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Testing the Effect of ICFS and Financial Constraints on Investment using Control Variables in Manufacturing Companies

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Abstract:

This study examines how Internal Capital Financial Structure (ICFS) and financial constraints affect investment decisions in manufacturing companies listed on the Indonesia Stock Exchange between 2019 and 2024. Using a panel data methodology with a fixed effects model, the research applies cross-sectional weights, standard errors, and covariances to ensure robust results. The research findings show that the greater the sensitivity of cash flow to investment, the greater the decline in investment levels. This research contributes original value by including variables such as cash flow, long-term debt, working capital investment, leverage, and asset turnover, all of which are analyzed for their impact on investment decisions. The managerial implications derived from the results of this study are useful for company managers, potential investors, and other stakeholders in understanding how internal financial factors affect investment behavior.

Keywords: *Cash flow; Financial constraints; Investment cash flow sensitivity; Investment*

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1. Introduction

Investment is an important aspect of a company's development and sustainability, especially in the manufacturing sector, which plays a significant role in the Indonesian economy. Decisions about investment in this sector are influenced by various internal and external factors (Huang & Qiu, 2023; (Rindi Hariyanur et al., 2022). Of these factors, internal capital structure—often referred to as internal capital financial structure (ICFS)—has a significant influence on a company's investment capacity and strategy (Schauer et al., 2019). ICFS refers to the management of a company's internal capital. It reflects the extent to which a company can use internal resources to run its operations and develop its business (Ramdani, 2021). Manufacturing companies, on the other hand, often face financial constraints in terms of access to external financing. This can limit their investment potential and affect their long-term performance (Yin et al., 2019).

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Previous studies have shown that there is a complex relationship between investment-to-cash flow sensitivity (ICFS) and financial constraints on investment decisions. For example, demonstrated a correlation between investment-to-cash flow sensitivity (ICFS) and the financial constraints that companies face. This study found that companies with higher ICFS sensitivity are more vulnerable to changes in financial conditions, especially when they face external resource constraints (Gül & Taştan, 2020; Nehrebecki, 2020).

In addition to ICFS and financial constraints, several control variables were considered when analyzing their impact on investment decisions. These variables include investment opportunities, sales levels, leverage, investment in working capital, changes in long-term debt, closing stock prices, and asset turnover. These variables were selected based on their role in directly or indirectly influencing investment decisions. For instance, leverage can positively affect investments in financially stable companies but hinder investments in companies with high debt risk.

This study aims to analyze how ICFS and financial constraints affect investment decisions in manufacturing companies listed on the Indonesia Stock Exchange from 2019 to 2023. Using a panel data methodology and fixed effects models, the study will provide a comprehensive understanding of how these factors influence investment decisions. Additionally, the study will contribute to the academic literature and provide practical guidance for businesses to optimize their capital structure amid existing financial challenges.

In recent decades, there has been an increase in attention on the role of strategic leadership, particularly the characteristics of CEOs, in influencing the efficiency of investment decisions. As key decision makers, CEOs play a significant role in companies, and their experience and incentives are crucial in overcoming financial challenges and capitalizing on investment opportunities (Huang & Qiu, 2023). Two characteristics that often influence investment efficiency are CEO tenure and ownership.

CEO tenure is the length of time that a CEO holds a leadership position within a company. A longer tenure is often associated with leadership stability, a deeper understanding of a company's internal dynamics, and the ability to build external relationships that improve access to financing (Chang & Yang, 2023). CEOs with long tenures tend to be better able to leverage internal resources, such as cash flow, to support efficient investments (Hong et al., 2023). However, an overly long tenure can present challenges, including resistance to innovation and risk-taking, which can hinder the company's growth potential (Javaid et al., 2023).

Conversely, CEO ownership provides incentives that align with the interests of shareholders. CEOs who own significant shares of a company are more likely to make decisions that increase its value, reduce conflicts of interest, and minimize unproductive investments (Harnida et al., 2021). However, excessive share ownership can cause CEOs to become too conservative with risk, which limits their ability to explore new investment opportunities (Elmaasrawy et al., 2023).

Previous research shows that the combination of CEO tenure and ownership has a strong influence on the relationship between internal capital financing structure (ICFS) and financial constraints on investment decisions. Experienced CEOs tend to utilize ICFS efficiently, reducing dependence on external financing (Anderson et al., 2022). Additionally, they are better at overcoming financial constraints by using strategies such as improving working capital management and diversifying funding (D. Ibrahim et al., 2022).

2. Theoretical Background

Investment: In the context of this study, investment refers to how companies allocate resources to expand production capacity, improve operational efficiency, or introduce new products. Investment reflects a company's strategy for developing future value (Schauer et al., 2019). This study explores the influence of investment-cash flow sensitivity (ICFS) and financial constraints on the investment decisions of manufacturing companies listed on the Indonesia Stock Exchange, which is why the investment variable was chosen. The study reveals how internal and external company factors, such as cash flow, financial constraints, and other control variables (e.g., leverage and sales), influence investment allocation.

Internal Finance (Cash Flow): According to A, internal cash flow stability (ICFS) significantly impacts investment decisions. Companies with high ICFS levels tend to rely on internal resources to finance investments. For instance, in Indonesia's manufacturing sector, firms with higher ICFS can better withstand economic and market fluctuations without turning to costly external financing sources. ICFS reflects a company's reliance on internal funds for investment and operational financing, which can enhance financial stability without depending on external funding.

Financial Constraints: Financial constraints refer to the difficulties companies face in obtaining external funds to finance investments. These constraints are often caused by asymmetric information, an inability to access capital markets, or high financing costs. The KZ-Index measures the level of a company's financial constraints. Financial constraints affect investment decisions, especially when companies cannot access external financing. According Yin et al. (2019) demonstrate that companies with significant financial constraints are more likely to reduce investments, even in favorable economic conditions, due to limitations on external capital.

Investment Oppurtunities: According to research by (Gupta & Mahakud, 2020), high investment opportunities tend to motivate companies to invest more in promising projects. Conversely, market uncertainty or regulatory changes can hinder companies' ability to optimize these opportunities (Gül & Taştan, 2020).

Sales: Sales are an important factor that influences a company's investment decisions. Higher sales indicate good operational performance and provide more resources to fund investment projects. According to research by (Mishra & Ewing, 2020)

and(Gupta & Mahakud, 2020), companies with strong sales are better able to invest in expansion and innovation, even amid financial constraints. Thus, increased sales provide greater financial flexibility and support the success of a company's long-term investments.

Leverage: Leverage significantly influences corporate investment decisions. At high levels, companies can increase their investment capacity by using debt financing. However, excessive debt carries significant risks because companies must generate sufficient cash flow to meet their debt obligations, including interest payments. High leverage can limit a company's ability to invest in new projects, particularly when facing unstable market conditions or cash flow issues (Gupta & Mahakud, 2020). Conversely, low leverage gives companies more freedom to make investment decisions without being burdened by substantial debt (Naeem & Li, 2019). High leverage reduces investors' willingness to invest due to the increased financial risk, which in turn lowers the firm's value. Therefore, leverage constitutes a critical determinant in investment decision-making (Chandra & Cintya, 2021; Hendi et al., 2024; Mardianto & Chintia, 2022; Tanujaya et al., 2024).

Working Capital Investment: Investing in working capital plays an important role in maintaining smooth company operations and supporting long-term growth. According to research by (Laghari & Chengang, 2019), effective working capital management can reduce financial pressure and increase a company's capacity to invest. Good working capital management provides companies with sufficient liquidity, supporting better investment decisions and new project development. Furthermore, (Omodero, 2019) research shows that efficient working capital management facilitates company expansion and diversification. Companies that optimize their working capital can more easily capture market opportunities and invest in innovation or product development without being hindered by liquidity issues. In summary, efficient working capital investment maintains operational stability, increases competitiveness, and enables investment in strategic projects that support long-term growth.

Change in long-term debt: Changes in long-term debt play an important role in corporate investment decisions because they provide companies with additional resources to fund expansion or innovation projects. According to research by (Yilmaz, 2022) and (Gupta et al., 2024) companies that increase their long-term debt can expand their investment capacity; however, they also face higher financial risks, particularly during periods of economic uncertainty or market volatility. Furthermore, (Laghari & Chengang, 2019) reveal that, while long-term debt enables companies to fund large projects, companies must also consider the impact of increasing debt obligations on future investment flexibility. Therefore, while long-term debt provides growth potential through external financing, companies must maintain a balance to avoid becoming overly dependent on debt, which can threaten their long-term financial stability.

Closing Price: In financial analysis and investment decisions, the closing price of a stock is an important indicator because it reflects the market's perception of a company's performance at the end of a trading session. According to research by (Khan et al., 2020), closing stock prices significantly impact investment decisions, particularly in emerging markets. Companies with rising closing stock prices are often considered more stable and profitable, increasing investor confidence and encouraging greater capital allocation. However, significant fluctuations in closing prices may indicate market uncertainty or internal company issues, influencing investors' decisions to buy or sell shares. Thus, closing prices reflect a company's market value at a given time and serve as a key indicator of market sentiment and long-term investment potential.

Asset Turnover: Asset turnover is a key indicator of how efficiently a company uses its assets to generate sales. According to research by (Laghari & Chengang, 2019), companies with high asset turnover ratios can generate more revenue with fewer assets, indicating good operational efficiency. These companies tend to perform better and are more attractive to investors because they can generate higher revenues from limited resources. Conversely, low asset turnover indicates inefficient management of company assets and can lead to more cautious investment decisions. (Laghari & Chengang, 2019), emphasize that companies with low asset turnover ratios must improve their asset management to become more efficient and competitive in the market. In summary, companies that optimize their asset turnover tend to have a competitive advantage because they can maximize revenue potential without increasing the amount of assets used. Conversely, companies with low asset turnover must focus on improving asset management to support long-term financial growth and stability (Tang & Fiorentina, 2021).

CEO Tenure: CEOs with long tenures have a better understanding of their companies' internal dynamics and external market conditions. This allows them to make more efficient investment decisions, especially when managing ICFS and overcoming financial constraints (Huang & Qiu, 2023). Long-serving CEOs are better able to build strong relationships and reputations in capital markets, improving the company's access to external financing (Chang & Yang, 2023). On the other hand, overly long tenures can cause CEOs to become too conservative and hesitant to take risks. This can hinder investment in riskier opportunities with high potential returns (Javaid et al., 2023).

CEO Ownership: CEOs with significant shareholdings tend to make decisions that align more closely with shareholder interests. This reduces agency problems and improves the efficiency with which investment capital is allocated (Harnida et al., 2021). High share ownership can make CEOs more cautious about risk, sometimes leading to conservative investment decisions. While this reduces the risk of failure, it can also limit investment in projects with high potential returns (Elmaasrawy et al., 2023).

In the context of investment decision-making, modern financial theory provides a strong foundation for understanding the relationship between investment cash flow sensitivity (ICFS), financial constraints, and corporate capital structure.

First, Pecking Order Theory posits that companies rely on internal funds before seeking external financing. This is due to the higher costs of information asymmetry and external risk, particularly in emerging markets like Indonesia. Second, agency theory highlights the conflict of interest between managers and shareholders. Ownership structure and CEO tenure can affect the efficiency of investment decisions, including how internal funds are used. Third, the trade-off theory explains how companies balance the tax benefits of debt and the risk of bankruptcy when determining an optimal capital structure that impacts investment. Fourth, the financial accelerator hypothesis emphasizes that strong internal financial conditions can strengthen a company's ability to respond to investment opportunities while financial constraints can weaken this effect. Thus, this study tests empirical relationships and strengthens the theoretical argument regarding the role of internal funds and capital structure in supporting corporate investment decisions.

3. Methodology

This study uses secondary data, specifically annual reports from the Indonesia Stock Exchange (IDX) from 2019 to 2024. The collected data includes information on financial constraints, cash flow, investment opportunities, sales, leverage, working capital investment, long-term debt, closing price, and asset turnover. It also includes moderating effects: the CEO's term of office and share ownership. The study examines the effect of investment-cash flow sensitivity (ICFS) and analyzes the impact of financial constraints on investment alongside control variables. Adding moderating variables enables the study to more deeply explore the effect of leadership on investment decisions using Stata.

The regression equation used in this analysis is

Panel A

$$INV=\beta0+\beta1CF+\beta2FC+\beta3Q+\beta4S+\beta5LEV+\beta6WKI+\beta7DLTD+\beta8PRICE+\beta9AT+\varepsilon$$

Panel B

$$INV=\beta0+\beta1CF+\beta2FC+\beta3CEOOWN+\beta4CEOTENURE+\beta5Q+\beta6S+\beta7LEV+\beta8WKI+\beta9DLTD+\beta10PRICE+\beta11AT+\varepsilon$$

Panel C

$$INV=\beta0+\beta1CF+\beta2FC+\beta3CEOOWN+\beta4CEOTENURE+\beta5(CF\times CEOOWN)+\beta6(CF\times CEOTENURE)+\beta7(FC\times CEOOWN)+\beta8(FC\times CEOTENURE)+\beta9Q+\beta10S+\beta11LEV+\beta12WKI+\beta13DLTD+\beta14PRICE+\beta15AT+\varepsilon$$

Table 1. Variables and Measurement

Variable		Variable Measurement	Source
Dependent	Investment	{(Fixed asset t – fixed asset t-1) + Depreciation t}/ net fixed asset t-1	(Schauer et al., 2019)
Indenpenden	Internal Finance (Cash Flow)	(Net income before extraordinary + Depreciation t)/ net fixed asset t-1	(Schauer et al., 2019)
	Financial Constraint	KZ = (cash flows / net fixed asset) + (Tobin's Q) + (Total Debt/Total Capital) – (Dividends/net fixed asset) – (cash stock/net fixed asset).	(Yin et al., 2019)
Control	Investment Oppurtunities	{(Closing price x number share outstanding) + total debt}/ total equity + total debt	(Gupta & Mahakud, 2020) ; (Gül & Taştan, 2020)
	Sales	Total sales t/ net fixed asset t-1	(Mishra & Ewing, 2020)
	Leverage	Total debt/ total asset	(Naeem & Li, 2019)
	Working Capital Investment	Networking Capital t – t-1 Networking capital = {Current Asset – Current Liabilities}/ net fixed asset t-1	(Laghari & Chengang, 2019) ; (Omodero, 2019)
	Change in Long-term Debt	(Long-term debt t – t-1)/ net fixed asset t-1	(Yilmaz, 2022)
	Closing Price	Closing price = Price of Last Trade	(Khan et al., 2020)
	Asset Turnover	Total sales/ Total asset	(Laghari & Chengang, 2019) ; (Khan et al., 2020)
Moderation	CEO Tenure	The number of years a CEO has served in the company	(Huang & Qiu, 2023) ; (Chang & Yang, 2023) ; (Javaid et al., 2023)
	CEO Ownership	The percentage of CEO's ownership in the company's total shares	(Harnida et al., 2021) ; (Elmaasrawy et al., 2023)

4. Empirical Findings/Result

Descriptive Statistics

Table 2. Descriptive Statistics Result

	N	Mean	Standard Deviasi	Minimum	Median	Maximum
INV	1041	1.018	3.201	-5.121	0.722	62.496
CF	1041	-0.028	26.790	-838.309	0.717	97.486
FC	1041	14.852	153.148	-143.201	1.060	3192.732
Q	1041	14.612	152.971	0.007	0.589	3192.032
CEOTEN	1041	9.155	9.787	1.000	6.000	53.000
CEOOWN	1041	3.301	10.101	0.000	0.000	92.500
LEV	1041	0.817	10.244	0.007	0.463	330.821
WKI	1041	5.880	111.175	-584.491	0.429	2943.265
DLTD	1041	0.162	19.171	-345.360	-0.002	511.771
PRICE	1041	1757.272	3886.566	0.000	500.000	53000.000
AT	1041	1.559	16.198	-0.147	0.807	522.729
S	1041	13.948	89.729	-7.933	2.494	2303.921

Source: 2025 processed original data

Table 1 presents the results of the descriptive statistical analysis conducted in this study. Regarding INV performance, the average INV score is 1.018, ranging from a minimum of -5.121 to a maximum of 62.946. The average cash flow value is -0.028, ranging from a minimum of -838.309 to a maximum of 97.486. Additionally, the average financial constraint was 14,852, with the highest level being 3,192.732. High financial constraints generally have a negative impact on corporate investment decisions. As a control variable, Investment Opportunities (Q) had a minimum value of 0.007 and a maximum of 3,192.032, with an average of 14.612. The second control variable, Leverage (LEV), has a minimum value of 0.007 and a maximum of 330.821. This indicates a significant difference in funding structures among the companies in the sample. The minimum value indicates that some companies are almost entirely financed by equity and use little debt. Conversely, a very high maximum value indicates that a company is highly dependent on debt and has very little equity, resulting in an extremely high leverage ratio. This condition suggests the presence of outliers in the data and indicates that some companies are at high financial risk due to an imbalanced capital structure. The third control variable, working capital investment (WKI), has minimum and maximum values of -584,491 and 2,943,265, respectively, indicating significant differences in working capital management strategies between companies. A negative WKI value indicates that a company is attracting or reducing investment in working capital, possibly to divert funds to long-term investment activities. Conversely, a high WKI value indicates that companies are allocating substantial funds to working capital, such as increasing inventories or accounts receivable.

This reduces the funds available for investment. Thus, working capital management directly impacts investment decisions because the allocation of funds for working capital competes with long-term investment needs for company resources. Furthermore, the minimum and maximum values of Change in Long-Term Debt (DLTD) are -345,360 and 511,711, respectively, representing a significant variation in changes in long-term debt among companies. Negative values indicate that some companies are repaying or reducing their long-term debt, which reduces the availability of funds for new investments. Conversely, high positive values reflect a significant increase in long-term debt, which is generally used to fund long-term investments, such as purchasing fixed assets or expanding a business. Therefore, changes in long-term debt reflect a company's funding policy and directly influence investment decisions.

The fifth control variable, closing price (PRICE), ranges from a minimum of 0.000 to a maximum of 53,000.000, reflecting the significant variation in closing stock prices among companies. Very low or zero stock prices may indicate that a company is not actively traded or is in poor financial condition. This impacts investor confidence and limits access to capital market funding. Conversely, high stock prices reflect a positive market assessment of a company's performance and prospects. This improves the company's ability to obtain external funding, particularly through issuing shares. Thus, closing stock prices influence investment decisions because companies with high stock prices have greater opportunities to finance investments through the capital market. The sixth control variable, asset turnover (AT), has a minimum value of -0.147 and a maximum value of 522.729, reflecting a significant difference in asset utilization efficiency levels between companies.

Negative values indicate that companies are unable to generate income from their assets and may even be suffering losses, reflecting suboptimal investment utilization. Meanwhile, very high asset turnover (AT) values indicate that companies are utilizing their assets efficiently to generate income, signifying effectiveness in the use of investment funds. Therefore, asset turnover influences investment decisions because companies with high efficiency tend to be trusted by the market to manage new investments productively. The seventh and final control variable, sales (S), has a minimum value of -7.933 and a maximum value of 2,303.921, indicating significant variation in income levels among the companies in the sample. Negative sales figures may indicate significant losses, sales returns, or abnormal financial records. These figures reflect a company's low capacity to generate cash, which limits its investment potential. Conversely, high sales values indicate good operational performance and substantial revenues, strengthening the company's ability to finance new investments internally. Therefore, sales levels play an important role in investment decision-making because greater income means greater potential funds for long-term investment activities.

Traditional assumption test

Test of Correlation Pearson Matrix

Figure 1 presents the correlation matrix for the variables in this study, which is used to test for multicollinearity. Multicollinearity problems arise when the correlation between variables exceeds 0.8. As shown in Figure 1, the correlation between the research variables is relatively high, with the highest value being 0.999. This indicates that multicollinearity problems exist in this study.

	INV	CF	FC	Q	CEOTEN	CEOOWN	LEV	WKI	DLTD	PRICE	AT	S
INV	1.000											
CF	-0.459***	1.000										
	(0.000)											
FC	-0.055*	-0.004	1.000									
	(0.078)	(0.905)										
Q	-0.050	-0.001	0.999***	1.000								
	(0.105)	(0.965)	(0.000)									
CEOTEN	0.042	0.033	0.033	0.034	1.000							
	(0.173)	(0.284)	(0.287)	(0.279)								
CEOOWN	-0.012	0.011	-0.027	-0.027	0.118***	1.000						
	(0.699)	(0.719)	(0.384)	(0.385)	(0.000)							
LEV	-0.005	-0.006	0.062**	0.062**	0.045	0.006	1.000					
	(0.883)	(0.838)	(0.045)	(0.046)	(0.146)	(0.850)						
WKI	0.570***	0.284***	-0.009	-0.004	-0.010	-0.013	-0.005	1.000				
	(0.000)	(0.000)	(0.760)	(0.906)	(0.737)	(0.667)	(0.879)					
DLTD	-0.369***	0.519***	0.022	-0.001	-0.004	-0.002	0.001	0.091***	1.000			
	(0.000)	(0.000)	(0.488)	(0.980)	(0.910)	(0.939)	(0.985)	(0.003)				
PRICE	-0.088***	0.012	0.097***	0.096***	-0.064**	-0.094***	-0.017	-0.014	-0.002	1.000		
	(0.005)	(0.702)	(0.002)	(0.002)	(0.039)	(0.002)	(0.588)	(0.645)	(0.947)			
AT	-0.003	0.004	0.062**	0.063**	0.043	0.006	0.998***	-0.001	-0.001	-0.007	1.000	
	(0.919)	(0.897)	(0.045)	(0.043)	(0.163)	(0.857)	(0.000)	(0.971)	(0.977)	(0.816)		
S	0.604***	0.104***	-0.018	-0.010	-0.034	-0.036	-0.006	0.797***	-0.002	-0.009	0.012	1.000
	(0.000)	(0.001)	(0.554)	(0.737)	(0.272)	(0.242)	(0.851)	(0.000)	(0.936)	(0.776)	(0.701)	

p-values in parentheses

* $p < 0.1$. ** $p < 0.05$. *** $p < 0.01$

Figure 1. Results of the Correlation Pearson Matrix

Source: 2025 processed original data

Analysis of Regression

Regression analysis is a statistical technique used to test the relationship between a dependent variable and one or more independent variables. The main purpose of regression analysis is to understand how changes in independent variables affect dependent variables, as well as to measure the effects of those changes (Bazdaric et al., 2021).

Results of Regression Analysis

Table 3.

	(1) INV	(2) INV	(3) INV
CF	0.751***	0.751***	0.742***
	(20.13)	(19.90)	(18.76)
FC	-0.014***	-0.014***	-0.013***
	(-2.96)	(-2.96)	(-2.79)
Q	0.012***	0.012***	0.011**
	(2.65)	(2.65)	(2.29)
LEV	0.234*	0.234	0.244*
	(1.66)	(1.64)	(1.65)
WKI	-0.042*	-0.042*	-0.043*
	(-1.68)	(-1.68)	(-1.69)
DLTD	0.353***	0.353***	0.353***
	(2.62)	(2.61)	(2.62)
PRICE	-0.000***	-0.000***	-0.000***
	(-6.51)	(-6.29)	(-6.22)
AT	-0.068	-0.068	-0.066
	(-1.26)	(-1.26)	(-1.20)
S	0.000	0.000	0.000
	(0.01)	(0.01)	(0.06)
2019.Tahun	0.000	0.000	0.000
	(.)	(.)	(.)
2020.Tahun	0.103	0.103	0.101
	(1.47)	(1.47)	(1.45)
2021.Tahun	-0.055	-0.055	-0.058
	(-0.76)	(-0.77)	(-0.81)
2022.Tahun	-0.066	-0.066	-0.073
	(-1.03)	(-1.02)	(-1.12)
2023.Tahun	0.012	0.012	0.005
	(0.17)	(0.17)	(0.08)
CEOTEN		0.000	-0.001
		(0.04)	(-0.40)
CEOOWN		-0.000	0.001
		(-0.15)	(0.10)
CFXCEOTEN			0.001
			(0.33)
CFXCEOOWN			0.002
			(0.67)
FCXCEOTEN			0.000
			(0.28)
FCXCEOOWN			-0.003
			(-0.86)
_cons	0.272***	0.273***	0.281***
	(3.15)	(3.02)	(3.11)
F	151.335	135.274	100.568
r2_a	0.689	0.689	0.688
N	1041	1041	1041

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: 2025 processed original data

Table 2 shows that financial constraints (FC) have a significant negative effect on investment (INV). The relationship between financial constraints and investment is complex. Evidence suggests that financial constraints can lead to investment inefficiency and fewer investment opportunities (Fernández de Guevara et al., 2021). While some studies suggest that financial constraints can prompt companies to invest more under certain circumstances, the overall impact is typically negative, particularly for small and medium-sized enterprises (SMEs). While companies with high financial constraints often exhibit a positive relationship with investment, this is associated with inefficiencies in capital allocation. Those with high free cash flow and growth potential are particularly affected, resulting in suboptimal investment decisions. Financial constraints significantly hinder SME investment decisions, forcing them to forgo opportunities due to working capital needs (Eskandar & Hadadi, 2022). Various studies show that financial constraints significantly impact corporate investment negatively. (Mishra & Ewing, 2020) found that financial constraints negatively affect intangible investments, particularly those related to marketing.

The coefficient for CF is 0.061, the T value is 5.65, and the significance level is 0.00 ($p < 0.05$). These values indicate a significant positive effect. Available evidence shows that investment levels are significantly influenced by internal financial resources, such as cash flow and domestic savings, particularly during periods of financial constraint. Existing literature indicates that companies exhibit positive investment sensitivity to cash flow, suggesting that internal finance is an important factor in investment decisions (Gül & Taştan, 2020). n the context of large Korean companies, the internal capital market reduces financing constraints, facilitating R&D investment and encouraging innovation and investment in affiliated companies (Hong et al., 2023). Research conducted in Nigeria shows that internal funding sources, such as domestic savings and internal borrowing, have a greater and more positive impact on economic growth than external financing options ("ASSESSING THE RELATIVE EFFECT OF INTERNAL AND EXTERNAL SOURCES OF FINANCING ON ECONOMIC GROWTH IN NIGERIA," 2023). Additionally, a company's internal financial performance, as indicated by return on equity (ROE), is positively correlated with firm value. While internal financing can serve as a buffer during periods of financial constraint, it can also result in reduced investment efficiency and decision-making difficulties, particularly when faced with asymmetric information and agency issues.

There is a significant positive relationship for Q, indicating that investment opportunities are not significantly affected by uncertainty and regulatory barriers when it comes to increasing investment. This finding is consistent with previous research (Juselin & Juliana, 2021), The results show that uncertainty does not significantly affect investment decisions. Even under uncertain economic or political conditions, companies continue to invest, possibly due to adaptive strategies or stronger internal factors within the firm that influence investment decisions. However, this influence is not always significant because investors also consider factors such as political stability, resource availability, and infrastructure when making investment decisions. Thus, regulation is not the sole factor in attracting investment.

For S, the coefficient is 0.001, the T-value is 0.62, and the significance level is 0.537 ($p > 0.05$). This indicates that asset sales do not significantly affect investment. Thus, H4 is rejected. The study by (Laghari & Chengang, 2019), entitled Pengaruh Pertumbuhan Penjualan, Keputusan Investasi, dan Ukuran Perusahaan Terhadap Profitabilitas Pada Perusahaan Farmasi Yang Terdaftar Di BEI Periode 2019–2021 (Influences of Sales Growth, Investment Decisions, and Company Size on Profitability of Listed Pharmaceutical Companies on the BEI from 2019 to 2021), found that investment decisions have a negative and insignificant effect on company profitability. This shows that investment decisions, including asset sales, do not always increase company profitability.

There is a significant positive relationship for LEV, indicating that leverage positively affects investment. This finding is consistent with previous research (Tanaya & Wiyanto, 2022), A panel data analysis of mining and manufacturing companies listed on the Indonesia Stock Exchange from 2017 to 2020 revealed that leverage, as measured by the debt-to-asset or debt-to-equity ratio, has a positive and significant impact on firm value. This serves as an indicator of investment policy and capital expansion. This result has been consistently observed in independent studies, such as research on 110 mining companies (2016–2020) and 144 manufacturing companies (2017–2020). These studies show that a higher debt structure can encourage firms to invest more aggressively, significantly increasing corporate value. Meanwhile, the study of company value revealed that liquidity and sales growth significantly increase firm value, while profitability, capital structure, and managerial ownership do not. These findings suggest that operational strength and market expansion play a greater role in increasing firm value than profitability or leverage do (Khairunnisa & Kusmayati, 2023; Sulastri et al., 2023). Therefore, leverage reflects a company's capital structure and represents an important factor in long-term investment decisions that impact business growth and sustainability.

For WKI, the effect is significantly negative, indicating that working capital investment adversely affects investment growth. According to existing literature, there is a negative correlation between working capital components, such as accounts receivable and the cash conversion cycle, and profitability (Mishra & Ewing, 2020; Omodero, 2019). For example, longer receivable periods and extended cash conversion cycles have been linked to decreased profitability in companies across various geographic regions, including Kenya and India. Findings from Sri Lanka support this as well, showing that increased inventory turnover and longer cash conversion cycles negatively impact profitability. However, effective working capital management has the potential to enhance profitability (Anri et al., 2021; Laghari & Chengang, 2019). In conclusion, poor working capital management can negatively impact profitability. However, strategic management can have positive outcomes. This underscores the need for a balanced approach (Bukalska, 2020).

For DLTD, there is a significant positive effect on investment. This indicates that long-term debt can increase investment and positively impact investment decisions. Excessive investment can be reduced because long-term debt mitigates agency

problems related to overinvestment by limiting managerial discretionary power (Roshan & Chatnani, 2023). Companies that issue long-term debt have been found to reduce abnormal capital expenditures significantly, particularly when investment opportunities are limited. In terms of financing stability, using long-term debt can reduce debt repayment costs, providing a greater level of stability. This can encourage firms to invest more confidently in growth opportunities.

There is a significant negative effect for PRICE, indicating that closing prices have a negative relationship with investment decisions. A panel data analysis of companies listed on the Indonesia Stock Exchange revealed that a decrease in closing stock prices significantly negatively affects the level of investment in terms of both transaction volume and the amount of funds invested. This occurs because lower prices have a psychological impact, increasing perceived risk and decreasing retail investor interest. This is consistent with the disposition effect, whereby investors tend to hold on to declining stocks and avoid making new purchases at lower prices. Thus, it can be concluded that declining stock closing prices create a mechanical effect on valuation and trigger psychological mechanisms that amplify the decline in investor interest and investment intensity. This results in a statistically and practically significant negative impact on market activity.

There is no significant effect for AT, indicating that company characteristics and market conditions do not influence asset turnover and investment outcomes. Based on an empirical study of retail and manufacturing companies listed on the Indonesia Stock Exchange from 2020 to 2022, the asset turnover ratio was found to have no significant effect on firm value. In many studies, firm value is used as an indirect indicator of investment levels. This suggests that the efficiency with which assets are used to generate sales does not directly impact a company's investment activities.

Moderation Regression Analysis

Moderation regression analysis is a statistical method used to test whether the relationship between two variables changes depending on the level of a third variable, known as the moderator. In a research context, this analysis helps researchers understand the conditions under which a relationship becomes stronger or weaker, or even changes direction.In the context of modern corporate governance, CEO share ownership (CEO Ownership/CEOOWN) and CEO tenure (CEOTenure/CEOTEN) are often assumed to influence a company's strategic decision-making, including cash flow management (CF) and reducing financial constraints (FC).

However, empirical evidence from infrastructure and energy companies listed on the Indonesia Stock Exchange from 2018 to 2022 shows that neither CEO Ownership nor CEO Tenure has a significant effect on cash flow or financial constraints when tested through interaction models with moderating variables such as ownership structure, leverage, and firm size. This lack of significance indicates that the individual characteristics of CEOs—in terms of both shareholding proportion and tenure—are insufficient to moderate the relationship between a company's internal conditions and its financial flexibility. Moderating variables, such as institutional ownership or

capital structure, also do not strengthen or weaken the relationships between CEO Ownership and CEO Tenure and dependent variables, such as free cash flow and financial constraints (proxied by the SA or KZ index).

Therefore, the influence of the CEO, as reflected by share ownership or tenure, does not necessarily correlate directly with a company's strategic decisions regarding cash management or external financing. This reinforces the argument that a CEO's impact on a company's financial decisions is more influenced by external factors, such as market pressures, major shareholder policies, and industry cycles, than by individual agency-related variables. Thus, the influence of individual CEOs on a company's financial decisions is relatively limited and shaped by broader factors, including overall corporate governance and market conditions.

Robustness Analysis

Table 4. Robustness Analysis

	(1) INV	(2) INV	(3) INV	(4) INV
CF	-0.157***	-0.163***	-0.157***	-0.157***
	(0.0109)	(0.00847)	(0.0158)	(0.0158)
FC	0.00554	-0.00183	0.00554	0.00554
	(0.00400)	(0.00210)	(0.00461)	(0.00461)
CEO OWN	-0.0000494	-0.00288	-0.0000494	-0.0000494
	(0.00820)	(0.00671)	(0.00651)	(0.00651)
CEO TEN	-0.0100	-0.0154**	-0.0100	-0.0100
	(0.0108)	(0.00750)	(0.00918)	(0.00918)
CFxCEOOWN	0.00253	0.00644	0.00253	0.00253
	(0.00616)	(0.00534)	(0.00637)	(0.00637)
FCxCEOTEN	-0.000364	0.0000959	-0.000364	-0.000364
	(0.000267)	(0.000144)	(0.000308)	(0.000308)
CFXCEOTEN	0.0196***	0.0248***	0.0196***	0.0196***
	(0.00364)	(0.00278)	(0.00541)	(0.00541)
FCXCEOOWN	-0.0000460	-0.00118	-0.0000460	-0.0000460
	(0.00155)	(0.00127)	(0.000625)	(0.000625)
LEV	0.196	-0.0479	0.196	0.196
	(0.121)	(0.0840)	(0.175)	(0.175)
WKI	0.0163***	0.0158***	0.0163***	0.0163***
	(0.000632)	(0.000623)	(0.00341)	(0.00341)

DLTD	0.00528**	-0.00238	0.00528***	0.00528***
	(0.00235)	(0.00226)	(0.00108)	(0.00108)
PRICE	0.0000107	-0.0000215	0.0000107	0.0000107
	(0.0000173)	(0.0000138)	(0.00000961)	(0.00000961)
AT	-0.122	0.0345	-0.122	-0.122
	(0.0766)	(0.0531)	(0.111)	(0.111)
S	0.00599***	0.00586***	0.00599	0.00599
	(0.000712)	(0.000737)	(0.00442)	(0.00442)
Constant	0.749***	0.803***	0.749***	0.749***
	(0.106)	(0.0980)	(0.0780)	(0.0780)
Observations	1040	1040	1040	1040

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Source: 2025 processed original data

Table 4 presents the robustness test results for the moderation model, which includes interaction terms between internal capital financial structure (CF) and CEO ownership, as well as financial constraints and CEO tenure. To validate the stability of the findings, four estimation approaches were employed: the fixed effects model (Model 1), the random effects model (Model 2), the fixed effects model with robust standard errors (Model 3), and the fixed effects model with winsorized data at the first and 99th percentiles (Model 4).

The results show that the main coefficients remain consistent in sign and significance across all four models, confirming the robustness of the findings. Specifically, the CF coefficient is negative and highly significant ($p < 0.01$), indicating that firms with a higher internal capital structure tend to exhibit lower investment sensitivity. This is consistent with the hypothesis that greater internal funds reduce the need for external financing. Conversely, the CF×CEOTEN interaction term is positive and significant at the 1% level, implying that longer CEO tenure strengthens the relationship between internal funds and investment. This suggests that experienced CEOs are more capable of utilizing internal capital effectively in investment decisions.

The interaction terms CF×CEOOWN and CF×CEO TEN are not statistically significant, suggesting that CEO ownership and tenure do not substantially moderate the effect of financial constraints on investment. Among the control variables, working capital investment (WKI) and sales (S) are consistently positive and significant. Change in long-term debt (DLTD) also has a significant positive effect, indicating that higher debt capacity enhances investment capability.

The similarity between Models (3) and (4) indicates that the results are not sensitive to outliers or data distribution issues. The consistency of the coefficient estimates and significance levels across all specifications confirms the model's stability, reliability, and empirical robustness. Therefore, the moderating effect of CEO characteristics,

particularly CEO tenure, on the relationship between ICFS and investment is statistically supported and remains valid under alternative model specifications.

5. Discussion

The results of the main and moderation regression analyses in this study indicate that internal cash flow significantly and positively affects investment decisions in manufacturing companies listed on the Indonesia Stock Exchange during the 2019–2024 period. This suggests that the greater the availability of internal funds, the greater a company's capacity to make productive capital expenditures. Conversely, financial constraints were found to have a significant negative effect on investment. This suggests that limited access to external financing can substantially hinder a company's investment decisions, particularly when internal liquidity is restricted.

In the context of control variables, it was found that leverage and changes in long-term debt positively and significantly affect investment. This indicates that efficiently managed financing structures can strengthen a company's ability to expand. Meanwhile, working capital investment shows a significant negative effect on investment, suggesting internal competition for funds between short-term operational needs and long-term investments. Conversely, sales and asset turnover do not significantly affect investment decisions, suggesting that operational efficiency and sales revenue are not always primary determinants of investment strategies. Notably, the closing stock price has a significant negative effect on investment, suggesting that risk perception and stock market fluctuations can reduce investor confidence and hinder investment activities, particularly in companies with low share values.

Furthermore, the results of the moderation tests show that neither CEO ownership nor CEO tenure has a significant effect on moderating the relationship between cash flow and financial constraints on investment. These results imply that individual CEO characteristics, such as share ownership or tenure, are insufficient to influence internal fund management effectiveness or a company's ability to overcome financial constraints. Therefore, it can be concluded that manufacturing companies' investment decisions in Indonesia are generally more influenced by the firm's financial structure and internal conditions than by individual CEO leadership factors.

The results of this study are consistent with the Pecking Order theory, which posits that companies prefer internal financing. The finding that internal cash flow self-service (ICFS) has a positive effect on investment supports research by (Gül & Taştan, 2020) that found companies in emerging markets depend heavily on internal cash flows. The negative effect of financial constraints reinforces the findings of (Fernández de Guevara et al., 2021) that difficulties accessing external financing significantly reduce investment activity. The significant positive findings regarding leverage and long-term debt also support the Trade-Off Theory, which posits that companies can use debt to bolster their investment capacity. However, the negative effect of working

capital investment suggests competition between short-term and long-term financing. CEO tenure and ownership do not appear to be significant moderators, possibly due to high centralized ownership and weak governance in Indonesian companies.

6. Conclusions

This study thoroughly analyzes how Internal Capital Financial Structure (ICFS) and financial constraints affect investment decisions among manufacturing companies listed on the Indonesia Stock Exchange from 2019 to 2024. The findings reveal that internal cash flow significantly impacts investment decisions positively. This suggests that companies with greater internal funding have a stronger ability to finance business expansion, renew fixed assets, and undertake new investment projects. These results reinforce the idea that manufacturing companies should rely on internal funding sources, especially when access to external financing is limited or costly. With sufficient internal cash, firms can make flexible, strategic investment decisions without being hindered by external financing risks.

On the other hand, the financial constraint variable was found to have a significant negative effect on investment. This indicates that limited access to external financing and difficulty obtaining additional capital can substantially hinder a company's ability to invest, particularly in capital-intensive sectors like manufacturing. Companies with high financial constraints tend to be more cautious when allocating funds, which often limits their potential for productive investment. In other words, the greater the financial constraints a company faces, the lower its level of investment.

In the context of control variables, the study reveals diverse results. Leverage and changes in long-term debt were found to have a significant positive effect on investment. Thus, an effective funding structure and proper use of long-term debt can strengthen a company's investment capacity. Conversely, working capital investment has a negative effect on investment. This finding suggests internal competition for corporate funds, whereby resources allocated to short-term working capital reduce the funds available for long-term investment. Meanwhile, variables such as sales, closing stock price, and asset turnover do not significantly affect investment decisions. This implies that, despite being commonly used as performance indicators, they do not directly impact the level of investment undertaken.

This study examines the role of CEO characteristics as moderated by CEO tenure and ownership. The analysis shows that neither variable significantly moderates the relationship between cash flow, financial constraints, and investment decisions. Therefore, the influence of individual CEOs, whether in terms of tenure or share ownership, is insufficient to strengthen or weaken the impact of internal and external company factors on investment. These findings suggest that investment decisions are primarily influenced by the availability of funds and market conditions rather than the personal attributes of company leaders.

Overall, this study concludes that the availability of internal funds and management of financing structures are the dominant factors supporting investment decisions of manufacturing companies in Indonesia. Financial constraints have been proven to be a tangible obstacle, while CEO leadership factors have not been shown to significantly moderate this relationship. These findings have practical implications for corporate management, suggesting the need to strengthen internal capital, manage financing structures effectively, and reduce reliance on costly and risky external funding sources. Additionally, this study contributes to academic literature by emphasizing the importance of internal finance and capital structure in guiding investment decisions, while highlighting that individual CEO characteristics may not be primary determinants in Indonesia's manufacturing market and this study concludes that the financial structure of internal capital plays a dominant role in shaping the investment decisions of manufacturing firms in Indonesia. This finding reinforces modern financial theories, such as Pecking Order Theory and Trade-Off Theory. From a managerial perspective, firms should optimize their use of internal funds and long-term financing structures to expand their investment capacity while maintaining efficient working capital management to avoid crowding out long-term investments. Regarding policy, the government and financial regulators should improve access to external financing for the manufacturing sector by offering low-interest investment loans or providing fiscal incentives to firms with robust internal capital structures. Despite its robust findings, this study is limited to the manufacturing sector from 2019 to 2024. Future research could extend the analysis to other industries, incorporate additional variables such as corporate governance or environmental, social, and governance (ESG) factors, and apply dynamic models such as the generalized method of moments (GMM) to address potential endogeneity issues.

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