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Analysis of the Influence of Board of Directors' Characteristics on Capital Structure in Manufacturing Companies Listed on the Indonesia Stock Exchange (IDX) for the Period 2021–2023

Yokazio Sharen[1*]
Muhammad Fikri Ramadhan[2]

[1]Manajement, Faculty of Economics and Business, Universitas Negeri Padang, Padang, Indonesia
[2] Manajement, Faculty of Economics and Business, Universitas Putra Indonesia YPTK, Padang, Indonesia

Abstract
This study examines the effect of board characteristics such as gender, age, education and board experience on the capital structure of manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2021 to 2023. This study aims to understand how these factors shape corporate financial decisions, especially when deciding on the composition of equity and debt capital. The research method used is based on a quantitative approach with regression analysis techniques. This technique is used to analyze the relationship between the independent variables (gender, age, education and board experience) with the dependent variable (capital structure) and company size as a control variable. The data used is taken from the annual reports of manufacturing companies listed on the IDX for 2021 to 2023.
The results show that the age and experience of board members have a significant influence on capital structure, while gender and education have no influence. The results of this study provide new insights for management to develop an ideal financial strategy based on the leadership characteristics of the board of directors. Investors, shareholders and regulators can use the results of this study to assess leadership factors that have a potential impact on corporate financial policy. In addition, this study contains suggestions for further research that may include deepening the analysis in other industries or expanding the variables analyzed.

Keywords: *Gender, Age, Education, Experience, Capital Structure*

1. INTRODUCTION

Increase investment in Indonesia, both foreign and local, every company must try to minimize debt. This can be seen from the company's capital structure. A company's capital structure refers to the composition and proportion of various funding sources used to finance operating and investment activities. This structure includes the

[1*]Corresponding author, email: yokaziosharen02@unp.ac.id

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combination of equity and debt owned by the company. Capital structure policy is about achieving a balance between risk and return, as the use of borrowed capital increases the risk of the company, but also the expected return. Capital structure is a ratio in the company's financial statements which calculates the combination of capital sourced from long-term debt with the company's own capital (equity) (Hirdinis, 2019).

The Board of Directors plays an important role in decision-making in the financial management of the company, especially in determining the capital structure. The presence of women in the company's board of directors shows that the company provides equal opportunities to everyone without discrimination. When women hold the role of CEO, they tend to be more cautious in making decisions. When women are cautious in making decisions, they avoid risks. The presence of women on the board of directors, known as gender diversity on the board, acts as a favorable mediator in the relationship between debt financing, equity financing, capital structure, and financial performance Kandie et al., (2024). And also according to Shovia Krismelina and Farida Titik Kristanti (2023) found that company growth, business risk, board gender diversity, and profitability have a significant impact on capital structure. Board diversity benefits the company by increasing the resources, knowledge, experience, and network of board members.

Based on research conducted by Harjoto et al., (2018) The results of this study illustrate that diversity in terms of nationality and educational background of directors is positively related to the strength of CSP, but not related to problems or weaknesses in Corporate Social Performance (CSP) or corporate social performance. This suggests the importance of board diversity for companies that want to go beyond regulatory compliance and increase voluntary CSR actions. According to Shivashankar et al. (2020) explain that with increasing experience, understanding of the company's internal guidelines and procedures also increases. So that the better the conditions of the company are understood, then someone can be encouraged to work effectively and efficiently.

2. LITERATURE REVIEW

2.1. Capital Structure

According Nurlaela et al., 2019. capital structure is permanent financing consisting of long-term debt, preferred stock, and share capital. If the capital structure value is above one or greater than one, it means that the company has a greater amount of debt. one, it means that the company has a greater amount of debt than the amount of equity. than the amount of own capital. The capital structure of the company is influenced by internal factors consisting of profitability, size, age, liquidity, tangible and so on and external factors consisting of inflation, interest rates and monetary policy (Shil et al., 2019). Capital structure refers to to the way the company uses and utilizes external (debt) and internal (equity) sources of funds external (debt) and internal (equity) sources of funds to support the company's activities. activities of the company.

2.2 Board Gender Diversity

One of the questions that arises with respect to gender diversity is the proportion of a particular gender on a company's board of directors and supervisory board. In most companies, the majority of board members are male. Kabara et al. (2022) said that regulatory developments around the world favor a greater number of female board

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members. The number of women aspiring to a career in management has increased significantly. Women's representation on boards remains generally low, even in industrialized countries. In general, gender diversity on boards can provide benefits such as more diverse views in decision-making, Closer oversight of management, and A tendency to make more prudent financial decisions, including in determining the proportion of debt and equity. In Indonesia, although there is no explicit gender quota policy, the Financial Services Authority (OJK) through the principles of Good Corporate Governance (GCG) encourages board diversity as one of the indicators of good governance.

2.2 Board Age Diversity

Age diversity in the board of directors refers to the presence of board members from different age groups. This diversity is considered an advantage as it brings a variety of perspectives, experiences and expertise that can improve the quality of decision-making at the strategic level. For example, younger individuals may bring fresh perspectives, while older board members often bring deeper experience and insights. The combination of the two can lead to better decisions in formulating strategies and managing risks. Loukil et al., (2019) said that the presence of individuals of different ages on the board of directors generates high-quality resources, including expertise, knowledge, information and external connections. This increases the company's capacity to avoid financial problems.

2.3 Board Education Diversity

The diversity of educational backgrounds in company management also plays an important role. Managers with diverse education, both in terms of fields of study and educational institutions, tend to bring different thinking abilities to decision-making. For example, a manager with a background in economics will have a strong analytical approach, while a manager with a background in social sciences or humanities may focus more on the social and cultural aspects of the decision.

This educational diversity can enrich a company's strategy in dealing with social and environmental challenges. Harjoto et al., (2018) said that Companies concerned with corporate responsibility or looking to optimize their social performance can benefit from a wider diversity of nationalities and educational backgrounds in corporate management.

2.4 Board Experience Diversity

Experience is often considered a very important factor in improving one's effectiveness and efficiency in the workplace. Broto (2019) said that a person's level of experience is positively correlated with their effectiveness and efficiency in the workplace. Board members with extensive experience tend to have the ability to assess strategic decisions and minimize risks better than less experienced board members. Their deep industry expertise allows them to be more effective in steering the company in the long run. However, new board members, even if they do not have direct experience in a particular industry, can bring their own advantages to the company. They may come with new knowledge or different approaches from their backgrounds in other industries or different areas of expertise. This can be an advantage as new perspectives can often lead to innovation and positive changes in the way the company operates. A board comprised of members with diverse experience, both old and new,

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creates a more dynamic dynamic in decision-making. More experienced members tend to focus more on long-term stability and sustainability, while newer members tend to be more open to change and innovation.

3. METHODS

3.1 Population and Sample

This study covers all manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2021 to 2023. The sample consists of 100 companies selected randomly.

3.2 Research Variables and Measurement

Tabel 3.1 Operational and Variable Measurement

No	Variabel	Variable Type	Indicator
1	Capital Structure	Dependent	$DER = \frac{\text{Total Liabilities}}{\text{Total Equity}}$
2	Gender	Independent	$Gender = \frac{\text{Number of Female Board of Directors}}{\text{Total Board of Directors}}$
3	Age	Independent	$Age = \frac{\text{Number of Board Directors who are} > 40 \text{ years old}}{\text{Total Board of Directors}}$
4	Education	Independent	$Education = \frac{\text{Number of Directors with education in economics and business}}{\text{Total Board of Directors}}$
5	Experience	Independent	$Experience = \frac{\text{Total years of Board Experience}}{\text{Total Board of Directors}}$
6	Firm Size	Control	Firm size = Total Asset

Regression with panel data, different modeling approaches should be selected that are most suitable for estimating panel data, including common effect, fixed effect, and random. The panel data regression analysis equation in this study is as follows:

$$\mathbf{DER} = a + b_1Gender + b_2Usia + b_3PDDK + b_4PGN + b_5Ln\_TA + e$$

4. RESULTS

4.1 Panel Data Regression Analysis Results

The main result of this research for Fixed Effect model based on panel data analysis is shown in Table 4.1 The constant of -38.594 indicates that the capital structure decreases by 38.594 units, while gender, age, education, experience and firm size do not change. With the value of 1.738 for gender coefficient β_1, the capital structure increases by 1.738 unit weight, provided that age, education, experience and firm size remain constant and gender increases by one unit weight. The positive

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coefficient shows that gender has a positive and significant influence on the capital structure of the company. The results of this study are in accordance with the research findings of Fernandez (2019), which show that a diverse board composition in terms of gender, nationality and ethnicity is generally associated with more effective stakeholder management.

Tabel 4.1 Panel data regression with Fixed Effect method dependent on the Company's Capital Structure (DER)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-38.594	1.477	-26.125	0.000
Gender	1.738	0.286	6.074	0.000
Usia	0.251	0.196	1.284	0.201
PDDK	0.187	0.131	1.432	0.154
PGN	-0.015	0.004	-3.636	0.0004
Ln_TA	1.389	0.0497	27.965	0.000

Source: Eviews 9 output results and Excel processing

The multiple regression equation with the Fixed Effect model is as follows:

DER = -38.594 + 1.738 Gender + 0.251Usia + 0.187PDDK + -0.015PGN + 1.389 Ln_TA

The coefficient value of β_2 for age is 0.251. This has an impact on the increase in the company's capital structure by 0.251 weight units if the age increases by 1 weight unit and the variables of gender, education, experience and company size remain the same. The positive coefficient shows that age has a positive but insignificant influence on the capital structure of the company. The results of this study are not in line with the research of Putri, W. E. (2020) that there is a significant positive effect of age diversification of the Board of Directors on firm value.

The coefficient of β_3 education is 0.187. As a result, the capital structure of the company increases by 0.187 unit weight if education increases by one unit weight and the variables of gender, age, experience and company size remain the same. The positive coefficient shows that education has a positive but insignificant influence on the capital structure of the company. The results of this study are inconsistent with the research of Wendy Salim Saputra (2019) in his research which found that board education has a negative influence on firm value.

The coefficient of β_4 experience is -0.015 indicating that the capital structure of the firm decreases by 0.015 unit weight if education increases by 1 unit weight, with gender, age, education and firm size unchanged. The negative coefficient shows that education has a significant negative influence on the capital structure of the company. The results of this study are inconsistent with research conducted by Nugroho, I. R et al., (2020) obtained research results that various kinds of experience in the management board have a significant negative impact on firm value.

The coefficient of β_5 firm size is 1.389. This means that the capital structure of the company increases by 1.389 weight units if the size of the company increases by

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one weight unit and gender, age, education and experience remain constant. The positive coefficient indicates that firm size has a significant positive influence on capital structure.

4.2 Results of the T-test

The t-test is used to check whether each independent variable has a significant influence on the dependent variable. Table 4.1 serves as a basis for describing the results of the t-test for each independent variable in terms of its influence on the dependent variable.

1) The influence of board members' gender on the capital structure (DER)

The first hypothesis of this study states that gender has a significant influence on the capital structure of the company. As Table 4.6 shows, the significance value for the gender variable is 0.000 < 0.05 and the coefficient (β) is 1.738. This illustrates that the gender variable exerts a significant positive influence on the capital structure of the company.

2) Effect of Age of Board of Directors (Age) on Capital Structure (DER)

The second hypothesis in this study is that age has a significant effect on the company's capital structure. From table 4.6, it can be seen that the age variable has a sig value of 0.201 > 0.05, where the coefficient (β) is -0.251. It shows that the age variable has no significant effect on the capital structure of the company.

3) The Effect of Board of Directors Education (Pddk) on Capital Structure (DER)

The third hypothesis in this study is that education has a significant effect on the company's capital structure. From table 4.6, it can be seen that the education variable has a sig value of 0.154> 0.05, where the coefficient (β) is 0.187. It shows that education variable has insignificant effect on the capital structure of the company. Thus the third hypothesis is rejected.

4) The Effect of Experience of the Board of Directors (PGN) on the Company's Capital Structure (DER)

The fourth hypothesis in this study is that experience has a significant effect on the company's capital structure. From table 4.6, it can be seen that the experience variable has a sig value of 0.0004 <0.05, where the coefficient (β) is -0.015. This shows that education variable has a significant negative effect on the capital structure of the company. Thus, the fourth hypothesis is accepted.

5) Effect of Company Size on Y_DER

Ln_TA variable statistically has a significant positive effect on Y_DER at the level of significant 5% due to the significant value of 0.000 smaller than 0.05.

4.3 Simultaneous Hypothesis Testing Results (F Test)

Tabel 4.2 F-Statistk Test Results

F-statistic	186,4659
Prob(F-statistic)	0,000

Source: Eviews 9 output results

The f test was conducted to see the effect of the independent variables together on the dependent variable. From table 4.2 above, it can be seen that the f-statistic value of the research model is 186.4659 with a significant level of 0.000, which means that the

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independent variables of gender (gender), age (age), education (PDDK), experience (pgn) and company size (Ln_TA) as control variables together have a significant effect on the company's capital structure variable (DER). Thus the fifth hypothesis is accepted.

The significance value of 0.000 (below 0.05) indicates that the panel regression model used is good enough and feasible to explain the relationship between board characteristics and capital structure. These results suggest that board characteristics cannot be viewed in isolation in corporate financial decision-making. The combination of gender, age, education, experience, and firm size forms a configuration that contributes to the capital structure strategy.

4.4 Results of the Termination Coefficient Test (R^2)

Tabel 4.3 R^2 Results

R-squared	0,990045
Adjusted R-squared	0,984735

Source: Eviews 9 output results

R^2 shows that the dependent variable can be explained by the resulting regression equation. Based on table 4.3 shows that the value of the coefficient of determination produced in the R-squared test is 0.990045 The results obtained indicate that the variable This shows that DER can be explained by the variables gender, age, pddk, pgn and Ln_TA with a contribution of 99% while the remaining 1% is explained by other variables not discussed in this study. The R^2 of 99% indicates that the model has a very good fit to the panel data used. This strengthens the results of the previous F-test which also shows that all independent variables are jointly significant.

5. DISCUSSION

This study analyzes the influence of board of directors' characteristics on capital structure in manufacturing companies listed on the Indonesia Stock Exchange (BEI) during the 2021-2023 period. The findings indicate that certain attributes of the board of directors have a significant impact on corporate capital structure decisions. These attributes include gender, age, education, and experience of the board members.

The results show that the characteristics of the board of directors, including gender, age, education level, and experience, have varying effects on the capital structure of manufacturing companies in Indonesia Stock Exchange (BEI) during the 2021–2023 period. The analysis reveals that gender has a strong correlation with capital structure, indicating that gender diversity in corporate leadership has not yet become a key factor in financial decision-making. Conversely, the age of board members shows a weak influence, with older directors tending to adopt a more conservative capital structure, relying on internal financing rather than external debt. Moreover, the education level of the board members plays a role in corporate financing strategies, where directors with higher education levels tend to be more prudent in managing financial risk, reflected in a more balanced debt ratio. Meanwhile, work experience has the most significant impact on capital structure, as directors with longer experience tend to choose a more optimal capital structure, balancing debt and equity to enhance company performance.

These findings align with financial theories stating that capital structure decisions are influenced by internal company factors, including management characteristics. However, the results also indicate that in the context of manufacturing firms in Indonesia, the experience of board members plays a more dominant role compared to other factors in determining financial strategies. A new insight emerging from this study is the importance of considering a combination of personal factors in board composition to achieve more effective financial decisions. Additionally, the implications for business practices suggest that companies can improve capital structure efficiency by considering age and experience aspects in the board recruitment process.

6. CONCLUSION

The previous discussion allows various conclusions to be drawn. These conclusions include that the gender of the Board of Directors members has a significant positive influence on the company's capital structure with a significance level of 0.000 which is smaller than 0.05. The finding that gender has a significant and positive effect on capital structure suggests that gender diversity in the board of directors can improve the quality of financial decision-making. The presence of women on the board can create a different perspective in developing financial and risk strategies. This supports the view of Resource Dependence Theory which emphasizes the importance of diversity in improving access to external resources and enriching decision-making. The influence of the average age of the Board of Directors members on the company's capital structure is low, because the significance level of 0.201 is above 0.05. With a significance level of $0.201 > 0.05$, the average age of the Board of Directors members only has a marginal influence on the company's capital structure. Age has a positive but insignificant effect. Older directors tend to adopt a conservative strategy, being more cautious in taking debt risks. However, the lack of significance suggests that age alone is not a major determinant in capital structure decisions, perhaps due to more dominant factors of experience or organizational culture.

The education of the Board of Directors members has a small influence on the company's capital structure, with a significance level of $0.154 > 0.05$. A positive but insignificant coefficient for education level indicates that higher education does not necessarily translate to better ability in managing capital structure. This may occur because educational attainment does not always align with practical skills or relevant industry experience. The experience of the Board of Directors has a significant influence on the company's capital structure, with a significance level of $0.0004 < 0.05$. Experience has a significant negative effect, which is interesting because it contradicts much of the literature that considers experience to be a plus. This result suggests that long experience may make directors too cautious or too reliant on old patterns, thus inhibiting more aggressive and innovative capital structure strategies. The capital structure is significantly influenced by the size of the company, with a significance level of $0.000 < 0.05$. Company size has a positive and significant effect on capital structure. This is in accordance with the Trade-Off theory, where large companies tend to have wider access to external funding, a stronger reputation, and high operational stability. Therefore, they are more comfortable using debt in financing.

The variables gender, age, education and experience as well as the control variable company size have a significant influence on the company's capital structure (p-value: $0.000 < 0.05$). It is recommended for further researchers to consider other variables that

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may also have an impact on the company's capital structure. In addition, the number of observations conducted in their research should be increased and the research period should be extended.

Based on the findings above:

- Gender and firm size are significant factors in influencing the capital structure of manufacturing companies on the IDX.
- Experience, although significant, has a negative effect, indicating a conservative preference of more experienced boards.
- Age and education, although showing positive direction, have no significant effect on capital structure.

These findings enrich the literature on internal factors that influence corporate finance decisions, especially in the context of emerging markets such as Indonesia. Practically, firms should consider a combination of individual board characteristics when determining financial strategies, especially in the recruitment process and board capacity building. Researchers hope that in the future, there will be new studies to go deeper when evaluating gender, age, education and board of directors' supervision on capital structure in various company sectors.

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