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Research Paper

Corporate Governance and Its Relationship with the Working Capital Management in Europe

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ABSTRACT

This study aims to investigate the impact of corporate governance on working capital management, which has been relatively overlooked despite its significance on corporate performance. Using the Ordinary Least Square regression model, a model was developed to assess the relationship between dependent and independent variables. Secondary data from the annual reports of 42 non-financial firms listed on the Frankfort and Oslo stock exchanges from 2017 to 2021 were collected. The dependent variable, working capital management, is indicated by cash holding, while the independent variable, corporate governance, is measured through five proxies: board meeting, board remuneration, the board size, CEO remuneration, and CEO tenure. Leverage and firm size are involved as control variables. The findings revealed that board meetings, board remuneration, CEO remuneration, and CEO tenure exhibit a positive and significant relationship with working capital management. However, board size demonstrated a negative but insignificant relationship. Additionally, the study showed that leverage has a negative relationship, while firm size has a positive relationship with working capital management. In conclusion, the study suggests that future research should focus on the financial sector to conduct comparative analyses with other sectors.

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Introduction

Over the last two decades, effective working capital management has become crucial for businesses to navigate through crises (Jamalinesari & Soheili, 2015). It deals with asset and liability management. Working capital includes significant elements, such as cash conversion efficiency, cash holding, inventory, payables, and receivables for daily operations (Gill & Biger, 2013; Isshaq et al., 2009). According to Ganesan (2007), by effectively managing these elements, companies can reduce their working capital requirements, leading to increased free cash flow. However, poor corporate governance mechanism brings ineffective management of working capital and this has an adverse effect on shareholders' value (Gill & Biger, 2013). Hence, strong governance enables managers to utilize the company's resources efficiently and effectively (Abdullah & Tursoy, 2023).

Corporate governance plays a vital role in establishing effective regulations for managing working capital. It encompasses various factors such as the audit committee, CEO duality, CEO tenure, board size, board meetings, and directors' remuneration (Coleman et al., 2020; Gill et al., 2012). A well-designed working capital management policy determined by corporate governance can significantly impact a company's overall performance and profitability. On the other hand, the financial decisions made by the company's supervisory board regarding working capital strategy have implications for the company's borrowing and obligations. Companies are much more aggressive in managing current obligations if they are focusing on using more liabilities, which places the company at higher risk. Therefore, the governing board implements an investment strategy with a lower allocation of funds in quick assets compared to non-current assets (Coleman et al., 2020).

Moreover, the cost related to holding cash presents an opportunity for investing in tangible assets (Gill & Biger, 2013; Jamalinesari & Soheili, 2015). This approach has advantages such as reducing financial distress and minimizing the costs of raising capital through external sources (Ferreira & Vilela, 2004). According to the pecking order theory proposed by Myers (1984), companies should prioritize funding investments using retained earnings and internal financing, including cash, before turning to risk-free or risky loans, and finally resorting to issuing new stocks. This approach helps to mitigate the costs related to information asymmetry and other expenses.

Maintaining an adequate level of liquidity within the company is crucial for its smooth operation (Afza & Adnan, 2007). The amount of cash a company holds is determined by factors such as working capital requirements, dividend policy, investment levels, cash flow management, and asset management (Opler et al., 1999). Therefore, the supervisory board and CEO should take responsibility for establishing strategies for receivable, payable, inventory management, managing cash, and other strategies for the benefit of the corporation. Numerous studies have investigated the relationship between corporate governance and working capital management. Scholars (i.e. Coleman et al., 2020; Goel et al., 2015; Hamood et al., 2022; Kengatharan & Tissera, 2019; Naz et al., 2022) argued that corporate governance factors, including board meetings, the presence of independent directors, board size, CEO tenure, independent members of the audit committee, and CEO remuneration, significantly influence the effectiveness of working capital management. Narwal and Jindal (2018) describe that that increasing the board size, board meetings, and director salary will increase the companies' profitability. In addition,

researchers such as Wirianata et al. (2023); Zariyawati et al. (2016); Aizyadat (2022); and Orens and Reheul (2013) also claimed that the most important variables that influence working capital management are corporate performance, firm leverage, expenditure on capital, operational cash flow, CEO and board characteristics, and economic circumstances as well. Additionally, they observed that working capital management choices are made differently by managers of small and large enterprises.

Although the existing research has extensively examined the effect of corporate governance on working capital management, however, to our knowledge, no research has specifically examined this relationship in Europe, particularly in non-financial firms. Shahid et al. (2020) proffer that there are only a few studies that have explored the relationship between corporate governance mechanisms and working capital management. Hence, the current study aims to offer new perspectives by performing sophisticated modeling of the relationship and comparing the results with earlier studies. This study concentrates on assessing the effect of corporate governance on the management of working capital by focusing on non-financial listed firms that are listed on Frankfort and Oslo stock exchanges. Despite previous studies that have measured corporate governance through similar proxies, this paper, however, examined the effect of corporate governance on the efficiency of working capital management by applying different measurements of corporate governance, including board meetings, board remuneration, the board size, CEO remuneration, and CEO tenure. Previous studies have neglected the potential impact of factors like leverage on the relationship between working capital (Mahmood et al., 2019). Thus, this study incorporates leverage and firm size as control variables. This approach offers a novel perspective on the impact of corporate governance on working capital management in a new context.

Hypotheses Development

Board Meetings and Working Capital Management

Regular board meetings have been suggested to enhance the effectiveness of the board (Zhang et al., 2007). Kamel (2015) also argued that frequent supervisory board meetings play a significant role in improving shareholders' interests, leading to potential benefits for firms (Kyereboah-Coleman, 2008). The study also claimed that when board meetings increase in frequency, members of the board become more successful at carrying out their duties, including creating regulations concerning working capital requirements, which leads to prepare an effective strategy for working capital management (Kyereboah-Coleman, 2008). However, the control and efficiency of the supervisory board cannot be improved by regular board meetings as the most of time would be spent in meetings compared to serving stakeholders' interests (Idress et al., 2022). Prior studies give mixed results on the relationship between board meetings and working capital management. While Kengatharan and Tissera (2019) found a positive relationship between frequent board meetings and working capital management, Al-Rahahleh (2016) and Idress et al. (2022) found that board meetings negatively affect working capital management. Meanwhile, Ali and Shah (2017) found no significant relationship between the two. Hence, the first hypnosis is developed as follows:

H1: *Board meetings negatively related to working capital management in Europe.*

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Board Remuneration and Working Capital Management

In addition to factors such as board size, CEO tenure, board meetings, and CEO remuneration, another important aspect to consider is director remuneration. Liu and Mauer (2011) highlighted that that director remuneration typically includes components such as basic salary, bonuses, pensions, and other forms of benefits. Ozordi et al. (2019) claimed that directors are motivated and satisfied by compensation, which has a significant impact on the value of the firm. This means that, if the supervisory board is well compensated, agency conflict can be reduced (Eluyela et al., 2018) and stakeholders' wealth is positively correlated (Santosuosso, 2015). Literature, such as studies conducted by Basheer (2014); Indjejikian (2007); Liu and Mauer (2011), and Thuy and Duc (2013) found a positive relationship between board remuneration and cash holdings. Conversely, Kuan et al. (2011) demonstrated a negative relationship, while Ozordi et al. (2019) claimed a non-significant relationship between board remuneration and cash management. Given the arguments presented above, the second hypothesis can be formulated as follows:
H2: *Board remuneration positively related to working capital management in Europe.*

Board Size and Working Capital Management

The size of the supervisory board significantly impacts the directors' ability to control and supervise managers (Anderson et al., 2004). Larger board size is often seen as beneficial due to the diverse knowledge and experience it brings, enabling effective decision-making and improving firm performance (Coleman et al., 2020). Achchuthan and Kajananthan (2013) conducted a study highlighting the substantial variation in working capital efficiency across different board structures. Gill et al. (2012) and Jamil et al. (2016) have also found a positive relationship between board size and cash holding. However, other studies such as those conducted by Drobetz and Grüninger (2007) and Gill and Biger (2013) tested the relationship between board size and cash holding management and found a negative but insignificant relationship. Similarly, Aizyadat (2022) reported a negative relationship between the above relationship. Based on these explanations, the third hypothesis is proposed as follows:
H3: *Board size negatively related to working capital management in Europe.*

CEO Remuneration and Working Capital Management

In corporate governance, CEO remuneration plays a crucial role as it must be designed in a way that is compelling enough to encourage CEOs to manage the firms successfully (Harymawan et al., 2020). Thus, the role of the remuneration committee (RC) is crucial in governing and controlling the supervisory board and executives. A well-functioning RC ensures that the compensation plan, including fixed salary, honorarium, bonuses, and benefits, is carefully designed to enhance the firms' performance. Establishing a well-functioning RC can reduce information asymmetry and agency costs as well (Harymawan et al., 2020). In addition, inadequate executive remuneration can impact management decisions, which in turn affects working capital management (Zariyawati et al., 2016). This means that working capital efficiency could be determined by CEO remuneration. Previous research has yielded mixed findings on the relationship between CEO remuneration and working capital management. Palombini and Nakamura (2012) have found a negative relationship between CEO remuneration and working capital

management. However, Liu and Mauer (2011) observed a positive and significant relationship between the above variables. Therefore, the fourth hypothesis is developed as follows:

H4: *CEO remuneration positively related to working capital management in Europe.*

CEO Tenure and Working Capital Management

The tenure of a CEO has been the subject of research regarding its impact on firm performance and cash holdings. Dou et al. (2015) suggest that a long CEO tenure allows for the achievement of long-term goals and improves the prospects for sustained business growth. This is because CEOs with extensive tenure possess valuable knowledge, expertise, and experiences that contribute to their effectiveness over time (Lim & Lee, 2019). This, in turn, is related to better long-term performance (Fernández-Temprano & Tejerina-Gaite, 2020). However, findings from previous studies display contradicting results. Lim and Lee (2019) found that long CEO tenure between Korean publicly traded companies is related to lower excess of corporate cash holdings, while short CEO tenure has just a minimal effect on excess cash holding efficiency. Similarly, Orens and Reheul (2013) found a positive and significant relationship between CEO tenure and cash holdings. However, Suherman et al. (2021) found a negative relationship, and Al-Rahahleh (2016) indicates no relationship between the above variables. Therefore, the fifth hypothesis is developed as follows:

H5: *CEO tenure positively related to working capital management in Europe.*

Method

Research Design

Using the Ordinary Least Square regression model, a model was developed to assess the relationship between dependent and independent variables. The dependent variable in this study is cash holding, which is calculated by a natural logarithm of average cash and this follows the studies of Ali and Shah (2017) and Ozordi et al. (2019).

To examine the influence of corporate governance on working capital management, this study employed five proxies of corporate governance. These proxies were identified based on previous research (Al-Rahahleh, 2016; Basheer, 2014; Kengatharan & Tissera, 2019; Aizyadat, 2022; Orens & Reheul, 2013; Thuy & Duc, 2013). The first proxy, board meetings, was measured by the number of supervisory board meetings held within a year. The second proxy, board remuneration, was measured using the log of board remuneration. The third proxy, board size, was determined by the number of supervisory boards of directors including the chairman. The fourth proxy, CEO remuneration, was measured using the log of CEO remuneration. Finally, the fifth proxy, CEO tenure, was assessed by calculating the number of years the CEO had served in their position

In addition to the proxies of corporate governance, this study also considered certain control variables that could potentially influence the relationship between corporate governance and working capital management. Two control variables were included: financial leverage and firm size. Financial leverage indicated as a ratio of total debt to total assets and firm size is calculated by a lag of the company's total assets (Coleman et al., 2020; Kamel, 2015; Paniagua et al., 2018). Table 1 describes all variables.

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Table 1. Variable Description

Variables	Abbreviation	Measurements
Dependent variables:		
Cash holding	CH	Log of average cash
Independent variables:		
Board Meeting	BM	Number of supervisory board meetings in a year
Board Remuneration	BR	Natural logarithm of board remuneration
Board Size	BS	Number of board directors
CEO Remuneration	CEOR	Natural logarithm of CEO compensation
CEO Tenure	CEOT	Number of years that the CEO served in this position
Control variables:		
Firm Size	FS	Natural logarithm of total assets
Financial Leverage	LEV	The ratio of total debt to total assets

Based on Table 1, the study model is:

$$CH_{it} = a_0 + \beta 1 BM_{it} + \beta 2 BR_{it} + \beta 3 BS_{it} + \beta 4 CEOR_{it} + \beta 5 CEOT_{it} + \beta 6 FS_{it} + \beta 7 LEV_{it} + e_{it}$$

Where, CH_{it} is average cash from i at t time, BM_{it} is board meetings from i at t time, BR_{it} is board remuneration from i at t time, BS_{it} is board size from i at t time, $CEOR_{it}$ is CEO remuneration from i at t time, $CEOT_{it}$ is CEO tenure from i at t time, FS_{it} is a firm size from i at t time, LEV_{it} is financial leverage from i at t time, a_0 is considered to be a constant, $\beta 1 - \beta 5$ is coefficients for corresponding the explained variables and e_{it} is error term from i at t time.

Data Sources

This present study used panel data of non-financial firms that were listed on the Frankfort and Oslo stock exchange from 2017 to 2021. Data in this research is based on secondary data and extracted from annual financial reports. To ensure data integrity, firms with substantial missing financial data were excluded from the analysis, resulting in a final sample of 50 non-financial firms from both Germany and Norway.

Results

Descriptive Statistics

Table 2 shows the descriptive statistics of the dependent and independent variables of this research.

Table 2. Descriptive Statistics of the Variables

Variables	CH	BM	BR	BS	CEOR	CEOT	LEV	FS
Mean	19.14376	6.785714	13.48062	9.081340	14.34009	6.861905	0.538538	21.41155
Std. Dev.	1.680279	4.027036	0.980439	4.275162	0.892333	6.637574	0.185459	2.100731

Minimum	15.29027	1.000	11.30220	3.000	11.80506	0.5000	0.089711	16.80361
Maximum	23.36525	21.000	16.03806	22.000	16.78930	33.000	0.956989	25.73555
Observations	210	210	210	210	210	210	210	210

Table 3 presents the results of the multicollinearity test. Studies by Abebe Zelalem et al. (2022) and Gujarati and Porter (2009) suggest that multicollinearity issues can be considered when the tolerance value is ≤ 0.1 and the value of VIF is ≥ 10. In this paper, as illustrated in Table 3, the tolerance value is greater than 0.1 and the value of VIF is lower than 10, which means there are no issues regarding multicollinearity.

Table 3. Multicollinearity test

Variables	Tolerance Value	VIF Value
BM	0.595	1.679
BR	0.466	2.145
BS	0.395	2.530
CEOR	0.766	1.304
CEOT	0.892	1.120
Mean = 3.116		

Correlation analysis

Table 4 demonstrated the correlation matrix between dependent (working capital management) and independent (corporate governance) variables. The results indicate that board meetings, the board size, CEO remuneration, and financial leverage have a positive and significant relationship with working capital management at a 1% significance level with a value of 0.195, 0.522, 0.550, and 0.315 respectively. Furthermore, at a significance level of 5%, board remuneration, and firm size are also positively related to working capital management, with correlation coefficients of 0.694 and 0.880, respectively. On the other hand, CEO tenure has a negative relationship with working capital management at a significance level of 10%, with a correlation coefficient of -0.124.

Table 4. Pearson correlations

	CH	BM	BR	BS	CEOC	CEOT	LEV	FS
CH	1							
BM	0.1954***	1						
BR	0.6949**	0.1979**	1					
BS	0.5220***	0.0807	-0.5912*	1				
CEOR	0.5506***	-0.2102*	-0.7247*	-0.3451*	1			
CEOT	-0.1242*	-0.0429	-0.2194*	-0.186**	-0.1377*	1		
LEV	0.3156***	-0.1408*	-0.1390*	0.467**	0.0444	-0.070*	1	
FS	0.8801**	0.2108**	0.6941*	0.573*	0.5380*	-0.105*	0.3724*	1

*Notes: *** Significant at 1% level; ** Significant at 5% level and * Significant at 10% level*

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Panel Regression

Table 5 presents the results of the panel regression analysis conducted for the estimation. The F-statistics illustrates that the model has an adequate level for the explanatory variables and the regression created an adjusted R^2 of 0.919. This shows that the corporate governance measurements and control variables are explained by 91.9% of working capital management in the case of German and Norway non-financial listed firms.

The findings of this study reveal a positive and statistically significant relationship between board meetings and working capital management, as indicated by the coefficient of 0.045 for cash holding. Assuming that other variables remain constant, this suggests that a 1% increase in board meetings is related to a 4.5% improvement in cash holding, as measured by the dependent variable. In other words, when the supervisory board meets frequently, the management of working capital can be improved. Hence, the first hypothesis that board meetings are negatively related to working capital management in Europe is rejected.

Next, the analysis reveals a positive relationship between board remuneration and working capital management, as indicated by the coefficient of 0.298 for cash holding. Holding other variables constant, a 1% increase in board remuneration leads to a 29.8% increase in cash holding, as measured by the dependent variable. This implies that higher levels of board remuneration are related to improved management of working capital. Supporting this, the second hypothesis that board remuneration is positively related to working capital management in Europe is accepted.

The analysis also revealed that the relationship between board size and working capital efficiency is negative and insignificant with a coefficient of -0.011. This suggests that board size does not have any influence on the management of working capital.

In addition, the relationship between CEO remuneration and management of working capital is positive and significant with a coefficient of 0.162. This means that the fourth hypothesis is accepted. Assuming that other variables remain constant, this simply recommends a 1% increase in CEO remuneration given an increase in cash holding by 16.2% as it is calculated by the dependent variable. This means that an adequate level of CEO remuneration plays an important role in management judgments which affect working capital management and firm performance.

The relationship between CEO tenure and working capital management shows a positive and significant relationship with a coefficient of 0.020. Consider if other variables remain constant, a 1% rise in CEO tenure leads to a rise of 2% in cash holding as it is determined by the dependent variable. Thus, the fifth hypothesis that CEO tenure is positively related to working capital management in Europe is accepted.

Table 5. Ordinary Least Squares regression

Cross-section random effects test equation:
Dependent Variable: CH
Method: Panel Least Squares
Cross-sections included: 42
Total panel (unbalanced) observations: 210

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BM	0.045565	0.020780	2.192756	0.0298**
BR	0.298564	0.165490	1.804119	0.0431**
BS	-0.011971	0.038170	-0.313620	0.7542
CEOR	0.162248	0.100239	1.618616	0.1075*
CEOT	0.020340	0.012439	1.635150	0.0540**
LEV	-0.634612	0.397117	-1.598050	0.1120*
FS	0.460987	0.098852	4.663392	0.0000***
C	2.921477	2.979560	0.980506	0.3283
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.938207	Mean dependent var		19.13941
Adjusted R-squared	0.919669	S.D. dependent var		1.683131
F-statistic	50.60982	Durbin-Watson stat		1.532688
Prob(F-statistic)	0.000000			

*Notes: *** Significant at 1% level; ** Significant at 5% level and * Significant at 10% level*

Discussion

Regular and frequent meetings of the supervisory board have been found to have a positive relationship with the management of working capital, leading to improved efficiency in this aspect. This finding is similar to the argument of Kengatharan and Tissera (2019) and Narwal and Jindal (2018) that there is a positive relationship between frequent board meetings and working capital management. A study conducted by Zhang et al. (2007) indicates that regular board meetings have been suggested to enhance the effectiveness of the board since it improves shareholders' interests, leading to potential benefits for firms (Kyereboah-Coleman, 2008). The results of this study is inconsistence with the studies conducted by Al-Rahahleh (2016), Ali and Shah (2017), and Kamau and Basweti (2013) describing that board meetings negatively affect working capital management.

An adequate level of CEO remuneration plays an important role in management judgments which affects working capital management and firms' performance (Zariyawati et al., 2016). This finding of this study is in line with the result of a previous study (Liu & Mauer, 2011). However, Palombini and Nakamura (2012) found a negative relationship between CEO remuneration and cash holding as an indicator of working capital management. When the remuneration works with the interest of the board of directors, firm value can be enhanced and thus, agency issues can be reduced (Eluyela et al., 2018; Ozordi et al., 2019). This result is consistence with previous investigations (Basheer, 2014; Liu & Mauer, 2011; Thuy & Duc, 2013). However, it is the opposite of a study by Kuan et al. (2011) and Ozordi et al. (2019).

Board size is negatively related to working capital management in Europe. This finding is similar to previous studies (Drobetz & Grüninger, 2007; Gill & Biger, 2013) claimed that the relationship between board size and cash holding is negative and non-significant. Previous studies also indicate no relationship between board size and working

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capital efficiency (Kamau & Basweti, 2013). It is worth noting that while a larger board size may face challenges in reaching a consensus in decision-making, it can also bring diverse and valuable resources to the table, which can contribute to effective and efficient management decision-making. In the context of the global business environment, larger boards may encounter both direct and indirect challenges (Kengatharan, & Tissera, 2019). On the other hand, Aizyadat (2022) and Narwal and Jindal (2018) reported a positive and significant relationship between board size and working capital management. Board of director holds a substantial role in working capital management efficiency (Sathyamoorthi et al., 2018) that a larger board size decreases net working capital holding but boosts efficiency (Kumpamool & Chancharat, 2022).

CEO remuneration is positively related to working capital management in Europe. A previous study (Liu & Mauer, 2011) also found a positive relationship between CEO remuneration and cash holdings. This is due to the fact that when the CEOs have long tenure firms' commitment can be obtained for a long term that have a direct impact on managing of working capital (Dou et al., 2015). Narwal and Jindal (2018) suggest that a director's remuneration is significantly related to profitability. In contrast to the positive relationship between board remuneration and cash management, Palombini and Nakamura (2012) discovered a negative relationship between CEO remuneration and working capital management. Their findings suggest that higher CEO remuneration may lead to poorer management of working capital

The result of this study is in line with previous studies conducted by Lim and Lee (2019) and Orens and Reheul (2013) that CEO tenure and cash holding have a positive relationship. As the tenure of a CEO extends, there is a tendency for a gradual accumulation of comprehensive experience, specialized expertise, and acquired knowledge over time (Darouichi et al, 2021; Graf-Vlachy et al., 2020; Huang et al. 2023). Conversely, Suherman et al. (2021) observed a negative relationship between the above variables. Kamau and Basweti (2013) also found no statistically significant relationship between CEO tenure and working capital management. Al-Rahahleh (2016), on the other hand, indicates no relationship between CEO tenure and capital management.

Lastly, to measure the study model, two control variables were employed, which are widely used in the context of working capital management. Prior research has shown that leverage has a negative relationship, while firm size has a positive relationship with working capital management (Mahmood et al., 2019). This finding aligns with the argument put forth by Coleman et al. (2020) that leverage is negatively related to capital structure and is statistically significant. However, these results contradict the study conducted by Dalci and Ozyapici (2018), which suggests that financial leverage plays a crucial role in effective working capital management. Furthermore, the relationship between firm size and cash holding, as an indicator of working capital management, is found to be positive and significant. This support previous studies (Jamil et al., 2016; Kamel, 2015). Kariuki et al. (2015) reveals that firm size positively determines corporate cash holding. Conversely, Magerakis et al. (2020) conducted a study that revealed a negative relationship between cash holdings and company size, offering support to the trade-off argument while contradicting the pecking order theory.

Conclusion

This paper aims to examine how corporate governance affects the management of working capital in non-financial listed firms on the Frankfurt and Oslo stock exchanges from 2017 to 2021. The empirical results indicate that board meetings, board remuneration, CEO remuneration, and CEO tenure have a positive and significant relationship with working capital management. This suggests that decisions regarding cash holding can be influenced by the supervisory board and executives, who become more motivated to enhance company performance and increase their own wealth when they have a stake in the firm. Additionally, the study finds that board size has a negative correlation with cash holding, indicating that the size of the supervisory board does not relate to working capital improvement

However, it is important to note some limitations of this study. Firstly, the data used in this research were collected exclusively from non-financial listed firms on the Frankfurt and Oslo stock exchanges, which limits the generalizability of the findings to other industries. Nonetheless, the results obtained in this study remain relevant and provide valuable insights. Future studies could focus on the financial sector and conduct comparative analyses across different fields related to the topic. Secondly, it is crucial to explore how these results can be applied to companies outside of the European context. Key variables such as the proportion of outside directors, CEO duality, ownership concentration, and board composition should also be considered. Lastly, the practical implementation of these findings may encounter challenges. For instance, while board size might directly impact working capital management in one company, it may not have the same effectiveness in another firm.

Authors' Declaration

The authors made substantial contributions to the conception and design of the study. The authors took responsibility for data analysis, interpretation and discussion of results. The authors read and approved the final manuscript.

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