coefficient value of 0.415 and significant, with the probability value =  $0.000 < 0.05$ . ST\_LIQUIDITY negatively affected SCORE, with the regression coefficient value of -0.057 yet insignificant, with the probability value =  $0.852 > 0.05$ . FEMALE positively affected SCORE, with the regression coefficient value of 0.104 yet insignificant, with the probability value =  $0.429 > 0.05$ . BIND positively affected SCORE, with the regression coefficient value of 0.068 yet insignificant, with the probability value =  $0.721 > 0.05$ .

### CONCLUSION AND RECOMMENDATION

This study examined the influence of gender diversity on firm's credit rating. The empirical analyses are based on panel data of construction and property listed companies from 2014 to 2019. The empirical findings show board gender diversity does not support positive effect on company's credit rating. Future work can prolonging the period of investigation.

**Table 7.** Regression Result

				Number of obs =	114
Source	SS	df	MS	F( 6, 107) =	7.59
Model	12.272.238	6	20.45	Prob > F =	0.00
Residual	288.198.673	107	2.69	R-squared =	0.29
Total	410.921.053	113	3.63	Adj R-squared =	0.25
				Root MSE =	16.41
score	Coef.	Std. Err.	t	P> t	[ 95% Conf. Interval ]
roa	11.55	4.24	2.72	0.008	3.14 19.97
dta	1.36	1.14	1.20	0.235	-0.90 3.63
firm_size	0.41	0.09	4.56	0.000	0.23 0.59
st_liquidity	0.05	0.30	-0.19	0.852	-0.66 0.55
female	0.10	0.13	0.79	0.429	-0.15 0.36
bind	0.06	0.19	0.36	0.721	-0.30 0.44
_cons	0.32	2.46	0.13	0.896	-4.55 5.20

$$Y = 0.321 + 11.55ROA + 1.36DTA + 0.415FIRM - 0.057ST + 0.104FEMALE + 0.068BIND + e$$

Based on Table 7, it was figured out that ROA positively affected SCORE, with the regression coefficient value of 11.558 and significant, with the probability value =  $0.008 < 0.05$ . DTA positively affected SCORE, with the regression coefficient value of 1.369 yet insignificant, with the probability value =  $0.235 > 0.05$ . FIRM\_SIZE positively affected SCORE, with the regression

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