Determinant factors of cash holdings in manufacturing companies listed on the Indonesia Stock Exchange

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ABSTRACT

This study looks at how Ownership Structure, Net Working Capital, Company Size, and Leverage affect Cash Holdings in Manufacturing Companies for 2020-2024. The research uses quantitative methods and gathers data from annual reports during that time. Data was collected using purposive sampling, and multiple linear regression analysis with E-views 13.0 was used, leading to a sample of 45 manufacturing companies. The findings show that Family Ownership, Company Size, and Leverage have a significant negative impact on Cash Holdings, while Foreign Ownership does not have a significant effect on Cash Holdings. This research can help managers improve their cash management and assist investors in understanding how ownership structure, net working capital, company size, and leverage influence cash holdings.

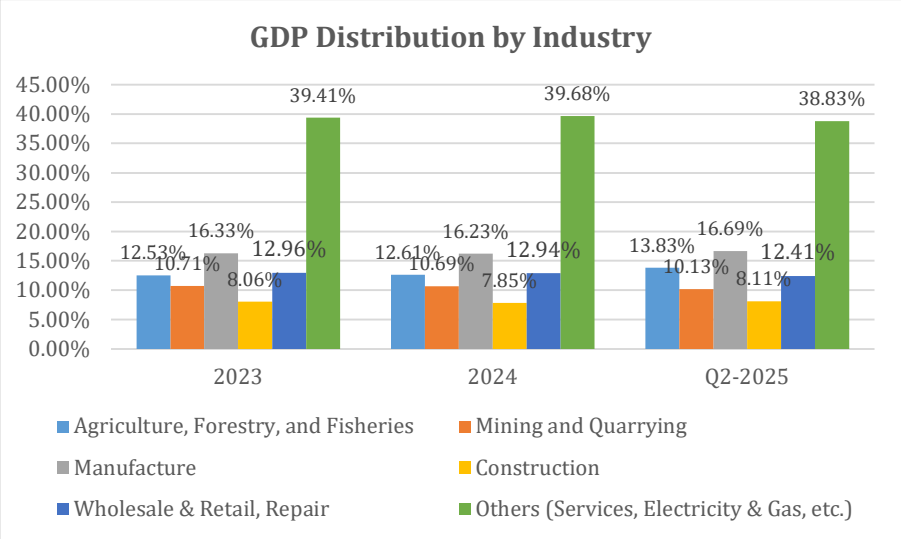
Keywords: *Cash Holdings; Company Size; Family Ownership; Foreign Ownership; Leverage; Net Working Capital*

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INTRODUCTION

The manufacturing industry plays a vital role in the pillars of the Indonesian economy (Nasir & Suripto, 2025). This sector has the largest industrial diversification consisting of food and beverages, chemicals, pharmaceuticals, medicines, transportation equipment, textiles and apparel, fisheries, and furniture, where each sector contributes to national income in different proportions.

The strategic position of the manufacturing industry is also reflected in recent empirical research. Azis et al (2026) demonstrated that manufacturing GDP growth has spatial interdependence across Indonesian provinces, with several regions emerging as manufacturing growth poles. These findings reinforce the importance of manufacturing activity in Indonesia's ongoing economic development. The contribution of the manufacturing industry to Indonesia's GDP is presented in Figure 1, which illustrates the distribution of GDP across economic sectors.



Source: Badan Pusat Statistik, 2025

Figure 1
Distribution of Gross Domestic Product by Industry

Figure 1 shows that the manufacturing sector contributes significantly to Indonesia's GDP compared to other sectors. In 2023, the manufacturing sector contributed 16.33% of total GDP, followed by 16.23% in 2024, and 16.69% in the second quarter of 2025. This contribution cannot be separated from the company's strategy in managing cash holdings as a meeting point between aggressive growth prospects and market uncertainty inherent in capital-intensive sector (Basiony et al., 2025). This is also supported by a study by Puteri et al. (2022), which stated that one of the indicators that triggers the ebb and flow of growth in a manufacturing company is the proportion of cash holdings by each company.

Cash holdings reflect internal financial and management strategies that influence firm value and shareholder wealth. In his research, Al Barak (2025) examined cash holdings as a key indicator in balancing risk and effectiveness to increase the value of 51 manufacturing companies in Saudi Arabia. Cash, as a liquid asset, plays a crucial role in internal capital management, operational activities, and the ability to cope with unforeseen circumstances. Therefore, many companies consider retaining a certain

proportion of cash to ensure liquidity. Effective cash management serves not only as a financial tool but also as a competitive strategy for companies (Çam & Gümrükçü, 2025).

Ownership structure is essential for controlling cash holdings, a role heavily influenced by the composition of investors in a company (Basiony et al., 2025). The research findings demonstrate that family ownership has become the dominant structure in Egyptian companies, with family ownership significantly positively influencing cash holdings. Companies with a large family investor base tend to hoard cash because family-dominated management tends to be more risk-averse to maintain control and ensure continuity and future liquidity challenges (Parrado-Martínez et al., 2024). Indonesia's uniquely family-oriented economy also contributes to the dominance of family ownership in its share structure, both directly and through controlling entities.

Foreign ownership plays a substantial role in facilitating governance and enhancing the effectiveness of cash policies (Thai & Hoang, 2024). Developing international relations has made it easier for foreign investors to invest in domestic companies across countries. As a developing country, Indonesia's independence on foreign investors is a key indicator of job creation and technology transfer. This finding is relevant to research by Thi et al. (2023) and Basiony et al. (2025) regarding the positive influence of foreign ownership as a determinant of cash holdings. The greater the foreign equity composition, the more cash the company retains for liquidation purposes. This finding is relevant to the dominance of foreign ownership in several manufacturing companies in Indonesia, which is higher than domestic ownership.

This study highlights a novel element as a differentiator and development from previous studies, namely net working capital as a determining variable. This is relevant to the study by (Çam & Gümrükçü, 2025), which examined net working capital as a determining indicator of cash holdings in 385 companies in Turkey and found a significant negative effect. Net working capital reflects the funds a company has to support daily operational activities, where high net working capital is able to substitute cash held by the company (Sumarauw et al., 2025). If a company has current assets that exceed its current liabilities, the need for cash as a liquidity buffer for daily operations is reduced (Rokhayati et al., 2024). Companies tend to hold large amounts of cash due to limited access to external financing, while excessively high net working capital can also lead to missed opportunities for profitable short-term projects.

Cash holdings can be determined by company size (Basiony et al., 2025). The study found that size positively influences cash holdings. A company's size is directly proportional to its asset level. Companies with high asset levels indicate large size, while companies with low asset levels indicate small size. Large companies tend to have easier access to external markets, eliminating the need to hoard cash as a liquidity buffer (Rokhayati et al. 2024). Furthermore, large companies also have diverse business units, which can reduce cash flow volatility and the need for cash retention.

Leverage reflects the use of debt, which can replace cash as an operational control tool. Therefore, Basiony et al. (2025) found that leverage positively affects cash holdings. According to Thai & Hoang (2024), cash holdings can be minimized if small companies have high leverage because companies tend to maximize the use of leverage to finance their business. High leverage allows companies to increase cash reserves to reduce risk and maintain financial stability (Sumarauw et al., 2025).

LITERATURE REVIEW, RESEARCH FRAMEWORK, AND HYPOTHESES

Cash Holdings

Cash is defined as the money available for use by an entity to finance operational and potential financial needs (Basiony et al., 2025). This indicates the importance of cash management for companies, which impacts strategic business decisions related to capital acquisition and external investment (Al Barak., 2025). Cash holdings include cash and cash equivalents that can be easily converted into cash quickly and are not susceptible to the risk of changes in value. A study by Alghadi et al. (2021) also confirmed that cash holdings can be seen by looking at the proportion of the most liquid assets among total current assets. Wise cash management decisions align with the company's goal of maximizing value. This is driven by the fact that companies don't always operate in perfect capital markets, where various transaction costs still exist, requiring them to maintain optimal cash holdings.

Family Ownership

Family ownership is categorized as a form of stock ownership structure. Businesses with dominant family ownership tend to prioritize family control, even if this option poses a high risk (Comino-jurado & Sonia, 2021). This control is one of the most relevant dimensions in cash management decision-making because it allows the owner to pursue interests based on legitimacy. The form of family contribution as ashareholder is synonymous with being part of the management and board of directors, or passively exertinginfluence through the controlling company. Siddiqua & Rehman (2025) found that family-owned companies are less aggressive in achieving the target of maximum cash ownership rates than non-family-owned companies or companies with low family ownership. Companies in developing countries typically have weak shareholder protection and domineering family controls, furthermore, members' chances of taking personal advantage of cash reserves are increasing (Moolchandani & Kar, 2022). This will trigger agency conflicts and negative sentiments from other investors.

A study conducted by Basiony et al. (2025) on Egyptian companies found that family ownership positively impacts cash holdings. This finding is relevant to studies by Parrado-Martínez et al. (2024) and Mengyun et al. (2021), which found that companies with a majority shareholding held by families are more risk-averse and ensure continuity and future liquidity challenges, resulting in higher cash holdings. Contrary to these studies, Alghadi et al. (2021) and Moolchandani & Kar (2022) found that family ownership negatively impacts cash holdings. Dominant family shareholdings tend to drain cash excessively, resulting in suboptimal cash holdings.

Foreign Ownership

Foreign ownership is a common form of ownership of company shares other than local or domestic ownership, consisting of individuals, legal entities, governments, and other investors with foreign status through direct purchases from companies or through the Indonesia Stock Exchange. The presence of foreign investors in companies in emerging market stock markets has a significant impact on managerial decisions, where great attention is paid to corporate governance (Loncan, 2020).

Foreign investors will monitor management more effectively (Thi et al., 2023). Foreign ownership allows managers to consider cash storage in financing company activities, controlling external costs, as well as keeping unpredictable cashflow volatility during crisis periods (Chandra & Rahman, 2023). Foreign investors tend to be more professional in global investment activities and have the latest financial and technological

expertise in doing business across countries, therefore, generally foreign investors tend to invest in companies with optimal progress.

Research conducted by (Chandra & Rahman, 2023) found that the proportion of cash holdings is in line with the foreign ownership structure in the company's shares. The larger the composition of foreign shareholders, the greater the cash holdings, especially during an economic recession. The findings are relevant to the research results of Basiony et al. (2025) and Thi et al. (2023), where foreign ownership has a positive effect on cash holdings. Loncan (2020) and Athari (2025) actually show the negative influence between foreign ownership on cash holdings.

Net Working Capital

Net working capital majorly consists of liquid asset cash substitutes (Guizani & Ajmi, 2021). Çam & Gümrükçü (2025) found that net working capital has a negative effect on the cash holdings of 385 companies listed on the Turkish Exchange. The findings are in line with the results of a study by Dimitropoulos & Koronios (2021) and Gounopoulos & Zhang (2024) that an increase in net working capital reduces cash retention by companies. This is contrary to the research of Sanjaya & Widiasmara (2019), Aminah & Audia (2024), and Sari & Zoraya (2021) that net working capital has a significant positive effect on cash holdings, where the increase is in line with the increase in net working capital invested by the company.

Company Size

Company size is an indicator that is often used to describe the size of a company through total assets,total sales, profitability, and others (Lintungan & Surjadi, 2023). The size of a company can be a benchmark in the company's accessibility to obtaining funding. Companies with large sizes tend to have a smaller level of information acidity because companies have the motivation and capability to disclose more information (Monica & Suhendah, 2020).

The size of the company is one of the indicators that affects cash holdings because basically the company will try to maintain the level of operations and investment for the sake of its business continuity. On the other hand, a study conducted by Sari & Zoraya (2021) views company size as an index that triggers financial difficulties, in which case small companies are more likely to go bankrupt if they experience it. Therefore, small companies are expected to have more cash holdings to avoid financial difficulties. Basiony et al. (2025) examined the influence of company size on cash holdings, and the results were significantly positive.

This result is in line with the findings of Guizani & Ajmi (2021) and Lintungan & Surjadi (2023) that the larger the company, the greater the cash holdings it has. Research by Kakhbod et al. (2025) actually supports the negative influence, where cash holdings decreases as the size of the company increases.

Leverage

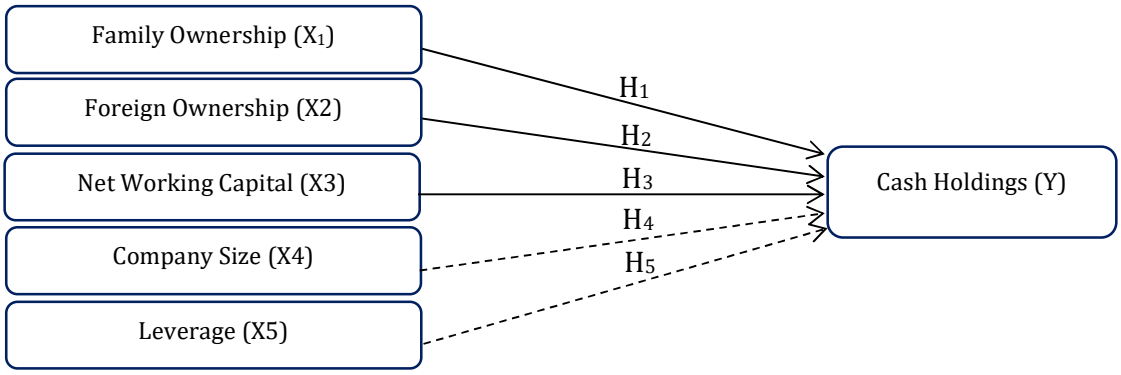
Leverage serves as an indicator to show a company's ability to use debt (Çam & Gümrükçü, 2025). Leverage indicates a company's efforts to acquire assets through credit, furthermore, it can indicate the availability for the company to obtain funds from external parties. Leverage that explains the lower the rate of return compared to investing in investments (Rokhayati et al., 2024). Companies with low leverage ratios tend to have low external supervision in line with their debt acquisitions, so when there is a surge in cash rates, it will allow for greater management flexibility and the

opportunity to take advantage of profits if the company is dominated by internal sources of funds. Increased leverage leads to increased cash holdings (Basiony et al., 2025).

The positive influence is supported by the findings of Thi et al. (2023) and Afif & Prasetiono (2016). In contrast, studies by Çam & Gümrükçü (2025), Gounopoulos & Zhang (2024), and Seifert & Gonenc (2018) found a negative influence. High leverage tends to force companies to spend a lot of cash to meet tire obligations, so that the cash holdings that the company maintains is decreasing.

Research Framework

The research framework is revealed at Figure 2.



Source : Basiony et al. (2025); Çam & Gümrükçü (2025)

Figure 2
Research Framework

Hypotheses

The hypotheses in this study are developed based on the relationships examined by Basiony et al. (2025) and Çam & Gümrükçü (2025), with the relationships examined in the context of manufacturing companies listed on the Indonesia Stock Exchange (IDX). The hypotheses are formulated as follows:

- *H_1 : Family ownership affects cash holdings among manufacturing companies listed on IDX*
- *H_2 : Foreign ownership affects cash holdings among manufacturing companies listed on IDX*
- *H_3 : Net working capital affects cash holdings among manufacturing companies listed on IDX*
- *H_4 : Company size affects cash holdings among manufacturing companies listed on IDX*
- *H_5 : Leverage affects cash holdings among manufacturing companies listed on IDX*

METHOD

The research design uses hypothesis testing that aims to test the influence of independent variables, namely ownership structure (family ownership and foreign ownership), the influence of net working capital as a novelty variable, and the influence of control variables including company size and leverage on cash holdings as dependent variables. The analysis units in this study are 45 manufacturing companies listed on the Indonesia

Stock Exchange for 5 years (2020-2024 period). The analysis method in this study used regression panel data processed by Eviews 13.0.

Drawing on Basiony et al. (2025) and Çam & Gümrükçü (2025), this study employs multiple linear regression analysis, including the t-test, F-test, and coefficients of determination (R^2).

Variables Measurement

Table 1 presents the operational measurement of the study variables, including their formulas and references, adapted from Basiony et al. (2025) and Çam & Gümrükçü (2025).

Table 1
Variables Measurement

Variables	Formula	Reference
Dependent:		
Cash Holdings (CASH)	$\frac{Cash\ \&\ cash\ equivalent}{Total\ assets}$	Basiony et al. (2025)
Independent:		
Family Ownership (FAMOWN)	$\frac{Shares\ owned\ by\ family\ members}{Total\ shares\ outstanding}$	Basiony et al. (2025)
Foreign Ownership (FOROWN)	$\frac{Shares\ owned\ by\ foreign\ investors}{Total\ shares\ outstanding}$	Basiony et al. (2025)
Net Working Capital (NWC)	$\frac{(Current\ asset - Cash\ \&\ cash\ equivalent - Current\ liability)}{Total\ assets}$	Çam & Gümrükçü (2025)
Control:		
Company Size (SIZE)	Natural logarithm of total assets	Basiony et al. (2025)
Leverage (LEV)	$\frac{Total\ liabilities}{Total\ assets}$	Basiony et al. (2025)

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Descriptive statistical analysis present data by describing the data acquired in order to convey information by exhibiting the data set's standard deviation, minimum, maximum, and average values. The result test can be seen in Table 2.

Table 2
Descriptive Statistical Analysis

	CASH	FAMOWN	FOROWN	NWC	SIZE	LEV
Mean	0.117259	0.578919	0.265555	0.115649	28.49574	0.440092
Median	0.079230	0.672450	0.154420	0.141370	28.30688	0.424680
Maximum	0.930430	0.982320	0.999950	0.731770	32.93787	1.564400
Minimum	0.001140	0.002280	1.00E-05	-1.071420	24.60427	0.044030
Std. Dev.	0.131125	0.261348	0.288751	0.247843	1.766955	0.242969
N	225	225	225	225	225	225

Source: Data Processed by E-views 13.0, 2026

This means that n = 225, which is the number of samples found in manufacturing sectors between 2020-2024. Descriptive statistics for cash holdings (CASH) show a maximum value of 0.930430 and a minimum value of 0.001140. The average value of CASH is 0.117259, which is much greater than the standard deviation of 0.0131125, indicating that the data is relatively homogeneous, although there are some extreme outliers. Descriptive statistics for family ownership (FAMOWN) show a maximum value of 0.982320 and a minimum value of 0.002280. The average value of FAMOWN is 0.578919 and the standard deviation is 0.261348.

Descriptive statistics for the foreign ownership variable (FOROWN) show a maximum value of 0.999950 and a minimum value of 0.00001. The average value of FOROWN is 0.265555 and the standard deviation is 0.288751. Descriptive statistics for the net working capital (NWC) variable show a maximum value of 0.731770 and a minimum value of -1.071420. The average value of NWC is 0.115649 and the standard deviation is 0.247843. Descriptive statistics for company size (SIZE) show a maximum value of 32.93787 and a minimum value of 24.60427. The average SIZE value is 28.49574 and the standard deviation is 1.766955. Descriptive statistics for the leverage (LEV) variable show a maximum value of 1.564400 and a minimum value of 0.044030. The average LEV value is 0.440092 and the standard deviation is 0.242969.

Multiple Linear Regression (T-Test)

Multiple linear regression measures the significance of the effect of each independent variable and control variable on the dependent variable. The result test can be seen in Table 3.

Table 3
Multiple Linear Regression

Independent Variable	Dependent Variable: CASH		
	Coefficients	Probability	Summary
(Constant)	1.009313	-	-
FAMOWN	-0.044782	0.0448	Significantly Negative
FOROWN	0.027200	0.2643	Not Significant
NWC	-0.435059	0.0000	Significantly Negative
SIZE	-0.023487	0.0128	Significantly Negative
LEV	-0.349371	0.0000	Significantly Negative

Source : Eviews 13, 2026

The research regression model is derived from the data processing results shown in the table 3:

$$CASH_{it} = 1{,}009313 - 0{,}044782FAMOWN_{it} + 0{,}027200FOROWN_{it} - 0{,}435059NWC_{it} - 0{,}023487SIZE_{it} - 0{,}349371LEV_{it}$$

In this equation, the value of the regression coefficient is interpreted as follows:

1) The constant value obtained is 1.0093, indicating that the Cash Holdings (CASH) variable has a value of 1.0093 if all of the Family Ownership (FAMOWN), Foreign Ownership (FOROWN), Net Working Capital (NWC), Company Size (SIZE), and Leverage (LEV) variables are equal to zero.
2) The results show that influence of FAMOWN on CASH has a coefficent of -0.044782 with a probability of 0.0448 < 0.05 which means that FAMOWN is proven to have a negative and significant effect on CASH. These findings are relevant to studies

conducted by Alghadi et al. (2021) and Moolchandani & Kar (2022) that family ownership has a negative effect on cash holdings. The dominance of the composition of family shares tends to drain cash excessively, so that cash ownership is not optimal. These results are contrary to research conducted by Basiony et al. (2025) and Mengyun et al. (2021) that family ownership has a positive effect on cash holdings. Family dominance in the share composition will better avoid risks and ensure continuity and liquidity challenges in the future, thereby increasing cash holdings.

3) The results show that the FOROWN on CASH has a coefficient of 0.027200 with a probability of 0.2643 > 0.05 which means that FOROWN is proven to have no significant effect on CASH. This is in line with research conducted Ilyas, Mian, & Safdar (2025) which found that foreign ownership has no impact on cash holdings. Companies with professional investors tend to commit in the long term to improving their reputation and are no longer fixated on the level of cash holdings (Khaleel & Ibrahem, 2024). These results are not in line with studies conducted by Basiony et al. (2025) dan Thi et al. (2023) that foreign ownership has a positive effect on cash holdings.
4) The results show that the effect of NWC on CASH has a coefficient of -0.435059 with a probability of 0.0000 < 0.05 which means that NWC is proven to have a negative and significant effect on CASH. Çam & Gümrükçü (2025) support these results, where high net working capital increases the ability of companies to finance daily operations, thereby reducing cash reserves. Net working capital can serve as a substitute for cash because it can be liquidated quickly as funding, so companies with high net working capital tend to hold cash in small amounts (Sumarauw et al., 2025).
5) The results show that the influence of SIZE on CASH has a coefficient of -0.023487 with a probability of 0.0128 < 0.05 which means that SIZE is proven to have a negative and significant effect on CASH. This result is in line with the research of Ashhari & Faizal (2018) that the smaller the size of the company, the larger the cash ownership that the company maintains because the company's need for external funding becomes smaller. A similar effect is explained by the results of research by Gounopoulos & Zhang (2024) that large companies generally have access to funding to more resources, resulting in lower cash flows. These results are contrary to the findings of Basiony et al. (2025) that the size of a firm positively affects cash holding.
6) Based on the results, the effect of LEV on CASH has a coefficient of -0.349371 with a probability of 0.0000 < 0.05 which means that LEV is proven to have a negative and significant effect on CASH. These results are in line with research conducted by Çam & Gümrükçü (2025) and Ali & Shaik (2022) that high levels of leverage tend to have a substantial role in allocating cash to pay off debt, thereby reducing cashholdings. These results are contrary to a study conducted by Al Barak (2025) that leverage has a positive effect on cash ownership. Companies with high levels of debt tend to keep more cash for bankruptcy costs to protect themselves from financial difficulties. These results are contrary to the findings of Basiony et al. (2025) that the size of a firm positively affects cash holdings.

Simultaneous Test (F-Test)

The F-test is performed to measure the significance of all independent variables and control variables simultaneously in influencing dependent variables (Lin et al., 2024). The F-test focuses on determining the feasibility of the research regression model.

Based on the results of the F-test, the F-statistical probability of 0.000000 < 0.05 was obtained, so it H_0 was rejected (H_a accepted) and it can be concluded that independent variables consisting of family ownership and net working capital, together with control variables that include company size and leverage affect cash ownership as dependent variables. This means that the regression model is suitable for use in this researcher.

Determination Test (Adjusted R^2)

This test aims to measure the strength of the influence of independent variables and control variables in determining dependent variables (Lin et al., 2024). The percentage influence between variables is shown by the adjusted value of R of 0.931936, which means that the independent variables namely family ownership, foreign ownership, and net working capital, as well as the control variables, namely the company size and leverage are able to explain the variation in cash holdings 93.1936% and the remaining 6.8064% indicate that cash holdings can be influenced by other indicators that are not present in this model.

CONCLUSION AND SUGGESTION

Based on the results of the analysis, this study concludes that family ownership has a significant negative effect on cash holdings, while foreign ownership does not have a significant effect on cash holdings. Net working capital, company size, and leverage also have significant negative effects on cash holdings. These findings indicate that ownership structure and internal financial characteristics are important considerations in determining corporate cash-holding policies.

The findings of this study provide several implications for financial managers and investors in making business and investment decisions. For financial managers, family ownership should be carefully considered because the results indicate that lower family ownership is associated with higher cash holdings. Managers should also pay greater attention to net working capital by managing working capital efficiently to maintain an optimal level of cash holdings. In addition, the composition of total assets should be managed effectively to support the company's liquidity and business continuity. Managers are also encouraged to control the use of debt because a higher level of leverage may reduce the company's ability to optimize its cash holdings.

For investors, the findings provide considerations when evaluating companies as potential investment opportunities. Investors may pay attention to the company's ownership structure, net working capital, company size, and leverage when assessing its ability to manage cash holdings. Companies with lower family ownership may demonstrate greater cash-holding capacity, while efficient management of net working capital can support the maintenance of adequate cash reserves. Investors should also consider company size, particularly the composition of total assets, as well as the level of leverage. Companies with high leverage may face greater financial obligations, which can limit their ability to maintain optimal cash holdings. Therefore, an appropriate level of cash holdings may serve as one of the considerations for investors in assessing a company's financial management and ability to support business continuity.

For future research, further studies are encouraged to examine other sectors and different observation periods to provide broader and more generalizable findings. Future researchers may also consider incorporating additional determinants of cash holdings, such as cash flow and profitability. Çam & Gümrükçü (2025) highlight the relevance of cash flow in explaining differences in corporate cash holdings across sectors, while Al Barak (2025) indicates that profitability may also contribute to the level of cash holdings. Including these variables may provide a more comprehensive understanding of the factors influencing corporate cash holdings.

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