

Analysis of Factors Affecting Cash Holding in Technology Companies Listed on the Indonesia Stock Exchange for the Period 2020-2024

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Abstract

Purpose – This study aims to determine the effects of Capital Expenditure, Sales Growth, Liquidity, and Cash Flow on Cash Holding.

Design/methodology/approach – This research uses quantitative data and consists of a sample of 14 Technology Companies listed on the Indonesia Stock Exchange from 2020 to 2024. Multiple regression analysis using EViews 9 Software was used to test the hypothesis.

Findings – The results indicate that Capital Expenditure has a negative and statistically insignificant effect on cash holdings, sales growth has a positive and statistically significant effect, liquidity has a positive and statistically significant effect, and cash flow has a positive and statistically significant effect.

Research limitations/implications – This research hopes to provide information on cash holdings and offer benefits in decision-making, as well as serve as a reference for further research.

INTRODUCTION

In the era of rapid digital transformation, the technology sector is the backbone of global economic growth, including in Indonesia. Where technology companies face complex business dynamics characterized by rapid innovation cycles, fierce competition, and high investment needs. Where Cash Holding is a crucial aspect to ensure the company's operational continuity and strategic flexibility. Optimal cash holding allows companies to deal with market uncertainties and respond quickly to investment opportunities. However, determining the right level of Cash Holding is not easy, as it involves consideration of various internal and external factors that interact with each other. Therefore, a deep understanding of the determinants of Cash Holding is important, especially for Technology Companies operating in

a dynamic and challenging business environment.

This research is motivated by the condition of the company *Silicon Valley Bank* (SVB) or known as one of the largest financial institutions in the United States that focuses on *startup* financing, especially in the Technology Sector. On March 10, 2023, *SVB Financial Group* experienced a sudden bankruptcy that caused turmoil in the global market and rendered billions of dollars of funds belonging to companies and investors inaccessible. This crisis stemmed from a liquidity imbalance when SVB had difficulty meeting the needs of customers' funds that withdrew their deposits on a large scale. Banks are forced to sell assets in the form of bonds at significant losses to cover the shortfall in capital. As a result of its inability to meet its due obligations, the financial regulator of the state of California took over the bank's operations. It became the largest banking failure in the United States since the 2008 global financial crisis and demonstrates the importance of effectively managing liquidity risk in the modern banking system. There are technology companies affected by the collapse of *Silicon Valley Bank* (SVB) such as the Roku company which is engaged in the provision of streaming hardware and software. The company that has built a brand on cheap streaming devices and a payment technology company is *Circle*. Of the several companies that were affected by the collapse of SVB, the technology company did not know the extent to which the cash stored at SVB would be restored.

Several previous studies have examined the factors that influence *Cash Holding*, but with a mixed focus and results. Cliff and Yanti, (2024) found that *Capital Expenditure* has a negative influence on *Cash Holding* while *Sales Growth* Negative Effects *Cash Holding*. Gunawan et al., (2021) shows that *Capital Expenditure* has a positive effect on *Cash Holding*. While the results of the study Halim and Novianty, (2023) shows that *Sales Growth* has a positive effect on *Cash Holding*, Nurainun Bangun et al., (2023) states that *Operating Cash Flow* has a positive influence on *Cash Holding* company. Siregar et al., (2022) states that *Cash Flow* negative effects on *Cash Holding*. While Liana Susanto, (2020) stated that liquidity has a significant positive effect on *Cash Holding*. Monika, (2022) stated that Liquidity has a negative effect not significantly on *Cash Holding*. These differences in results show that the influence of these variables on *Cash Holding* may vary depending on the industry and the characteristics of the company.

Therefore, this study aims to analyze the influence of *Capital Expenditure*, *Sales Growth*, *Liquidity*, and *Cash Flow* on *Cash Holding* in Technology Sector Companies in Indonesia. Thus, this research is expected to contribute to more effective and efficient financial decision-making in the Technology Sector.

LITERATURE REVIEW

Agency Theory

Jensen and Meckling, (1976) Define *Agency Theory* as a relationship between one or more owners (*principal*) that involves others (*agent*) to perform a number of services on their behalf involving several decision-making authorities to *agent*. However, agency conflicts can arise because it is assumed that the goals between shareholders and management are not always aligned, potentially causing management to act inappropriately in the interests of shareholders. This raises agency problems that need to be addressed in the relationship

between shareholders and company management (Damayanti & Kawedar 2018).

Pecking Order Theory

Myers (1984), *Pecking or Theory* Explain that the company prefers to manage changes internally rather than seeking help from external sources. that this theory is based on the assumption that there is an information asymmetry between the company's management and external investors, where management has more complete information about the company's prospects and value than outsiders (Harjito, 2011).

Trade-off Theory

Opler et al., (1999), *Trade-off Theory* aims to maximize the welfare of shareholders by setting the amount of cash held by the company at a level where the marginal benefit of holding cash is equal to the marginal cost of holding such cash. *Trade Off Theory* He explained that companies with lower business risk, or those with a larger proportion of tangible assets, tend to be able to bear higher levels of debt (Nana and Hashifah, 2020).

HYPOTHESIS DEVELOPMENT

Capital Expenditure terhadap Cash Holding

Under certain conditions, capital expenditure has a negative impact on the company by making capital expenditures, namely the purchase of assets, continuously and used as collateral, will result in the capital expenditure becoming ineffective and will reduce the company's liquidity, especially it will have a negative impact on Cash Holding where when the capital expenditure is too large and not well planned, the company risks a decline cash significantly which results in the company having difficulty in meeting its short-term obligations. Previous research conducted by (Cliff and Yanti, 2024; Gunawan et al., 2021) stated that Capital Expenditure has a negative and significant influence on Cash Holding. Based on theoretical studies and previous research, the research hereby takes a hypothesis, namely:

H₁: Capital expenditure has a negative effect on cash holding

Sales Growth terhadap Cash Holding

Sales Growth (*Sales Growth*) has a positive impact on the company, as the increase in sales performance will reflect the company's good operational performance, but it also plays a role in maintaining investor confidence. Previous research conducted by (Halim and Novianty, 2023; Nurul Ch and Zulfiati, 2019; Rustam and Rasyid, 2022) states that *Sales Growth* has a positive effect on *Cash Holding*.

Based on theoretical studies and previous research, the research hereby takes a hypothesis, namely:

H₂: *Sales Growth* has a positive effect on *Cash Holding*

Liquidity to Cash Holding

Liquidity is an ability company to obtain cash in a short period of time to fulfill its

obligations. High liquidity will make the company save more cash which aims to maintain financial flexibility and anticipate future funding needs. Previous research conducted by (Adha and Akmalia, 2023; Agustina et al., 2021; Jesslyn Maxentia et al., 2022; Liana Susanto, 2020) stated that Liquidity has a positive effect on *Cash Holding*.

Based on theoretical studies and previous research, the research hereby takes a hypothesis, namely:

H₃: Liquidity has a *positive* effect on *Cash Holding*

Cash Flow terhadap Cash Holding

Operating cash flow (*Operating Cash Flow*) is cash that exists or is available as a result of the activities of the business being conducted. Cash inflows that are greater than cash outflows indicate the magnitude of positive net cash flows and the opposite is true. The larger the cash flow the company has, the higher the likelihood of the company increasing cash reserves. Previous research conducted by (Agnesstyaningsih et al., 2023; Cindy et al., 2023; Hayati, 2020; Octavianti and Mawardi, 2024; Viriany, 2022) states that *Cash Flow* has a positive effect on *Cash Holding*.

Based on theoretical studies and previous research, the research hereby takes a hypothesis, namely:

H₄: *Cash Flow* has a positive effect on *Cash Holding*

RESEARCH METHOD

This study aims to explain the causal relationship between independent variables, namely *Capital Expenditure*, *Sales Growth*, *Liquidity*, and *Cash Flow* to the dependent variables, namely *Cash Holding*. The Research paradigm used is positivism with a deductive quantitative method, This Research Methodology answers questions related to how often, how much, when and who (Cooper and Schindler, 2014), The Implementation Time used was a longitudinal study. The type of data used is secondary data obtained from the annual reports of companies listed on the Indonesia Stock Exchange (IDX) in the period of 2020 to 2024, The sampling technique is carried out by non-probability sampling, using the purposive sampling method. From the population of 44 technology sector companies, 14 companies met the sample criteria.

Table 1. Variable measuring instruments and sources of measurement

No	Variable	Measurement	Source
1.	<i>Cash Holding</i>	$CH = \frac{\text{Cash} + \text{Equivalent Cash}}{\text{Total Assets}}$	(Susanti and Susanto, 2024)
2.	<i>Capital Expenditure</i>	$\text{Capex} = \frac{\text{Fixed Assets} - \text{Fixed Assets } t-1}{\text{Total Assets}}$	(Permatasari et al., 2023)
3.	<i>Sales Growth</i>	$SG = \frac{\text{Total Sales Year } n - \text{Total Sales Year } n-1}{\text{Total Sales Year } n-1}$	(Yani et al., 2024)

4.	Liquidity	$CR = \frac{\text{Current Assets}}{\text{Current Liabilities}}$	(Adha and Akmalia, 2023)
5.	Cash Flow	$CF = \frac{\text{operating cash flow}}{\text{Total Assets}}$	(Cindy et al., 2023)

RESULTS

Table 2. Descriptive Statistics

	CH	THAT	SG	CR	CF
Mean	0.121932	-0.022055	0.483583	5.149838	0.089959
Median	0.121858	0.008163	0.104596	2.224674	0.024357
Maximum	0.450867	0.480288	7.664468	38.19220	1.928885
Minimum	0.000112	-1.943651	-0.996421	0.209763	-0.765052
Std. Dev.	0.090164	0.309685	1.580245	7.875314	0.430724
Observations	70	70	70	70	70

Source: Output Eviews 9 (2025)

Selection of the Best Panel Data Model

Chow Test

The criteria for making chow test decisions are as follows:

1. If the probability (Prob) on Cross Section F > 0.05 then a better model is Common Effect.
2. If the probability (Prob) on Cross Section F < 0.05 then a better model is Fixed Effect.

Table 3.

Effects Test	Statistic	d.f.	Prob.
Cross-section F	9.221408	(13,52)	0.0000
Cross-section Chi-square	83.688007	13	0.0000

Source: Output Eviews 9 (2025)

Based on the results of the Chow Test using Eviews 9, it is stated that the probability value of Cross Section F is 0.00 which is less than the significance level value ($\alpha = 0.05$). This means that the best model used is the Fixed Effect Model (FEM). Therefore, the Hausman Test is needed in order to choose the best model between the Fixed Effect Model and the Random Effect Model.

Hausman Test

The criteria for making chow test decisions are as follows:

1. If the Probability (Prob) < 0.05 then the better model is *Fixed effect*
2. If the Probability (Prob) > 0.05 then a better model is *Random effect*

Table 4. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
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Cross-section random	3.286041	4	0.5111
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Source: Output Eviews 9 (2025)

Based on the results of the Chow Test using Eviews 9, it is stated that the probability value is 0.51 which is less than the significance level value ($\alpha = 0.05$). This means that the best model used is the *Random Effect Model (REM)*. Therefore, the next test is needed, namely the *Lagrange Multiplier Test* in order to choose the best model between the *Common Effect Model* and the *Random Effect Model*.

Lagrange Multiplier Test

The criteria for making cow test decisions are ad follows:

1. If the Significance on *Both* < 0.05 then the better model is *Random effect*
2. If the significance on *both* > 0.05 then the better model is *the Common effect*

Table 5. Lagrange Multiplier Test

	Test Hypothesis Cross-section	Time	Both
Breusch-Pagan	43.31918 (0.0000)	1.442571 (0.2297)	44.76175 (0.0000)
Honda	6.581731 (0.0000)	-1.201071 --	3.804701 (0.0001)
King-Wu	6.581731 (0.0000)	-1.201071 --	2.142302 (0.0161)
Standardized Honda	7.684276 (0.0000)	-0.989737 --	1.277276 (0.1008)
Standardized King-Wu	7.684276 (0.0000)	-0.989737 --	-0.267643 --
Gourierioux, et al.*	--	--	43.31918 (< 0.01)
*Mixed chi-square asymptotic critical values:			
1%	7.289		
5%	4.321		
10%	2.952		

Source: Output Eviews 9 (2025)

Based on the results of the Lagrange Multiplier Test, the significance value for *Both* is 0.00 where this result is less than the significance level value ($\alpha = 0.05$). In this case, it means that the best model used is the *Random Effect Model (REM)*.

Multiple Regression Analysis

Table 6. Panel Data Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.086956	0.022722	3.826984	0.0003
THAT	-0.009965	0.028069	-0.355002	0.7237
SG	0.009974	0.005143	1.939195	0.0568
CR	0.004427	0.001230	3.597470	0.0006
CF	0.079334	0.036679	2.162953	0.0342

Source: Output Eviews 9 (2025)

The results of panel data regression estimation using the *Random Effect Model (REM)* show the results of testing with panel data regression, so that from these results, the following model equation id obtained.

$$CH = 0.087 - 0.0099*EC + 0.0099*SG + 0.0045*CR + 0.0793*CF + \varepsilon$$

Coefficient of Determination Test

Table 7. Coefficient of Determination Test

R-squared	0.305597	Mean dependent var	0.036318
Adjusted R-squared	0.262865	S.D. dependent var	0.062465
S.E. of regression	0.053631	Sum squared resid	0.186956
F-statistic	7.151405	Durbin-Watson stat	1.523673
Prob(F-statistic)	0.000078		

Source: Output Eviews 9 (2025)

Adjusted R-Squared shows a value of 0.262865, which means that 0,26% of the variables *Capital Expenditure, Sales Growth, Liquidity, and cash flow can explain the cash holding variable.*

Partial Test (T-Test)

Table 8. Partial Test (T-Test)

Variable	Predictions	Coefficient	T-Statistics	Prob.
C		0.087	3.827	0.0003*
THAT	-	-0.0099	-0.355	0.724*
SG	+	0.0099	1.939	0.057*
CR	+	0.0045	3.597	0.0006*
CF	+	0.0793	2.163	0.035*

CH = Cash Holding, CE = Capital Expenditure, SG = Sales Growth, CR = Likuidity, CF = Cash Flow

Source: Output Eviews 9 (2025)

The results of the test using the Fixed Effect Model (FEM) can be summarized as follows:

1. Capital Expenditure with a probability value of $0.724/2 = 0.362 > 0.05$, can be interpreted as the Capital Expenditure variable has a negative influence and does not have a

- statistically significant effect on Cash Holding.
2. Sales Growth with a probability value of $0.057/2 = 0.0285 < 0.05$, it can be interpreted that the Sales Growth variable has a positive and statistically significant influence on Cash Holding.
 3. Liquidity with a probability value of $0.0006/2 = 0.0003 < 0.05$, it can be interpreted that the Liquidity variable has a positive and statistically significant influence on Cash Holding.
 4. Cash Flow with a probability value of $0.035/2 = 0.0175 < 0.05$, then it can be interpreted that the Cash Flow variable has a positive and significant influence on Cash Holding.

DISCUSSIONS

The Effect of *Capital Expenditure* on *Cash Holding*

Based on the partial test (t-test) using the *Random Effect Model* (REM) test, it shows a coefficient of -0.0099 with a probability of 0.724 because this study uses the one tail hypothesis, the probability value is divided by 2 (two), namely, $0.724/2 = 0.362$ which is much greater than the significance level $\alpha = 0.05$ (5%) and the results of the t-test on the *Capital Expenditure* variable Produces a calculated t value of $-0.355 < t$ of the table which is 1.66864. From the statistical results, it can be stated that the first hypothesis test (H_1) indicates that *Capital Expenditure* has no effect on *cash holding*, so the first hypothesis (H_1) is accepted. It can be explained that an unplanned increase in capital expenditure can reduce the amount of cash available to the company. Excessive and continuous capital expenditure without considering its benefits and not being managed properly can result in a decrease in liquidity which will negatively impact the company's ability to meet its short-term obligations.

However, the results of the study show that there is a discrepancy between *Capital Expenditure* and the principle of *Trade-off Theory* where if a company makes capital expenditure or investment without considering the existing cash flow, it can cause cash storage in the company to be limited.

These findings are in line with previous research conducted by Gunawan et al., (2021) states that *Capital Expenditure* has no effect on Cash Holding. This shows that companies generally spend capital and the assets owned by the company are financed using debt, so that the activity of replacing or buying fixed assets does not have a great influence on the level of cash available in the company.

The Effect of *Sales Growth* on *Cash Holding*

Based on the partial test (t-test) using the *Random Effect Model* (REM) test, it shows a coefficient of 0.0099 with a probability of 0.057 because this study uses the one tail hypothesis, the probability value is divided by 2 (two), namely, $0.057/2 = 0.0285$ which is much smaller than the significance level $\alpha = 0.05$ (5%) and the results of the t-test on the *Sales Growth* variable Produces a calculated t value of $1.939 > t$ of the table, which is 1.66864. From the statistical results, it can be stated that the second hypothesis (H_2) test indicates that *Sales growth* has a positive effect on Cash Holding, so the second hypothesis (H_2) is accepted. This means that higher sales growth can increase the amount of cash in the company, with increased sales performance reflecting good performance to investors. With increased sales, companies will be

more likely to retain the cash generated for future funding needs.

Therefore, the results of this study support *the Pecking Order Theory*, because it shows that a company that experiences sales growth will use more internal funding which has a positive impact on the company which will increase financial stability, as well as give confidence to investors.

These findings are in line with research conducted by Nurul Ch and Zulfiati (2019) which states that Sales Growth has a positive effect on *Cash Holding*. This suggests that sales growth has an impact on cash holdings because the company has greater growth opportunities which will lead to higher cash shortfall costs and the company can have better investment opportunities. This indicates that the higher the Sales Growth, the higher the cash storage in the company.

The Effect of Liquidity on Cash Holding

Based on the partial test (t-test) using *the Random Effect Model (REM)* test, it shows a coefficient of 0.0045 with a probability of 0.0006 because this study uses the one tail hypothesis, the probability value is divided by 2 (two), namely, $0.0006/2 = 0.0003$ which is much smaller than the significance level $\alpha = 0.05$ (5%) and the results of the t-test on the Liquidity variable produce a calculated t value of $3.597 > t$ table, which is 1.66864. From the statistical results, it can be stated that the results of the third hypothesis (H_3) test indicate that Liquidity has a positive effect on Cash Holding, so that the third hypothesis (H_3) is accepted. This identifies that the higher the liquidity ratio of a company, the more the company is able to store cash. With high liquidity, companies can more easily meet their short-term obligations and can maintain financial flexibility. Therefore, the results of this study support *the Trade-off Theory* which shows that companies with high liquidity can be more flexible in decision-making, and can show the company's ability to manage cash flow well.

This research is in line with the results of previous research, as carried out by Adha and Akmalia, (2023) which states that Liquidity has a positive effect on Cash Holding. This shows that the higher the liquidity figure from year to year, the better the company's ability to pay off its short-term debts.

The Effect of Cash Flow on Cash Holding

Based on the partial test (t-test) using *the Random Effect Model (REM)* test, it shows a coefficient of 0.0793 with a probability of 0.035 because this study uses the one tail hypothesis, the probability value is divided by 2 (two), namely, $0.035/2 = 0.0175$ which is much smaller than the significance level $\alpha = 0.05$ (5%) and the results of the t-test on the *Cash Flow* variable Produces a calculated t value of $2.163 > t$ table which is 1.66864. From the statistical results, it can be stated that the testing of the fourth hypothesis (H_4) indicates that *Cash Flow* has a positive effect on Cash Holding, so the fourth hypothesis (H_4) is accepted. This identifies that when a company has high cash flow, it will have a great ability to store cash without having to use external funding. Therefore, although abundant cash flow encourages the use of internal funds in accordance with *the pecking order theory*, the company must implement a good supervision and management system so that potential conflicts of interest between managers and shareholders can be minimized and cash utilization can be optimized for the company's value.

This is in line with previous research, as done by Agnesstyaningsih et al., (2023) which states that Cash Flow has a positive effect on Cash Holding. This indicates that the higher the *Cash Flow* a company will further improve *Cash Holding* Its subsidiaries.

CONCLUSIONS

1. *Capital Expenditure* has a negative effect and statistics do not have a significant effect on *Cash Holding*.
2. *Sales Growth* has a positive effect and statistics have a significant effect on *Cash Holding*.
3. Liquidity has a positive effect and statistics have a significant effect on *Cash Holding*.
4. *Cash Flow* has a positive effect and statistics have a significant effect on *Cash Holding*.

SUGGESTION

1. The researcher can then consider other variables that have the potential to affect *Cash Holding* such as Profitability, Dividend Policy, *Net Working Capital*.
2. The researcher can then compare companies in the Technology sector with other sectors such as *the Basic Materials* sector or the Health sector, to find out whether these variables have a positive or negative effect on *Cash Holding* between these sectors.
3. Further research can make moderation and mediation variables from the relationship between *Capital Expenditure*, *Sales Growth*, Liquidity, *Cash flow*, which have a role as moderation or mediation such as *the Good Corporate Governance* variable.
4. This section explains the limitations of the research and explains what should be done for the next researcher.

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