

The Role of Environmental Accounting in Overcoming Financial Distress in Property & Real Estate

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Abstract

This study aims to explore the role of environmental accounting in overcoming financial distress in the property and real estate sector in Indonesia. This study uses a causal approach and panel data from property & real estate sector companies listed on the Indonesia Stock Exchange for the period 2019-2022. Data analysis was conducted using moderation regression. The quality of the board of directors, particularly the level of education, is shown to have a significant impact on financial distress. CSR disclosure can mitigate the impact of CEO education and gender on financial distress. These findings highlight the importance of effective corporate governance management, especially in the face of financial stress. Firms need to pay attention to board composition and strengthen CSR disclosure to reduce the risk of financial distress. In practice, this strengthens the company's legitimacy in the eyes of stakeholders and encourages the integration of sustainability principles in business decision-making.

Keywords: *Characteristics of Directors; Financial Distress; CSR*

Introduction

The economic uncertainty triggered by the Covid-19 pandemic has caused a serious impact on global financial markets (Tampakoudis et al. 2021). The pandemic has changed the global economic landscape and caused potential recessions in many countries (Ligang Song 2020). Impacts include decreased sales and profitability, as well as worsened company performance (Hu and Zhang 2021). Company management, especially in the property and real estate sector, must face the threat of bankruptcy if they are unable to manage this uncertainty effectively (Didier et al. 2021). Therefore, the right strategy is needed to overcome changes in economic conditions that have the potential to threaten the survival of the company. (Vasenska et al. 2021).

As the global economy grapples with uncertainty exacerbated by the COVID-19 pandemic, industries such as property and real estate face unique challenges (Wronka 2022). The pandemic has not only disrupted economic activities but also highlighted the vulnerability of businesses to environmental and financial shocks (Chang et al. 2022). Amidst these challenges, environmental accounting emerges as a crucial tool for companies in the property and real estate sector to navigate financial distress (Li et al. 2020). By integrating environmental considerations into financial decision-making, environmental accounting offers a pathway to resilience and sustainability (Dwyer and Unerman 2020). This article delves into the significance of environmental accounting in mitigating financial distress within the property and real estate sector, exploring its potential to enhance long-term viability and adaptability in an increasingly volatile economic landscape.

In 2020, Indonesia saw consecutive economic downturns in the second, third, and fourth quarters due to the Covid-19 pandemic. This detrimental effect also affected the real estate industry, since lower demand resulted in a sharp decline in property values. One company that saw a significant drop in performance in the first quarter of 2020 was PT Bumi Serpong Damai Tbk (BSDE). However, in 2021, a number of property issuers, including BSDE, PT Summarecon Agung Tbk (SMRA), and PT Pakuwon Jati Tbk (PWON), shown improvement. Nonetheless, the real estate industry's stock performance corrected in 2022, suggesting possible financial issues that require careful observation.

This study adopts agency theory, which highlights the separation between ownership and control of the firm. Jensen and Meckling (1976) suggest that corporate management does not always act in accordance

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with the interests of the owners, resulting in agency costs. The importance of validating the theory of discussion lies in its ability to accurately and convincingly explain economic phenomena, such as the impact of the Covid-19 pandemic on the property sector (Dwianto 2024a). With a legitimate theoretical basis, researchers and practitioners can formulate appropriate strategies in facing challenges and managing financial risks. The legitimacy of the theory also strengthens confidence in analysis and decision-making, and provides a strong foundation for further knowledge development in support of a sustainable economy (John Dowling 1975).

In the face of economic and environmental challenges, environmental accounting is becoming increasingly important as a moderating tool for financial distress. The characteristics of directors, as key decision makers in the firm, may be influenced by environmental accounting practices to reduce financial risk (Cosma et al. 2021). Previous research shows mixed results regarding the relationship between board characteristics and financial distress. For example, Alhababsah, Yekini (2021), Oradi and Izadi (2019), Richter, Carlos, and Beber (2024), Wang, Yu, and Gao (2022), found that audit committee diversity and gender diversity in the board of directors can reduce financial risk. However, some research argues the opposite research that the size and diversity of the board of directors do not have a significant influence (García and Herrero 2021; Guizani and Abdalkrim 2022; Muien, Nordin, and Badru 2024).

Financial distress, which is a condition in which a company experiences financial difficulties to the point of risking bankruptcy, has become a major issue in recent decades (Hotchkiss et al. 2008). The definition of Sun et al. (2014) states that financial distress is when a company has difficulty meeting its obligations. While Chesbrough (2010), Fitz, Scheeg, and Scheeg (2022) describe it as a situation where a company cannot carry out its operations without external assistance. Research shows that poor corporate governance can lead to financial distress, related to conflicts of interest between the owners and management of the company (Angelia and Mawardi 2021; Li et al. 2021; Mariano, Izadi, and Pratt 2020). The consequences of financial distress are significant, harming shareholders, creditors, governments, and employees (Agostini 2018; Anwar and Javed 2020). It's important to identify the symptoms of financial distress early Liu et al. (2023), and financial distress prediction models are important for making the right financial decisions (Shen et al. 2020; Ying Tang, 2023). Good corporate governance can reduce financial risk and improve company performance (Mishra and Mohanty 2018; Sianipar and Wiksuana 2019). Gender diversity in the board of directors is considered to influence the company's decision making Jimenez (2020) Wu et al. (2022), and other characteristics such as age, education, and tenure of directors also have a significant impact (Frag and Mallin 2018; Kanakriyah 2021; Sabli et al. 2016). CSR disclosure is considered to be a predictor of possible financial distress Farooq, Noor, and Qureshi (2022), although there are differing views on the impact of CSR on financial risk (Benlemlih and Girerd-potin 2017; Dwianto et al. 2024; Wirawan et al. 2020). In this study, the role of CSR disclosure as a moderator of board characteristics on financial distress will be further investigated. Benlemlih and Girerd-potin (2017) research shows that strong CSR practices can reduce corporate financial risk, but the impact may be moderated by certain factors. Dwianto (2024) view emphasizes the important role of environmental accounting as moderation in the company (Khan et al., 2019).

The purpose of this research is to investigate how environmental accounting functions as a moderating instrument for financial distress while accounting for the qualities of directors in business decision-making. This study aims to enhance our comprehension of the impact of environmental accounting methods on the correlation between board qualities and business financial risk. The research implications encompass the implementation of suitable environmental accounting practices to effectively handle financial risk, enhancing corporate governance by taking into account strategies to address economic and environmental challenges, and serving as a foundation for improved decision-making when confronted with signs of financial distress. This study advances knowledge on how to include environmental sustainability into company decision-making by integrating the ideas of corporate governance, financial distress, and environmental accounting in a comprehensive manner.

Literature Review

This study adopts agency theory, which highlights the separation between ownership and control of the firm. Jensen and Meckling (1976) suggest that corporate management does not always act in accordance with the interests of the owners, resulting in agency costs. Our study complements previous research by examining the linkage of firm performance and corporate governance, particularly in the context of financial distress. Financial distress, which can be characterized by various conditions such as business failure and legal bankruptcy Mselmi, Lahiani, and Hamza (2017), is studied by considering the characteristics of directors and environmental disclosure. Ramadhan and Firmansyah (2022), Tarighi et al. (2022) developed a financial distress prediction model, providing the foundation for this study.

Board Characteristics and Financial Distress

The board of directors is considered a crucial governance mechanism in determining the financial health of a business (Afriyie et al. 2020). An imbalance between ownership and control of the company can increase the risk of opportunistic behavior from management or shareholders, which in turn can trigger financial difficulties (Si and Li 2022). An imbalance between ownership and control of the company can increase the risk of opportunistic behavior from management or shareholders, which in turn can trigger financial difficulties (Saona and Muro 2018). Gender diversity in the board of directors is considered a vital indicator to understand the potential financial distress of the company (Vieira 2015). Research shows that gender diversity on boards can help companies take the right steps to maintain strong and stable performance (Perryman, Fernando, and Tripathy 2016). Previous studies have also shown that gender diversity on boards can affect corporate risk, with female executives tending to be more risk-averse than male executives (Doan and Iskandar-Datta 2020).

Previous studies have also shown that gender diversity on boards can affect corporate risk, with female executives tending to be more risk averse than male executives (Doan and Iskandar-Datta 2020). On the other hand, the age of the CEO also has significant implications for the company's attitude towards risk (Campbell, Jeong, and Graffin 2019; Farag and Mallin 2018). Younger directors tend to be more ambitious and risk-taking, while senior directors tend to be more cautious and risk-averse (Rahman et al. 2022; Tang, Li, and Liu 2016). Directors' educational background and CEO tenure also play an important role in anticipating financial distress Yousaf, Jebran, and Wang (2020), with higher education and longer tenure tending to increase understanding and experience in managing corporate information and risk (Ghardallou 2022; Laufs, Bembom, and Schwens 2016). By considering these factors, companies can optimize governance and decision-making to reduce the potential for financial distress (Mahtani and Garg 2018; Shahwan and Habib 2020).

H1: *The characteristics of the board of directors have an influence on financial distress.*

Board Characteristics, Environmental Disclosure and Financial Distress.

Penggunaan Environmental Disclosure (ED) sebagai moderator dalam hubungan antara risiko keuangan perusahaan menjadi keseimbangan dan kebaruan riset. Sebagian penelitian, seperti yang dilakukan Mahtani and Garg (2018), state that companies with higher levels of CSR tend to experience financial losses, which potentially increases financial risk. However, this view is not always universally accepted. Boubaker et al. (2020), for example, states that CSR can reduce the risk of financial distress by viewing corporate social responsibility strategies as a hedging tool. They argue that socially responsible companies tend to have better access to funding, attract lenders with lower debt costs, and obtain better credit ratings (Hamrouni, Boussaada, and Ben Farhat Toumi 2019). In this context, ED acts as a moderator that alters future expectations and corporate image, affecting both liability risk and economic vulnerability risk (Jung et al. 2018). In other words, ED plays an important role in regulating the relationship between CSR practices and corporate financial risk (Dwianto et al. 2024). This suggests the importance of considering the context of ED in analyzing the impact of CSR on financial risk Shakil (2021), which in turn can help companies manage risk and improve their overall financial performance.

H2: *Environmental disclosure has a moderating role on the relationship between directors' characteristics and Financial Distress.*

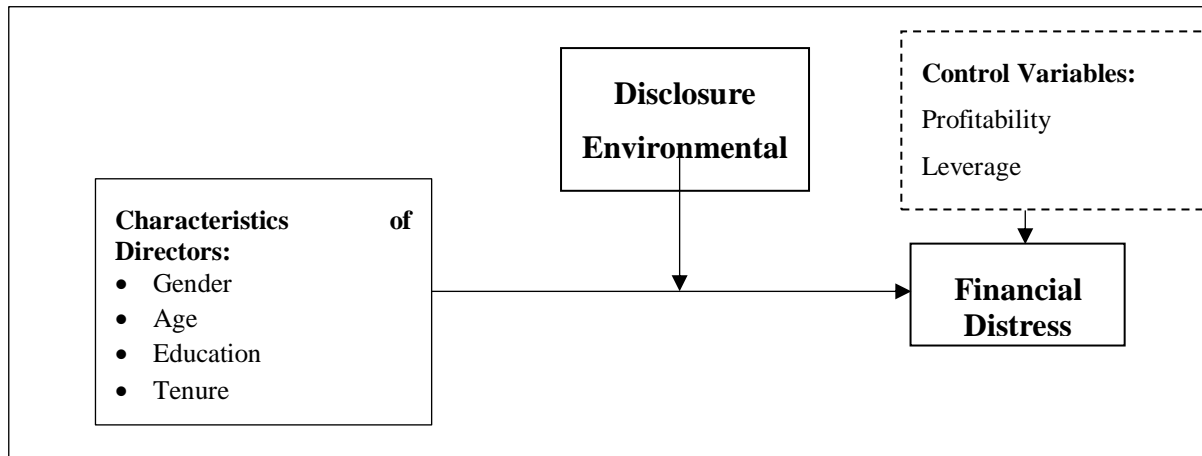
The Research Innovation Model Framework

Figure 1. Research Innovation Framework Model

Method

This study adopts the causal research method to explore the causal relationship between board characteristics, environmental disclosure, and financial distress in property & real estate sector companies on the Indonesia Stock Exchange for the period 2019-2022. The study population consists of all property & real estate sector companies listed on the IDX during the period. Sampling was carried out using purposive sampling method Sekaran Bougie (2016), with criteria including companies that are consecutively listed on the IDX, publish financial reports and annual reports, and have complete data related to variable measurements during the study period. The sample estimation results show that of the 45 companies that are not consecutively listed on the IDX, none meet the research criteria. In contrast, one company met all the research criteria, so the total research sample over a four-year period was 176 companies. By using this non-random sampling method, it is expected that the study can provide a representative picture of the relationship between board characteristics, environmental disclosure, and financial distress in the context of the property & real estate sector in Indonesia.

Variabel Instrument

This study uses secondary data obtained from financial reports and annual reports of companies published on the Indonesia Stock Exchange and related company websites (Sebrina et al. 2023). The data used is panel data that combines cross section and time series data (Feng, Gao, and Peng 2019).

The research variables consist of financial distress, environmental disclosure, board of directors characteristics, and control variables. Financial distress is identified using Altman's Z-score as an indicator, which is measured by a ratio that includes working capital, retained earnings, EBIT, market value of equity, and sales to total assets (Altman et al. 2017).

Environmental disclosure is measured using the CSR Index which refers to the Sustainability Reporting Guidelines (SRG) of the Global Reporting Initiative (GRI), with a total of 139 disclosures (Dwianto et al. 2024; Xie, Nozawa, and Managi 2020).

Directors' characteristics consist of board gender diversity, age, education, and tenure (Kanakriyah 2021). Board gender diversity is measured as the ratio of female board composition divided by the total board of the company. Directors' age is measured based on the CEO's biological age, while directors' education is categorized as undergraduate or postgraduate. Tenure is measured based on the length of the CEO's tenure. Control variables include profitability measured by Return on Assets (ROA), leverage measured by Debt to Equity Ratio (DER), liquidity measured by Current Ratio (CR), and firm size measured by LN Total Asset (Chabachib et al. 2019; Jihadi et al. 2021; Uyar 2021).

Inferential and descriptive statistics were employed in the data analysis for this investigation. Utilising descriptive statistics allows for the useful organisation, summarization, and presentation of data, including the standard deviation, average, minimum, and maximum values of the secondary data that was employed. In the meantime, secondary data are estimated by inferential statistics to enable statistical decision making. Using the Smart PLS software version 9, moderate regression analysis methods were used to analyse the data (Akanmu et al. 2023).

Result and Discussion

Table 1. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DISTRESS	176	-.68	16.62	2.0298	2.56084
CSR	176	.06	.57	.2457	.12862
GENDER	176	.00	1.00	.1724	.18812
AGE	176	35.00	77.00	57.3750	9.60097
EDU	176	1.00	2.00	1.3182	.46710
TENUR	176	1.00	5.00	3.1193	1.24784
ROA	176	-.38	.43	.0065	.06699
LEV	176	-21.06	8.99	.6643	2.25692
LIK	176	.14	24.89	3.0659	3.49522
SIZE	176	24.85	31.81	29.2227	1.53503

Source; Processed by the author SmartPLS.3 method

Descriptive statistics data are shown in Table 2. The financial distress variable is known to have an average value of 2.0298. This indicates that, generally speaking, companies in the property and real estate sector listed on the IDX between 2019 and 2022 did not have financial difficulties. The average value of the CSR disclosure variable was 0.2457, indicating that 24.57% of all disclosures made between 2019 and 2022 by companies in the property and real estate sector listed on the IDX were CSR disclosures. Board gender diversity, a variable characteristic of the board of directors, yielded an average value of 0.1724, indicating that 17.24 percent of the board members in businesses in the property and real estate sector listed on the IDX between 2019 and 2022 are female. The average age of the board of directors of property and real estate sector companies listed on the IDX during 2019-2022 was 57.37 years. The average value of the board of directors' characteristics variable, as measured by educational background, was 1.32. This indicates that the majority of directors in property and real estate sector companies listed on the IDX from 2019 to 2022 had obtained an undergraduate education. The average tenure of the board of directors in property and real estate sector companies listed on the IDX during 2019-2022 is 3.12, indicating that the directors have worked for an average of 3 years.

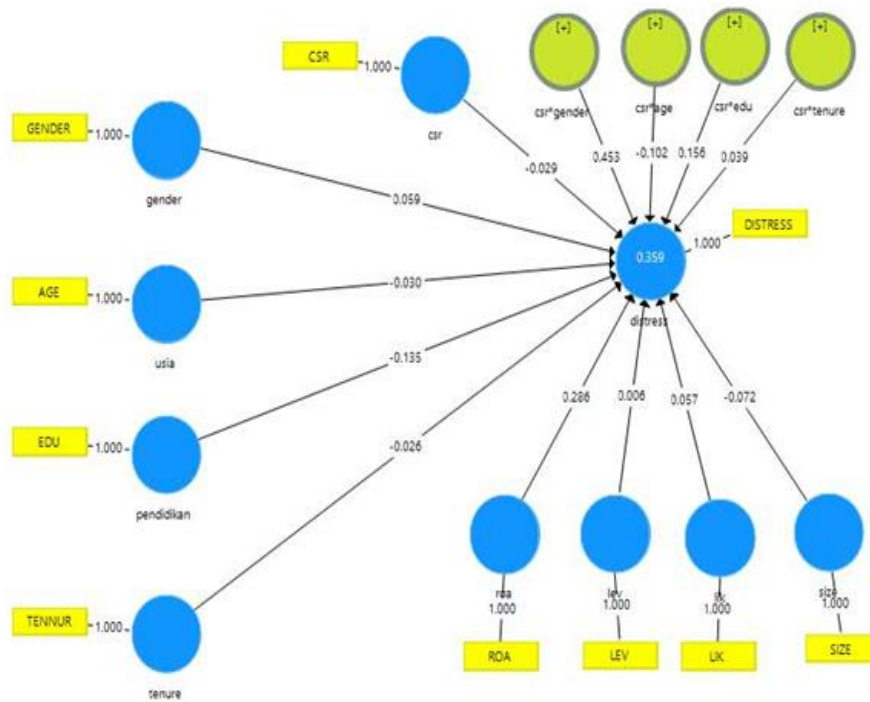


Figure 1. Outer Model

Convergent Validity

An outer model was developed for the independent variables with outer loading values greater than 0.7 (1,000). This indicates that all the data used for calculating variables are reliable and have demonstrated convergent validity, as shown in Table 2.

Table 2. Outer Weight Test Results

	csr	csr* age	csr* edu	csr* gender	csr* tenure	distress	gender	lev	lik	Education	roa	size	tenure	usia
AGE														1.000
CSR	1.000													
DISTRESS						1.000								
EDU										1.000				
GENDER							1.000							
LEV								1.000						
LIK									1.000					
ROA											1.000			
SIZE												1.000		
TENNUR													1.000	
gender * csr				0.998										
pendidikan * csr			1.073											
tenure * csr					1.019									
usia * csr		1.047												

Source; Processed by the author SmartPLS.3 method

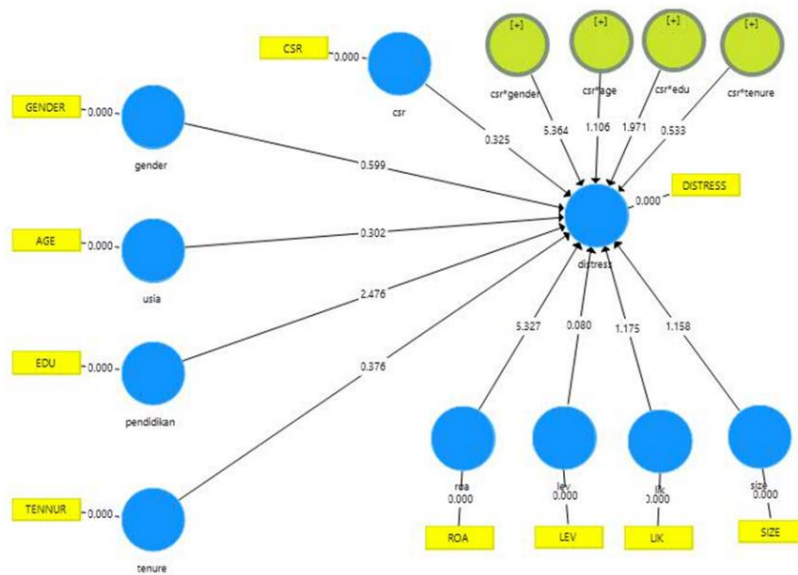
Table 3. shows that all constructs have an outer loading value <0.7, which means that all constructs are declared valid and meet convergent validity. Because all indicators that measure the construct have met convergent validity, so they can be used in hypothesis testing.

Multicollinearity

Table 3. Multicollinearity Test Results

Variable	VIF
AGE	1.000
CSR	1.000
DISTRESS	1.000
EDU	1.000
GENDER	1.000
LEV	1.000
LIK	1.000
ROA	1.000
SIZE	1.000
TENNUR	1.000
gender * csr	1.000
pendidikan * csr	1.000
tenure * csr	1.000
usia * csr	1.000

Source; Processed by the author SmartPLS.3 method



Figur2. Inner Model

Inner Model R-Square

Table 4. R-Square Result

	R Square	R Square Adjusted
distress	0.359	0.307

Source; Processed by the author SmartPLS.3 method

With an Adjusted R-Square value of 0.307 for DISTRESS in Table 5, it can be concluded that 30.7% of the variance in financial distress can be accounted for by the variable qualities of directors and the control factors, which include profitability, liquidity leverage, and firm size.

Path Coefficient

Table 5. Path Coefficient Test Results

VR	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Csr -> F distress	-0.029	-0.048	0.090	0.325	0.745
Csr*age ->F distress	-0.102	-0.089	0.093	1.106	0.269
Csr*edu -> F distress	0.156	0.172	0.079	1.971	0.049
Csr*gender -> F distress	0.453	0.442	0.084	5.364	0.000
Csr*tenure -> F distress	0.039	0.026	0.073	0.533	0.595
Gender -> F distress	0.059	0.037	0.099	0.599	0.550
Lev -> F distress	0.006	-0.002	0.075	0.080	0.937
Liquidity -> F distress	0.057	0.043	0.049	1.175	0.241
Education -> F distress	-0.135	-0.131	0.054	2.476	0.014
ROA -> F distress	0.286	0.303	0.054	5.327	0.000
Size -> F distress	-0.072	-0.080	0.062	1.158	0.248
Tenure -> F distress	-0.026	-0.034	0.068	0.376	0.707
Age -> F distress	-0.030	-0.007	0.098	0.302	0.763

Source; Processed by the author SmartPLS.3 method

Based on the findings in Table 6, the characteristics of the board of directors have a significant negative impact on the company's financial distress condition. This result confirms that the better the educational background of directors, the lower the likelihood of financial distress. This is consistent with the findings of Dionne et al. (2019) which show that control over educational qualifications can increase the chances of reaching the top position in corporate management and that educational background and social class also have a significant influence. The implication is that encouraging diversity policies that favor the participation of highly educated directors can improve efficiency and financial stability, consistent with the findings of (Issa, Sahyouni, and Mateev 2024).

The research also highlights the importance of other director characteristics, such as extensive industry experience and expertise in strategic decision-making, in accelerating career advancement in a competitive business environment. In addition, higher education in directors can also prepare them to deal with complex information and threats from competitors, as suggested (Zaidi, Azouzi, and Sadraoui 2021). However, there are studies that show a different point of view, such as the findings of García and Herrero (2021) who state that having a small and independent board of directors with a high ratio of female directors can reduce the likelihood of financial distress. In addition, variables such as managerial ownership, organizational age, and the use of performance management tools may also influence an organization's response to financial uncertainty, as observed in (Mosley, Maronick, and Katz 2012). Related to the economic crisis, research shows that the presence of women on the board, leverage, and free cash flow measures have a more significant impact on firm performance in times of economic hardship, as found by (Vieira 2020). This suggests that the variability of certain factors depends on the economic conditions at the time. In conclusion, board characteristics related to composition and independence are not enough to align

shareholders' interests and are not sufficient to avoid or even reduce financial distress in the company, especially if other factors are ignored, in accordance with the findings of (Freitas Cardoso, Peixoto, and Barboza 2019).

The moderation test results show that Corporate Social Responsibility (CSR) disclosure has a role in moderating the effect of CEO gender and CEO education on the company's financial distress. This finding indicates that environmental disclosure can strengthen the ability of female directors and CEOs with higher educational backgrounds in reducing the likelihood of financial distress. This finding is in line with Agostini (2018) research, which found that strong Corporate Social Performance (CSP) is positively associated with CEOs who have an educational background in the humanities, extensive career experience, and are female.

In addition, research by Kahloul et al. (2022) found that CSR reporting has a neutral effect on firm performance measured by Tobin's Q, but has a negative effect when measured by Return on Assets (ROA), which supports the trade-off hypothesis. This finding is reinforced by the results of Dwianto (2024b), who found that CSR reporting can improve firm financial performance. Thus, this study provides theoretical and empirical insights into the issue of gender diversity in relation to CSR. Meanwhile, in testing the control variables, it is known that only profitability as measured by ROA has a significant effect on financial distress, while leverage, liquidity, and company size do not have a significant effect. This finding is consistent with several previous studies Li et al. (2021), Tang et al. (2016), which highlight the importance of profitability in influencing the company's financial distress. In the context of legitimacy theory, CSR disclosure can be viewed as companies' efforts to maintain their legitimacy in the eyes of stakeholders by demonstrating social and environmental responsibility (Dwianto 2024c). By strengthening the role of female directors and CEOs with higher education in reducing financial distress, CSR disclosure can also be an important instrument in strengthening firms' relationships with stakeholders and building public trust. However, it is also important to remember that CSR disclosure must be authentic and genuine, not just a strategy to meet external demands, in order to have a significant positive impact on firm performance and overall social welfare (Nejla Ould Daoud Ellili 2022; Xie et al. 2020; Zhao 2021).

Conclusion

The investigation leads to the conclusion that a company's financial hardship is significantly influenced by the calibre of the company's board of directors, particularly their educational background. This discovery aligns with other research indicating that the educational qualifications of directors play a crucial role in forecasting financial difficulties. Furthermore, the influence of gender and CEO education on financial suffering might be lessened with the aid of CSR disclosure. Nevertheless, the age and term of the CEO do not have a noteworthy impact on financial hardship. Financial distress is influenced by additional control factors, such as profitability as measured by return on assets (ROA). Leverage, liquidity, and business size, among other characteristics, had no discernible impact. Hence, enhancing the educational attainment of directors and promoting the transparency of CSR disclosure can serve as a potent approach to mitigate company financial risk.

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