



Female Executives and Leverage of Public Companies in Indonesia: Does Age Matter?

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ABSTRACT

The study aims to examine the effect of the proportion of women in the board of directors on the debt level of publicly listed companies in Indonesia, as measured by the debt-equity ratio (DER). Additionally, this research seeks to determine whether the age of female directors strengthens or weakens the established relationship between female directors and company DER. The study employs a multiple regression method with a sample of 64 publicly listed companies on the Indonesian Stock Exchange during the years 2019-2023. Findings reveal that the presence of women on the board of directors has a significant negative relationship with company DER, indicating that a higher number of female directors may decrease company DER. Furthermore, findings also show that age strengthens the aforementioned negative relationship, although with a lower significance level of 10%. Thus concluding that female and senior directors reduce a company's tendency to take on debt, due to their risk averse nature.

JEL Classification:
G30, G32, G41

SARI PATI

Penelitian ini bertujuan untuk menguji pengaruh proporsi perempuan dalam dewan direksi terhadap tingkat utang perusahaan publik di Indonesia, yang diukur dengan debt-to-equity ratio (DER). Selain itu, penelitian ini berupaya untuk menentukan apakah usia direktur perempuan memperkuat atau memperlemah hubungan yang terbentuk antara direktur perempuan dan DER perusahaan. Penelitian ini menggunakan metode regresi linier berganda dengan sampel sebanyak 64 perusahaan yang terdaftar di Bursa Efek Indonesia selama periode 2019-2023. Temuan menunjukkan bahwa keberadaan perempuan dalam dewan direksi memiliki hubungan negatif yang signifikan dengan DER perusahaan, yang mengindikasikan bahwa jumlah direktur perempuan yang lebih tinggi dapat menurunkan DER perusahaan. Lebih lanjut, hasil penelitian juga menunjukkan bahwa usia memperkuat hubungan negatif tersebut, meskipun dengan tingkat signifikansi yang lebih rendah yaitu 10%. Dengan demikian, dapat disimpulkan bahwa direktur perempuan dan direktur senior mengurangi kecenderungan perusahaan untuk mengambil utang karena sifat mereka yang cenderung menghindari risiko (*risk-averse*).

Klasifikasi JEL: G30, G32, G41

INTRODUCTION

A company must be able to build a proper capital structure in order to remain sustainable and ensure that its operational activities run smoothly. According to Watson & Head (2007) and Khan & Jain (1997), a capital structure is a mix of debt and equity that is being utilized by a company to fund its business activities. The optimal mix of debt and equity as explained in the trade-off theory, emphasizes that any usage of debt above the optimal point, will increase a company's bankruptcy risk. One such way to measure this optimal mix is by using the solvency ratio, Debt-to-Equity Ratio (DER).

A company with a high DER shows that the company has a high debt composition, while a company with low DER has a higher equity composition compared to its debt. Each and every company has its tendencies of high or low DER, according to the company's needs. However, there might be other factors that affect DER that may be correlated to decision makers like directors, as a study by Cronqvist et al. (2011) shows a positive relationship between personal leverage and corporate leverage. This indicates a correlation between a director's personality and the company they are managing. Oftentimes, gender and age play a huge role in developing an individual's personality, due to social norms and cultural stereotypes (Sanz de Acedo Lizárraga, Sanz de Acedo Baquedano, & Cardelle-Elawar, 2007). This is proven with studies done by Ellyanti & Setyawan (2019); Setiawan, Nareswari, & Suryana (2022) which came to the conclusion that there is a difference in character and mindset between men and women, also affecting the way they face risks.

The differences in culture and social norms between Indonesia and developed countries provide a different perspective on the decision-making of female directors regarding the company's DER (Siregar et al., 2023). Furthermore, the presence of female directors in Indonesian companies remains relatively rare. According to Deloitte (2024), as of 2023, Indonesia had a proportion of 9.7% female directors and 3.9%

female CEOs. This places Indonesia among the countries with the lowest proportion of female directors compared to other Southeast Asian countries. In addition, this is also reflected in Indonesia's 2023 Gender Inequality Index (GII), which stood at 0.447 (Statistics Indonesia [BPSI], 2024).

It is often believed that women are individuals who are more comfortable in making safe decisions compared to making risky ones, as they have lower self-confidence (Cardillo, Onali, & Torluccio, 2021). This means that when a woman serves as company director, the decisions the company makes may become more risk-averse in nature. A study done by Lo, Ting, & Chien (2023) and Siregar et al. (2024) proves this statement, by coming to the conclusion that when there are more women serving as directors, a company's leverage becomes lower, thus decreasing DER along with it. However, a study by Jaradat (2015) came to the conclusion that contradicts this, as they found that women actually affect leverage positively, meaning that the presence of women as directors increases leverage. This is further proven by Hussain, Rehman, & Bashir (2024) in their study where they found that there is no difference between men and women when it comes to boldness in taking debt.

Other than gender, a study done by Pramesti & Nita (2022) came to find that an individual's age also plays a part in their mindset when making decisions. This may affect a company's decision making if the directors of the firm belong in the older age group. Such results were found by Oktaviani (2017) and Kyenze (2017), both of whom concluded that company capital structure, measured by DER, decreases when there are more elder directors. As DER uses company debt to be measured, it can be assumed that the company takes less debt when it is managed by older directors. Thus it can also be concluded that the more an individual ages, the more they are likely to become risk-averse. However, a different study done by Aranda & Iturriaga proves otherwise, where older directors are

actually more inclined to make risky decisions.

As there have been different conclusions to the relationship between company risk-taking and a director's gender and age, this research is done to provide further proof in the argument while taking into consideration other variables that may be relevant. Furthermore, the lack of studies that address the interaction of gender and age leaves more room for further researchers to contribute to this topic of interest.

Therefore, this study is conducted in the hopes that it may shed light to the relationship of female leadership and company leverage as well as how age affects it as a moderating variable. The results of this study is done with the intention of providing a clearer image and insight that may help individuals in the business world in decision-making, constructing leadership strategies, and deciding a firm's board structure. This study is also done with the intention of providing further contribution for the government to consider, as a means of supporting gender equality in the Indonesian workforce.

LITERATURE REVIEW

Trade-Off Theory

Modigliani & Miller (1963) stated in the trade-off theory that companies need to optimize their capital structure in order to achieve the best value that company can generate. This is done by carefully managing the mix between the company's debt to its equity. The use of debt benefits a company through the tax-shield it provides, as interest expense depletes net income before tax, thus reducing the amount of taxes owed. Another benefit that can be achieved by holding more debt is higher management discipline, as managers are responsible for ensuring that enough revenue is generated to repay the borrowed funds alongside its interest. Provided that they fail, thereby causing financial distress, the company has rights to replace incompetent managers and change its leadership structure (Novaes, 2003). Nevertheless, the benefits that debt provides cannot go on

indefinitely as it provides a risk of defaulting and bankruptcy (Yosandra & Sembiring, 2022). It is due to this reason that firms need to find a balance between the benefit of tax shields and management discipline to the risk of financial distress (Ai, Frank, & Sanati, 2020), thus creating the best mix in capital structure.

Pecking Order Theory

The Pecking Order theory states that there is a certain level of priority when it comes to deciding a company's source of funds. This level of priority starts with internal financing before external financing as influenced by asymmetric information (Myers, 1984 in Frank & Goyal, 2003). The order begins with retained earnings, followed by debt, and lastly equity (Myers & Majluf, 1984). Between the three available options, retained earnings provides the least risk for the company, as it is the remaining of the company's income after all expenses, which means that it won't bring any extra risks like interest payments or the dilution of ownership when used as funding.

However, when external financing is needed, companies will choose debt over equity as it provides a lower information cost via signalling (Frank & Goyal, 2007). When a company takes on debt, it is often depicted as a good sign, showing that the company has ability to fulfill its debt obligations (Wall Street Prep, 2024). On the other hand, equity issuance may prove to be a bad signal for investors, as it can mean that company stock is currently overvalued (Mabrouk & Boubaker, 2019)

Agency Theory

The Agency theory by Jensen & Meckling (1976) states that every individual will take advantage of any chance there is to benefit themselves by concealing important information, thus creating information asymmetry or the imbalance in available information for one party against the other. Such situations may happen in firms involving principals and agents, as principals delegate their needs to agents, and any

action that agents take may affect the principals (Kopp, 2024). A situation in which an asymmetry of information is created, happens when agents overlook the needs of the principal in order to fulfill their own, thereby creating a conflict of interest that may disrupt the company's workflow. The existence of this conflict will then create suspicion between agents and principals, causing the principal-agent problem.

Leverage

A company has three available options when it comes to funding their operational activities, which is retained earnings, equity and debt. When a company relies on debt for its funding, its leverage will increase. This can also be monitored using the Debt-to-Equity ratio (DER) which will be the designated ratio used in this research to proxy leverage. DER itself is a ratio that can be a benchmark to evaluate a company's performance and financial risk (Firmansah & Sari, 2024). If a company has a high level of DER, it means that a big portion of the company's funding is sourced from debt. This may be worrisome as there is a higher risk of bankruptcy due to the amount of interest the company has to pay and how it may reduce company revenue further. However, there can still be a benefit to this as it allows companies to fund more projects, thus creating more revenue, as well as having a tax shield to come along with it.

Risk Profile

When faced with multiple choices, different individuals may act differently according to their comfort in taking risks, whether they will act conservatively, moderately or aggressively as per the individual's risk profile (Nurhaliza, 2021). Someone who belongs in the conservative risk profile will tend to be risk averse when making their decisions, as they will prioritize capital preservation against taking risks to grow revenue. Many stereotypes depict women as one such individual (Schwab-Pomerantz, 2022), as they are portrayed to be more emotional and

harbor more fear when evaluating choices with unpredictable outcomes (Pacheco, Lobao & Coelho, 2023). Other than gender, a study done by Poonpolkul (2003) states that age may also be a factor that can influence an individual's risk aversion. As an individual ages, there is a development in the brain that may affect someone's perspective when it comes to accessing risks, often rendering them risk averse (Nolte & Hanoch, 2024).

On the other hand, people who prioritize the balance between capital preservation and revenue growth are considered to be in the moderate risk profile. Individuals in this category are still able to take some risks compared to those who are considered conservative, doing so in moderation. Those who belong in the aggressive risk profile however, are those who are not afraid to take any risk for a chance to gain more profit. Those who tend to belong in this risk profile are the male gender who are often bolder and overconfident (D'Acunto, 2015).

Risk Aversion

An individual's consideration in making financial decisions is affected by bias and psychology (Hayes, 2004). One such factor of psychology that affects this is the individual's tendency to choose alternatives with minimum risk, known as risk aversion. This sort of behaviour is considered to be the characteristic of the conservative risk profile (Arijaya & Basana, 2021). The mindset of risk averse individuals is based on the priority of reducing any form of loss, thereby disregarding any risky alternatives even if there is a chance for more profit.

Hypothesis Development

The Influence of the Proportion of Female Directors to Company Debt-to-Equity Ratio

Trade-off theory explains that every company has their own optimal capital structure that must be followed, providing a perfect mix of the benefits and drawbacks of debt. When a company takes on debt, they will earn benefits in the form of tax shield and

management discipline. However, these benefits cannot go on indefinitely as there is a risk of bankruptcy from loan principals and interest that need to be paid. Women being risk averse individuals, may set the company's optimal capital structure at a point that requires less debt. This is done in an effort to reduce bankruptcy risks that may put the company in jeopardy, therefore reducing the company's need for debt to achieve the optimal capital structure

The risk averse nature of women may also affect them to be more aware of asymmetric information and its risks, as explained in the agency theory, specifically agency problem type 1. This study focuses on agency problem type 1 between management and investors, highlighting female directors as key financing decision-makers. To minimize information asymmetry, managers follow the pecking order theory, prioritizing low-risk funding like retained earnings before turning to external sources. This is in accordance with the Pecking Order theory, where there is a certain priority level for company funding, starting with retained earnings, debt financing, and equity financing. Additionally, the conservative nature of female directors may also reduce the potential of agent-principal conflict, as they will make decisions that minimize risks, such as avoiding an increase in the company's debt, much to many investors' (principals) liking. Studies by Siregar et al. (2024) and Lo et al. (2023) prove this by finding that the presence of women in the board have a negative relationship with company DER, showing that female directors will choose to avoid the risk of debt when it comes to company funding, ultimately decreasing the company's DER. Therefore, proposing the following hypothesis:

H1 : The presence of female directors in the board will have a negative effect on company debt-to-equity ratio

The Influence of Female Directors' Age to Company Debt-to-Equity Ratio

It is often believed that people in the younger age group are more confident and comfortable in making risky decisions as long as there is a profit to be made. However, it is also believed that as an individual ages, they tend to become more risk averse when making decisions, including that of financial decisions. This is proven by studies from Kyenze (2014) and Oktaviani (2017) concluding that the age of individuals serving as directors have a negative relationship to company DER.

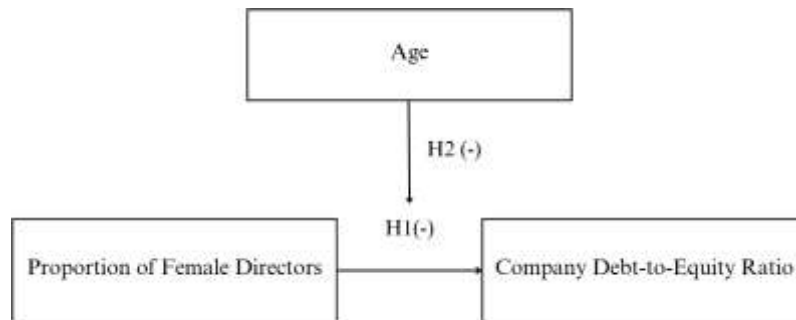
Oftentimes, the knowledge possessed by senior individuals allow them to be more alert against asymmetric information, giving rise to a more conservative attitude when faced with the risks of such imbalance in information. This behaviour may push them to act according to the pecking order theory, that prioritizes internal financing as it provides lower information costs compared to external financing. Which is why as directors age, there is a chance that the company might make decisions to avoid external financing, including debt, thereby causing a reduction in company DER.

Naturally, every individual will experience aging alongside their increased knowledge, affecting their attitude in certain situations. This study aims to understand whether the increased knowledge and experience possessed by a senior individual will affect female directors to become even more risk averse when making decisions, especially decisions that may affect company DER. Thereby, proposing the following hypothesis :

H2 : Age strengthens the relationship between the presence of women on the board of directors to the company's debt-equity ratio

Research Model

Figure 1. Research Model



According to previous research, a company’s DER can be affected by different factors. This research will focus on the impact from the amount of women in the board of directors as well as how age moderates it to company debt-to-equity ratio (Figure 1).

METHODOLOGY

Population and Sample Selection

This research focuses on non-financial companies that are listed on the Indonesian Stock Exchange during the years 2019 to 2023. Research samples are chosen using the purposive sampling technique, enforcing several criterias, namely : are companies with the largest market cap in sectors other than financial, has been an open company for at least 5 years, has complete reports and data in the Bloomberg Terminal between 2019 and 2023, and has at least 1

female director serving in the board during 2019 to 2023. With these criterias, a total of 64 companies were selected as sample, providing around 226 observations in the period of 4 years. However, as there are some incomplete data, this research will use the Unbalanced Panel Data method.

Source of Data

This research focuses on public non-financial firms that are listed in the Indonesian Stock Exchange during 2019 to 2023, sorted from the largest market cap in 2023 (Table 1). The data used in this research includes the amount of female directors serving at the board, the age of the directors, and the age of the company, sourced from each company’s financial reports. Further data such as company DER, Return on Assets (ROA), and firm value is sourced from the Bloomberg Terminal.

Table 1. Procedure in Selecting Samples

Criteria for Sample Selection		Total Companies as Samples
Public companies sorted from the largest market cap as per 31 st December 2023		962
Reduced by :	Financial Companies	(170)
Public non-financial companies in Indonesia as per 31st December 2023		792

150 non-financial public companies ranked by the largest to the smallest market cap as per 31 st December 2023		150
Reduced by :	Company IPO above 2019	(26)
	Companies without any female directors during 2019-2022	(54)
	Companies with inaccessible financial reports	(6)
Total Companies Selected for Sample		64

Operationalization of Variables

To ensure that there is no bias between the dependent variable and the independent variable, some control variables are included in this research including ROA, Tobin’s Q as firm value, and company age (Table 2).

Table 2. Operational Variables

Variable	Definition	Equation	Source
Dependent Variable			
Debt to Equity Ratio (DER)	Ratio that measures company debt to company equity. This ratio shows the financial independence of a company, where a higher number shows that the company relies more on debt than it does to equity.	$DER = \frac{\text{Total Debt}}{\text{Total Equity}}$	<ul style="list-style-type: none"> • Kamar (2017) • Nuryani & Sunarsi (2020) • Oman, Fitriarningsih, Salam, & Aeni (2021)
Independent Variable			

<p>Female Directors (FEMEXE)</p>	<p>The comparison between the amount of female directors serving on the board to the total number of directors on the board during the same year, in a 4 year period.</p>	<p>FEMEXE = Total amount of female directors/Total directors serving on the board</p>	<ul style="list-style-type: none"> • Suri, Febrianto, & Widiastuty (2023) • Kusi (2024)
<p>Moderating Variable</p>			
<p>Director Age (EXEAGE)</p>	<p>The proportion of individuals over 40 years old that are currently serving as directors relative to the total number of directors, regardless of gender.</p>	<p>EXEAGE = Amount of directors above the age of 40/ Total amount of directors</p> <p>Dummy :</p> <p>1 = The amount of directors over the age of 40 is greater than the median</p> <p>0 = The amount of directors over the age of 40 is lower than the median</p>	<ul style="list-style-type: none"> • Siciliano (1996) • Akisimire, Masoud, Baisi, & Orobia (2016)

Control Variables			
Profitability (ROA)	The ratio used to measure profitability or the profit a company generates from managing its assets.	ROA = Net Income / Total Assets	<ul style="list-style-type: none"> • Diaz & Pandey (2019) • Suhardi (2020) • Aydoğmuş, Gülay, & Ergun (2022) • Saputra (2022)
Firm Value (FVALUE)	The value of a company in the investor's perspective, often associated with the stock price relative to the company's assets.	Tobin's Q = $\frac{\text{Market Enterprise Value}}{\text{Total Assets}}$	<ul style="list-style-type: none"> • Kombih (2017) • Makhdalena (2018) • Aydoğmuş, Gülay, & Ergun (2022)
Firm Age (FAGE)	The duration a company has been listed in the Indonesian Stock Exchange.	FAGE = Duration since company IPO	<ul style="list-style-type: none"> • Handayani & Panjaitan (2019) • Ellyanti & Setyawan (2019)

Research Model

This study will use the panel data analysis method, which will be conducted using multiple regression on the decided independent variable, including the moderating variable. The following is the equation of the regression model applied:

1. The first model functions as a measure of women's influence in the board of directors to company DER.

$$DER_{it} = \alpha + \beta_1 FEMEXE_{it-1} + \beta_2 EXEAGE_{it-1} + \beta_4 ROA_{it-1} + \beta_5 FVALUE_{it-1} + \beta_6 FAGE_{it-1} + \varepsilon_{it}$$

2. The second model functions to measure the influence of the independent variable to the dependent variable, and whether it is strengthened or weakened by the

moderating variable, being director age. This is done by including an interaction variable, which is a combination of the variables “FEMEXE” and “EXEAGE”

$$DER_{it} = \alpha + \beta_1 FEMEXE_{i,t-1} + \beta_2 EXEAGE_{i,t-1} + \beta_3 (FEMEXE_{i,t-1} \times EXEAGE_{i,t-1}) + \beta_5 ROA_{i,t-1} + \beta_6 FVALUE_{i,t-1} + \beta_7 FAGE_{i,t-1} + \varepsilon_{it}$$

Where,

DER_{it} = Company i’s Debt-equity ratio in the year t

α = constant

β = regression coefficient

$FEMEXE_{i,t-1}$ = The proportion of women in the board of directors of company i in the year t-1

$EXEAGE_{i,t-1}$ = The number of directors over 40 years old in company i in year t-1

$(FEMEXE_{i,t-1} \times EXEAGE_{i,t-1})$ = The interaction between the proportion of female directors and directors over 40 years old in company i in year t-1

$ROA_{i,t-1}$ = profitability of company i in year t-1

$FVALUE_{i,t-1}$ = firm value of company i in year t-1

$FAGE_{i,t-1}$ = age of company i since its IPO in year t-1

ε_{it} = standard error

RESULTS AND DISCUSSION

In this study, there is 1 dependent variable (Table 3), which is the company's Debt-to-Equity Ratio (DER), 1 independent variable which is the percentage of female leadership (FEMEXE), 1 moderating variable which is the number of directors over 40 years old (EXEAGE), and 3 control variables consisting of the company’s profitability (ROA), company value (FVALUE), and company age (FAGE).

Table 3. Descriptive Statistics

Variable	N	Mean	Median	Min.	Max.	Std. Dev.
DER	240	0,4911	0,2632	0,0000	5,8826	0,6909
FEMEXE	256	0,2777	0,2500	0,0000	1,0000	0,2136
EXEAGE	256	0,9084	1,0000	0,3333	1,0000	0,1474
ROA	228	0,0703	0,0543	-0,2357	0,8542	0,1071
FVALUE	229	1,9891	1,0959	-0,4110	15,8960	2,4541
FAGE	256	18,1719	17,0000	0,0000	41,0000	10,1318

DER has a mean of 0,4911 and a standard deviation of 0,6999. The maximum value of 5,8826 is recorded by PT Bumi Resources Tbk (BUMI) in 2021, due to the increasing capitalization of loans and lease liabilities due to the recognition of right-of-use assets. The minimum value of DER is recorded by PT Bayan Resources Tbk (2022-2023), PT Vale Indonesia Tbk (2023), PT Mitra Keluarga Karyasehat Tbk, and PT MD Entertainment Tbk (2020–2023), as a result of maintaining solid liquidity.

The variable “FEMEXE” has a mean of 0,2777 and a median of 0,25, showing that the proportion of female directors is still lower compared to male directors, even though it varies across companies, as evidenced by the standard deviation of 0,2136. The maximum value of 1 is recorded by RISE (2021–2022), where the entire board of directors is composed of women. Meanwhile, the minimum value of 0 is found in several companies, with 12 companies in 2019, 14 in 2020, and 7 in 2021 and 6 in 2022, having no female directors.

The variable “EXEAGE” has a mean of 0.9084 with a median of 1.00, indicating that the majority of directors in a company are over 40 years old, which is also the case for nearly all of the companies selected for sample, as evidenced by the standard deviation of 0.14819, signifying a low level of variation. The maximum value of 1 is recorded from 28 companies, including ICBP (2019–2022) and 18 other companies in different years. The minimum value of 33.33% is recorded by RISE (2021–2022), where only 1 out of 3 directors is over 40 years old.

The variable “ROA” has an average value of 0.0703 with a standard deviation of 0.1071, indicating that the profitability of the companies is relatively uniform. The maximum value of 0.8542 was achieved by BYAN in 2022, supported by an 81.8% increase in net income due to higher prices. Meanwhile, the minimum value of -23.57% is recorded by EMTK in 2020, due to the COVID-19 pandemic, which resulted in a 38% and 43% decrease in inpatient and outpatient numbers, respectively.

The variable “FVALUE”, which is a company's

value in the perspective of an investor, has an average value of 1.9891 and a median of 1.1310. The highest value of 15.8960 is recorded by UNVR in 2019, showing that investors have high trust in this company, which may be driven by the company's growth of 5.8%. On the other hand, the lowest value of -0.41% is recorded by BNBR in 2020 and 2022 due to a negative enterprise value, lowering investor's trust in this company as it is deemed inefficient in asset management.

The variable “FAGE”, which is the age of the company, has an average value of 18.1719 and a standard deviation of 10.1318. The maximum value of FAGE, which is 41, is recorded by PT Multi Bintang Indonesia Tbk (MLBI) in 2022, since its IPO on December 15, 1981. Meanwhile, the minimum value of “FAGE” being 0, is recorded by PT Gunung Raja Paksi Tbk (GGRP) in 2019, as the company only went public on September 19, 2019.

Other than that, correlation analysis using Pearson correlation method is done to see if there is a strong correlation between 1 variable to the other. Table 4 is the result of the correlation analysis, showing the correlation coefficient and its significance:

Table 4. Correlation Coefficient

Analisis Korelasi	DER	FEMEXE	EXEAGE	ROA	FVALUE	FAGE
DER	1,000 (<i>p=0,000</i>)	-0,172 (<i>p=0,007</i>)	0,128 (<i>p=0,048</i>)	-0,270 (<i>p=0,000</i>)	-0,136 (<i>p=0,039</i>)	0,001 (<i>p=0,984</i>)
FEMEXE	-0,172 (<i>p=0,007</i>)	1,000 (<i>p=0,000</i>)	-0,209 (<i>p=0,001</i>)	0,130 (<i>p=0,050</i>)	0,237 (<i>p=0,000</i>)	-0,192 (<i>p=0,002</i>)
EXEAGE	0,128 (<i>p=0,048</i>)	-0,209 (<i>p=0,001</i>)	1,000 (<i>p=0,000</i>)	-0,039 (<i>p=0,559</i>)	-0,194 (<i>p=0,003</i>)	0,110 (<i>p=0,078</i>)
ROA	-0,270 (<i>p=0,000</i>)	0,130 (<i>p=0,050</i>)	-0,039 (<i>p=0,559</i>)	1,000 (<i>p=0,000</i>)	0,603 (<i>p=0,000</i>)	0,131 (<i>p=0,048</i>)
FVALUE	-0,136 (<i>p=0,039</i>)	0,237 (<i>p=0,000</i>)	-0,194 (<i>p=0,003</i>)	0,603 (<i>p=0,000</i>)	1,000 (<i>p=0,000</i>)	-0,059 (<i>p=0,376</i>)
FAGE	0,001 (<i>p=0,984</i>)	-0,192 (<i>p=0,002</i>)	0,110 (<i>p=0,078</i>)	0,131 (<i>p=0,048</i>)	-0,059 (<i>p=0,376</i>)	1,000 (<i>p=0,000</i>)

Based on Table 4, several conclusions can be drawn. First, there is a strong negative relationship between “FEMEXE” as the independent variable and DER, indicated by a correlation coefficient of -0.172 with a significance level of 0.007. This suggests that the greater the number of women on the board of directors, the lower the company’s DER. This may be attributed to women’s tendency to make low-risk decisions, stemming from their generally risk-averse nature. This supports the notion that when women are present on the board, companies are more likely to prefer equity over debt (Septiawan, Ahmad & Kurniati, 2022).

Furthermore, the variable “EXEAGE” demonstrates a significant positive relationship with the company’s Debt-to-Equity Ratio (DER), as indicated by a correlation coefficient of 0.128 and a significance level of 0.048. This suggests that a higher proportion of senior directors aged over 40 is associated with an increase in the company's DER. It is presumed that more senior directors, due to their extensive experience, possess greater confidence in utilizing debt as a source of financing. Additionally, their broader professional networks and stronger reputations among creditors may

enhance the company's access to debt, thereby contributing to a higher DER.

Subsequently, based on the results of the correlation analysis, it can also be concluded that ROA has an inverse relationship with the company’s Debt-to-Equity Ratio (DER), with a correlation coefficient of -0.270 and a significance level of 0.000. This indicates that when a company generates higher profits, more internal funds are available for investment, leading to a reduced reliance on debt and consequently a lower DER (Nurhayati, 2012).

Furthermore, it can also be concluded that company size has a strong negative relationship with the company's Debt-to-Equity Ratio (DER), indicated by a correlation coefficient of -0.136 with a significance level of 0.039. This suggests that as the size of the company increases, the amount of debt the company takes on decreases, leading to a lower DER. According to Tarigan, Purba, and Martina (2022), larger companies tend to have easier access to third-party loans, as they are perceived to have valuable assets that can be used as collateral, unlike smaller companies.

Hypothesis Testing

The Influence of the Proportion of Female Directors to Company Debt-to-Equity Ratio

Figure 2. Results of CEM Regression with Robust SE

Dependent Variable : DER
Method : RandomEffects
Periods Included : 4
Total Panel (Unbalanced) Observations : 227

Variable	Coefficient	t-statistics	Std. error	Prob.*
C	0,5541	3,5701	0,1552	0,0004
FEMEXE	-0,4362	-2,4312	0,1794	0,0158
EXEAGE	0,1040	1,0247	0,1015	0,3066
ROA	-2,1037	-3,5710	0,5891	0,0004
FVALUE	0,0279	1,4841	0,0188	0,1392
LN_FAGE	0,0450	0,8239	0,0547	0,4109

Statistics	
R-squared	0,1066
Log-likelihood	-227,71
F-statistic	4,4494
Prob (F-statistic)*	0,0007
Durbin-Watson Stat	1,1063

*significant effect (<0,05)

F-Statistics Test (Global T-Test)

According to the regression model (Figure 2), the F-statistic for the first hypothesis amounts to 0,0007. Thus, with a significance level of 5%, H_0 is rejected as the F-statistics is lower than 0.05. Therefore, it can be concluded that with a confidence level of 95%, DER as a dependent variable can be explained by the proportion of female directors, director age, company ROA, firm value, and firm age as independent and control variables.

T-statistics test (Partial T-Test)

According to the T-test, it can be concluded that the “FEMEXE” variable and the ROA variable have a significant effect on company DER. The “FEMEXE” variable affects company DER

negatively with a coefficient of -0,4355 and a probability of 0,0239. Next, the ROA variable has a negative relationship with company DER with a coefficient of -2,2398 and a probability of 0,0007.

Meanwhile, the moderating variable “EXEAGE” and the other two control variables, being “FVALUE” and “FAGE” do not have a significant effect towards company DER. The variable EXEAGE has a coefficient of 0,1040 and a probability of 0,3066, affecting DER positively but is considered insignificant. The variable FVALUE behaves the same way with a coefficient of 0,0279 and a probability of 0,1392. The same can be said with the variable “LN_FAGE” that has the same relationship to company DER, with a coefficient of 0,0450 and a probability of 0,4109.

The Influence of Female Directors’ Age to Company Debt-to-Equity Ratio

Figure 3. Results of CEM Regression with the Moderating Variable

Dependent Variable : DER
 Method : PooledOLS
 Periods Included : 4
 Total Panel (Unbalanced) Observations : 227

Variable	Coefficient	t-statistics	Std. error	Prob.*
C	0,4065	2,2777	0,1784	0,0237
FEMEXE	-0,1975	-1,0120	0,1952	0,3126
EXEAGE	0,3442	1,5941	0,2159	0,1124
FEMEXE*EXEAGE	-0,9834	-1,7766	0,5535	0,0770
ROA	-2,1931	-3,6035	0,6086	0,0004
FVALUE	0,0298	1,5529	0,0192	0,1219
LN_FAGE	0,0744	1,2491	0,0595	0,2130

Statistics	
R-squared	0,1214
Log-likelihood	-225,82
F-statistic	3,7885
Prob (F-statistic)*	0,0013
Durbin-Watson Stat	1,131605571

*significant effect (<0,05)

F-Statistics Test (Global T-Test)

According to the results of the regression model (Figure 3), the F-statistics for the second hypothesis amounts to 0,0013. As it is smaller than the critical value of 0,05, H_0 can be rejected. Which is why, it can be concluded with 95% confidence that the independent variable and control variables including the proportion of female directors, director age, interaction between proportion of female directors and director age, company ROA, firm value, and firm age can explain company DER as the dependent variable in the equation.

T-statistics test (Partial T-Test)

According to the T-test, it can be concluded that only the variable ROA has a significant effect on company DER. The variable has a coefficient of -2,1931 and a probability of 0,0004, affecting DER negatively. The interaction variable “FEMEXE*EXEAGE” also has the same effect on company DER with a coefficient of -0,9834 and a probability of 0,0780, which means that

it is significant but on a lower level of 10%.

Meanwhile, other variables such as “FEMEXE”, “EXEAGE”, “FVALUE”, and “LN_FAGE” have an insignificant effect on company DER. The variable FEMEXE affects company DER negatively with a coefficient of -0,1975 and a probability of 0,3126. While the variable EXEAGE affects DER positively with a coefficient of 0,3442 and a probability of 0,1124. The same can be said with FVALUE and LN_FAGE affecting DER positively with their respective coefficients of 0,0298 and 0,0744, with probabilities of 0,1219 and 0,213.

ANALYSIS AND DISCUSSION

Result Analysis Regarding the Influence of the Proportion of Female Directors to Company Debt-to-Equity Ratio

According to the partial T-test, it can be concluded that the proportion of women in the board of directors affect company DER significantly with a p-value of 0,0158. It is also evident that company DER is

affected negatively from the value of the coefficient. This result aligns with the first hypothesis which states that the more there are female directors serving in the board the more the company DER will decrease in the same fashion. The same results are also found by Siregar et al. (2024) and Lo et al. (2023) in their studies that conclude the proportion of women in the board has an inverse relationship with company DER.

These findings are also similar to a study by Schwab-Pomerantz (2022) that explains women's stereotype as a gender group that avoids risk (risk averse), which is assumed to be caused by women's sensitive nature that may allow them to experience greater emotional impact when faced with loss, as well as exposure to more fear when making decisions with unpredictable outcome (Pacheco et al, 2023).

The presence of female directors, which contributes to a lower DER, can also be explained by the trade-off theory, as women's risk-averse nature may influence companies to conclude that an optimal capital structure can be achieved with less reliance on debt. This is because high levels of debt can heighten the likelihood of bankruptcy when a company consistently fails to generate sufficient profits to fulfill its obligations. As risk-averse individuals, female directors may thus promote reduced reliance on debt, resulting in a lower Debt-to-Equity Ratio (DER).

Furthermore, women's more cautious nature enhances their sensitivity to information asymmetry, as outlined in agency theory, particularly in the context of investor relations (agency problem type 1). This prudence influences their approach to debt-related decisions, aligning with the principles of pecking order theory. According to this theory, firms prioritize funding sources based on risk, beginning with the safest—internal financing such as retained earnings, followed by external sources, starting with debt and lastly equity financing as a form of corporate management's effort to avoid information asymmetry with investors. Consequently, when financing decisions are driven by risk-averse female directors, debt is less likely to be the preferred option, as they

tend to favor low-risk internal capital before considering external alternatives.

Result Analysis of the Influence of Female Directors' Age to Company Debt-to-Equity Ratio

According to the tests done earlier, it is evident that the coefficient of the interaction variable between the proportion of female directors and director age is negative, with a probability of 0,077. This means that the second hypothesis is proven, even with a lower significance level of 10%. This result aligns with a study done by Oktaviani (2017) which states that the more senior a director of a company is, the less debt the company will hold.

These findings are in accordance with a concept mentioned by Poonpolkul (2023) in their study, stating that an individual will become more risk averse as they age. Nolte & Hanach (2024) explains that this concept occurs due to a change in mindset as time passes, that affects the way an individual deals with risk, ultimately causing older individuals to become more risk averse.

Besides other supported research findings, this result is also related to the pecking order theory. As a director becomes more senior and gains more knowledge, they tend to become more sensitive and cautious regarding information asymmetry. This leads to behavior that aligns with the pecking order theory, in which the board of directors, as the company's leadership, prioritizes internal sources of funding. Therefore, as a moderating variable, it can be stated that a director's age can strengthen the tendency of female directors to make low-risk decisions. This, in turn, can lead to a decrease in debt usage, resulting in a lower Debt-to-Equity Ratio (DER), which reduces the risk of bankruptcy.

CONCLUSIONS, IMPLICATIONS, AND LIMITS

This research is done to analyze the influence of the proportion of female directors and the age of those female directors against debt measured by DER,

of 150 non-financial public companies in Indonesia, ranked from the largest to the smallest market capitalization. According to the tests done, it can be concluded that the proportion of female directors on the board has a significant negative relationship to company DER. This is due to the risk averse nature of women that pushes them to make choices with fixed results and avoid choices with any risks, ultimately reducing company debt as an effort to avoid the risk of bankruptcy.

Other than that, it can also be concluded that female director age also has a negative relationship to company debt, however with a lower significance level of 10%. The reason behind this is that senior female directors tend to have a more conservative mindset as they age, resulting in more risk aversion and reduction of company debt.

Despite receiving valid results, there are still limitations to this study that need to be considered. These limitations include the low variation in the proportion of female directors, incomplete data for some companies, a relatively short research period resulting in a sample that includes state-owned enterprises (SOEs) with a tendency toward high leverage, using a period during the COVID-19 pandemic, and not involving other factors such as focusing solely on the presence of a finance director but instead considering all board of directors members and the use of firm size. To address these limitations, future researchers may consider increasing the sample size by including companies from all market capitalization categories, seeking data from alternative sources to ensure completeness, considering additional influencing factors, and using more advanced methodologies for conducting research tests.

However, this study is hoped to benefit various parties, such as company management, that may be given insight regarding leading strategy, as well as provide a better understanding regarding the difference in leadership styles that may be developed according to specific genders and age. This is specifically aimed at decision making that affects

company DER, such as taking on debt, equity issuance, and others.

For investors, this study is done with the intention of providing additional consideration that may help in making investment decisions, such as insight about director mindset in environments dominated by female directors and directors above the age of 40.

For those in charge of creating policies like the government, it is hoped that this research may outline the impact that women can provide in the workforce. In hopes that this study may give further proof to support the movement of gender equality in the working environment.

For scholars, this study hopes to provide a better understanding regarding this topic, so that it may be used as a basis for further research.

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