



## The Effect of Firm Financial Performance, Free Cash Flow and Cash Holding on Overinvestment

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### **Abstract**

**Purpose:** This study examines the impact of firm financial performance, free cash flow, and cash holding on the overinvestment of manufacturing companies listed on the Indonesia Stock Exchange in 2017-2021.

**Methodology:** We employed 315 manufacturing companies listed on the Indonesia Stock Exchange for the 2017-2021 period as samples. The data required is correlated to financial performance, free cash flow, cash holding, and company overinvestment. Data is input manually from the financial reports obtained from the website of each firm. To examine the hypothesis, this study applied multiple regression analysis methods.

**Findings:** The results show that free cash flow has a significant and negative effect on overinvestment. It illustrates that higher free cash flow does not encourage a manager to overinvestment. This result support hypothesis 1 (H1). Cash holding affects overinvestment positively and significantly. These results indicate that higher cash holdings inspire managers to overinvestment. These results support hypothesis 2 (H2). Firm performance influences overinvestment negatively and significantly. This result indicates that higher firm performance does not motivate a manager to overinvestment. These results support hypothesis 3 (H3).

**Originality/Value:** Difference from the previous study, this study examines the impact of financial performance, free cash flow, and cash holding on overinvestment in one comprehensive model.

## 1. Introduction

Overinvestment is a condition where a realized investment exceeds an expected investment due to an investment inefficiency (Bhuiyan and Hooks, 2019). The phenomenon that has enhanced so far is that companies with slow growth rates and high assets and free cash flow (henceforward FCF) often experience overinvestment (Yeo, 2018). Factually, companies should finance efficiently positive-NPV projects (Miller & Modigliani, 1961). Nevertheless, many managers finance negative-NPV projects (Jensen, 1986; Biddle et al., 2009; Bhuiyan and Hooks, 2019) cause of managers' adverse selection and moral hazard problems which encourage conflicts of interest (Jensen & Meckling, 1979). Moral hazard occurs when managers have a strong desire to maximize their wealth to make capital investments that are not appropriate to shareholders' interest (Biddle et al., 2009). Weak oversight of managers makes them even more eager and driven to invest in high-risk projects to meet personal goals. The moral hazard that can cause overinvestment is motivated by high idle cash (Biddle et al., 2009; Yeo, 2018). High idle cash encourages managers to invest in high-risk projects resulting in overinvestment (Yeo, 2018). Lenders find out this condition from financial statements and then, anticipate the risk of increasing the cost of capital. However, managers' motivation decreases or even disappears to invest in projects with positive NPV due to high capital costs (Lambert et al., 2007).

Overinvestment occurs in companies with higher FCF and representation costs (Richardson, 2006). In companies that have excess cash, managers tend to mistreat these funds for unreasonable expenditures that refer to investment inefficiencies. Lamont (1997) reveal a relationship between overinvestment and FCF. FCF is one-factor triggering agency conflicts. Shareholders want FCF to be allocated as dividends, while management wants to keep FCF as an internal financial source. Both results are supported by Chen et al. (2016). Therefore, it is very important and interesting to further analyze the impact of FCF and cash holding on overinvestment. Based on previous studies, overinvestment is affected by FCF (Richardson, 2006; Chen et al., 2016 and Rajulia et al., 2020), *cash holding*; Huang et al., 2015; Rinofah,

2018; Vahedi & Mohammadi, 2018; Bhuiyan and Hooks, 2019; Asadia et al., 2021), corporate performance Kusumaningrum (2023); Farooq et al., 2015; and Nguyen Trong & Nguyen, 2020). Richardson, (2006) and Chen et al., (2016) show that overinvestment is centred in companies with the highest levels of FCF. However, the results of Rajulia et al., (2020) are inconsistent with Richardson, (2006) and Chen et al., (2016). Rajulia et al., (2020) show that overinvestment is negatively related to FCF. Research conducted by Huang et al., (2015) evidence that companies with high cash holdings do overinvestment. Meanwhile Rinofah, (2018) ) shows that FCF and cash holding affect investment positively. Research by Asadia et al., (2021) shows that cash holding affects overinvestment positively. It is consistent with Farooq et al., (2015) who find that financial performance negatively impacts overinvestment. As prior studies, Nguyen Trong & Nguyen, (2020) show a negative effect of corporate financial performance on overinvestment. Ogundipe et al., (2012) determine cash holding as money available in the company and viewed as cash and cash equivalents that can be easily converted into cash, utilized to finance fixed assets and for distribution to investors.

Nguyen Trong & Nguyen, (2020) reveal that profitability depends on investment strategies in a context of high uncertainty. As one of the management activities, managers apportion financing resources efficiently to attain an optimal investment. The motivation towards overinvestment comes from managers who opportunistically try to enlarge the assets they manage to take personal advantage, while investors pay attention to larger companies' income to increase firm value in the future (Badavar Nahandi, Younes. Taghizadeh Khanqah, 2018). As a result, managers broaden the level of investment, increasing the likelihood of investing in negative-NPV projects (Ding et al., 2019). Nguyen Trong & Nguyen, (2020) explain the essence of specific boundaries to control managers' discretionary behavior. Consequently, shareholders suffer large costs to monitor their agents (Jensen, 1986). Therefore, this study aims to examine the effect of financial performance, FCF, and cash holding on overinvestment in manufacturing companies listed on the IDX in 2017-2021. We contribute to the limited literature regarding the relationship

between financial performance, FCF, cash holding, and overinvestment in one comprehensive model. The next section highlights the literature review followed by the research method, results, analysis, and conclusions.

## **2. Literature Review**

### **Agency Theory**

The excessive investment behavior of managers is explained in agency theory, namely, managers use excess funds to fund their interests. As agents of shareholders, managers should not make such expenditures, because when there are excess funds, these funds can be distributed to shareholders. Then considering the agency theory, company investment is based on consideration of the level of profitability of investment opportunities (availability of projects with positive NPV). If the company no longer has good investment opportunities, but the company has free cash flow, then the manager returns this excess fund. Under these conditions, the level of investment should not change, dividends should increase and debt should decrease. Inappropriate investment causes the allocation of economic resources is not directed so that it can affect the welfare of shareholders. Therefore, companies need to increase and pay attention to efficient investments to increase company value (Jiang et al., 2009). Over-financed which is the excess of inefficient investment shows excess financing that is still idle during the investment process (Xu & Xia, 2012), so the higher the overfinanced ratio, the more free cash flow is created, which has increased the possibility of agency problems (Xu et al., 2015). The problem of overfunding shortly is unlikely to be completely overcome without establishing efficient investment channels.

### **Overinvestment**

Overinvestment is a term used to indicate investments made in unprofitable projects (Bhuiyan and Hooks, 2019) so that it can reduce the value of the company (Lang et al., 1996). Overinvestment reflects the company's investment expenditure in various projects that have exceeded the company's financial capabilities (Cutillas Gomariz & Sánchez Ballesta, 2014; Trianita, 2020). Therefore, overinvestment occurs due to high idle cash which motivates managers' opportunistic behavior in using idle cash

which is reflected in investments in projects that have negative NPV values (Biddle et al., 2009; Bhuiyan and Hooks, 2019). Higher capital expenditure and lower stock returns are an indication of overinvestment (Titman et al., 2004). Overinvestment behavior relates to the probability that managers exploit their power to decide on riskier or unbeneficial projects that can damage the shareholders' or lenders' interests (La Rocca et al., 2007). Overinvestment also has an impact on decreasing the profitability of companies with lower asset returns (Lin, 2017). Managers tend to increase the scale of the business even if they have to take on less profitable projects. management policies like this can be overcome by increasing leverage.

### ***FCF and Overinvestment***

The FCF reflect flexible cash that can be delivered to shareholders (Brigham & Daves, 2004; Yeo, 2018). Companies with extra FCF have better financial performance than other companies without additional FCF. Companies with extra FCF get more benefits from available opportunities that other companies could not be able to get (Ross et al., 2008). Furthermore, Chen et al. (2016) state that FCF is cash flow that is available to be paid to all shareholders and debt owners.

Managers prefer to do less profitable diversification than distribute it to investors so that control of the company's future remains in their hands (Richardson, 2006). By holding large cash in the company and then investing it in less attractive projects, managers avoid a takeover action by other companies. Richardson (2006) examines the company's investment expenditures and finds that companies with positive FCF tend to invest excessively. Excessive investment occupies the first position in the use of FCF funds, where an average of 20% is used for excessive investment and only 13% is distributed to shareholders.

Opler et al., (1999) put forward two possible reasons for managers to hold cash, namely managers withhold excess cash because it is free from risk and accumulated cash can be used for certain investments that prioritize the manager's personal goals, which the capital market may not be eager to finance. Second, an imbalance of information between shareholders and management encourages managers to overinvest, using free cash flow to finance less profitable projects that increase

managerial utility. This asymmetric information between shareholders and managers occurs due to the manager's direct involvement in company resources. Investment looks attractive because it enables more future cash flow for the company while increasing the security of the manager's job. Jensen, (1986) who explains agency cost argues that the lack of oversight has the potential for managers to issue cash flow funds if it is profitable from managers' viewpoint, but expensive from investors' standpoint, including excessive investment actions by managers which are not profitable for shareholders in the future. Managers in companies with high FCF will be tempted to squander these funds on less profitable investments.

Richardson (2006) illustrates that overinvestment occurs in companies with high cash flow levels, representation costs, and useless expenditures by managers. Furthermore, companies with positive FCF tend to overinvest. Chen et al., (2016) test whether FCF affected the overinvestment of 865 companies listed in China. Their results reveal that excess investment is more delicate to existing FCF and that excess investment is more prominent in firms with positive FCF.

**H<sub>1</sub>:** Free Cash Flow (FCF) affects overinvestment in manufacturing-subsector companies listed on the Indonesia Stock Exchange.

### ***Cash Holding and Overinvestment***

Cash is the most liquid cash asset owned by the company. Cash held by companies that can be used to finance company investments or distributed to shareholders is called cash holding (Gill & Shah, 2012). Companies need to maintain cash-holding stability to maintain company liquidity (Ross et al., 2016). Cash holding is an indicator of a company's ability to pay off short-term debt (Ross et al., 2016). There are many motives for companies to hold cash (Ali et al., 2016; Umry and Diantimala, 2018), including the transaction motive in which cash is held to meet short-term cash inflows and cash outflows such as meeting daily and investment needs. Short-term in the form of securities. The second motive is the precautionary motive which reflects the idea of holding cash to pay future obligations which currently cannot be predicted by the company (Ali et al., 2016; Umry and Diantimala, 2018). speculative motives which means that cash is currently being held for speculation on the

possibility of increasing future interest rates (Ali et al., 2016). For companies, holding large amounts of cash for a long time is very unprofitable. This is due to changes in the purchasing power of money (time value of money) (Gitman et al., 2015).

Previous research reveals that cash holding serves as an incentive to overinvestment and that overinvestment imposes substantial agency costs on shareholders. Research conducted by Rinofah (2018) notice the positive effect of cash holding on company investment decisions in Indonesia. The results of Rinofah (2018) are in line with Huang et al., (2015) that cash holding has a positive effect on the level of investment. Bhuiyan and Hooks (2019) also test the effect of cash holding on overinvestment. Their research results show that high cash holdings encourage managers to overinvest. Different from these studies, Vahedi & Mohammadi (2018) show a negative correlation between cash holding and overinvestment of companies listed on the Tehran Stock Exchange.

**H2:** Cash holding affect overinvestment positively in manufacturing-subsector companies listed on the Indonesia Stock Exchange.

### **Corporate Performance and *Overinvestment***

Managerial overinvestment problems are caused by disagreements between shareholders and managers due to risky projects and suboptimal decision-making (La Rocca et al., 2007). Investment financing by increasing debt requires management to make effective investments to increase profitability and satisfy company obligations to debtholders and stockholders (Rinofah, 2018).

Under agency theory which shows the conflict between shareholders and managers, Jensen & Meckling (1979) reveal that with an inclusive recognition of core operations, managers decide to wealthier themselves with higher salaries, promotions, and other pecuniary benefits. On the other side, shareholders have their control system to monitor business activity to eliminate big problems risen from managers' opportunistic behavior. Unfortunately, management activities to overinvestment, which is reflected in investment in projects with a negative NPV, cannot monitor directly by shareholders. Kusumaningrum (2023) conducted research related to the performance of non-financial companies in Indonesia. The

results of his research prove that financial performance is negatively related to overinvestment.

The results of Farooq et al., (2015) show that 52% of companies on the Singapore stock exchange were involved in the right investment projects, 29% of companies invested too much, and 19% of companies did not invest enough. The maximum overinvestment occurs in the basic materials sector. Furthermore, while overinvestment negatively correlated to financial performance, proper investment positively related to the company's performance. Nguyen Trong & Nguyen, (2020) conducted research that emphasized the problem of overinvestment, a problem that exacerbated company operations. The result is consistent with Farooq et al., (2015).

**H<sub>3</sub>:** Financial performance affect overinvestment positively in manufacturing companies listed on the Indonesia Stock Exchange.

## 2. Research Methods

### Sample and Data

The sample in this research is 315 manufacturing companies listed on the Indonesia Stock Exchange for the 2017-2021 period. Samples were taken randomly from the population using the Slovin formula. The data required is related to free cash flow, cash holding, company performance, and company overinvestment. Data is input manually from the company's financial reports obtained from the website of each company.

### Operational Variables

The variables used are 3 independent variables, namely free cash flow, cash holding and financial performance. And overinvestment as the dependent variable.

### Variable Overinvestment

The dependent variable, overinvestment, is measured by indicators developed by Richardson, (2006) and other previous studies such as Huang et al, (2015) dan Goh et al.( 2016) by using the overinvestment measurement ratio with the formula:

$$INEW_{it} = INEW_{it-1} + BM_{it} + LEV_{it} + CASH_{it} + AGE_{it} + SIZE_{it} + SR_{it}$$

where INEW is the new investment of the company in year t, measured by changes of fixed assets. This variable depends on the new investment lag  $INEW_{it-1}$ , the



company's growth opportunity ( $BM_{it}$ ) measured as the book value of equity and liabilities divided by the sum of the market value of equity and the book value of liabilities, ( $LEV_{it}$ ) the leverage of the company's book value of total debt minus the total book value measured as total debt and a book value of equity; ( $CASH_{it}$ ) the company's cash balance; ( $AGE_{it}$ ) log the number of years the company has been registered; log company total assets ( $SIZE_{it}$ ); and return on company stock ( $SR_{it}$ ).

The independent variable, FCF, is the real cash flow that is shared with investors after all the investments and working capital have been accomplished. The FCF is measured by using a ratio scale, where the value of FCF is divided by total assets in the same period to be more comparable to the companies sampled (Ramadhani et al., 2017). This variable is calculated using the formula as Yeo (2018).

$$FCF = NOPAT - \text{Net Investment in Operating Capital}$$

Where:

$$NOPAT = EBIT (1 - \text{tax rate})$$

$$\text{Net Investment in Operating Capital} = \text{Total operating capital} - \text{total operating capital}_{t-1}$$

$$\text{Total Operating Capital} = \text{Net operating working capital} + \text{Net Fixed Assets}$$

$$\text{Net operating working capital} = \text{Current Assets} - \text{current liabilities.}$$

The optimal level of cash holding is around 14% of total assets and the higher the level of cash holding, the higher the amount of cash available. Then it will be easy for companies to carry out operational activities to the fullest (Martínez-Sola et al., 2013). To measure cash holdings, use the following formula:

$$CH = \frac{\text{Cash and Equivalent Cash}}{\text{Total Assets}}$$

The independent variable of the company's financial performance is measured by using the profitability ratio as a measuring tool for the company's financial performance. Among the existing profitability ratios, ROA was chosen, because this ratio was felt to be appropriate for measuring company performance (Kusumaningrum, 2023). The following is the formula for financial performance which is measured using ROA with the formula:

$$ROA = \frac{\text{net income}}{\text{Total assets}}$$

### Classical Assumption Test

*The Normality Test* employed non-parametric Kolmogorov-Smirnov (K-S) analysis. The data distribution will be normal if the K-S significance value is greater than 0.05. Otherwise, the data distribution will be abnormal if the K-S significance value is less than 0.05.

*The Multicollinearity Test* used The Variance Inflation Factor (VIF). When the VIF value is more than ten and the tolerance value is less than 0.10, the regression model is considered not multicollinear. To have a decent regression model, the independent variables should not have a solid linear connection, and the amount of multicollinearity should be minimal.

*Heteroscedasticity Test.* The Glejser test is used to see whether the regression model has residual variance from one observation to another observation. If the significance value between the independent variables and the absolute residual is more than 0.05, then heteroscedasticity does not occur. Conversely, there is heteroscedasticity if the significance value is below 0.05.

*Autocorrelation Test.* This study used the run test to find out the autocorrelation in a regression model. The run test is used to determine whether the residual value occurred randomly or not. If the significance value of the run test is less than 0.05, there will be autocorrelation. Meanwhile, if the significance value of the run test is more than 0.05, there will be free of autocorrelation.

### Hypothesis Testing Method

The analytical method used in this research is multiple regression analysis methods as follows:

$$Oinv_{it} = \alpha_0 + \beta_1 FCF_{it} + \beta_2 CH_{it} + \beta_3 FP_{it} + \epsilon_{it}$$

Where:  $Oinv_{it}$  is overinvestment;  $FCF_{it}$  is Free Cash Flow;  $CH_{it}$  is cash holding;  $FP_{it}$  is financial performance.

## Results and Discussions

### Descriptive Statistics

Descriptive statistics describe the value of the minimum, maximum, mean, and standard deviation of 315 companies listed on the Indonesia Stock Exchange from 2017 to 2021 for all variables are presented in Table 4.1.

**Table 1.** Descriptive Statistics for All Variables

Variables	N	Min	Max	Mean	Std. Dev.
Overinvestment ( $Oinv_{it}$ ) (in billion rupiahs)	315	-147	11	0.38	16.43
Free cash flow ( $FCF_{it}$ ) (in billion rupiahs)	315	-77.81	77.84	0.19	8.06
Cash Holding ( $CH_{it}$ )	315	-0.16	68.52	0.33	3.86
Firm Performance ( $FP_{it}$ )	315	-1.37	8.30	0.13	0.49

Based on Table 1 of the descriptive statistical test above, it can be seen that the observation data for this study were 315 samples in manufacturing companies listed on the Indonesia Stock Exchange. The mean of overinvestment, 0.38, means that the company's average overinvestment is 0.38 billion rupiahs. The average free cash flow is 0.19 billion rupiahs. The average cash holding is 33%, and the average profitability level is 13%.

**Table 2.** Classical Assumption Test Results

	Tolerance	VIF	Durbin-Watson	Sign. Of KS
<b>Multicollinearity</b>				
Free cash flow ( $FCF_{it}$ )	0.239	4.66		
Cash Holding ( $CH_{it}$ )	0.289	3.71		
Firm Performance ( $FP_{it}$ )	0.423	1.57		
<b>Non-Autocorrelation</b>			2.21	
<b>Normality</b>				0.126

In Table 2, we learn that the data is normally distributed (Asymp value. Sig (2-tailed of KS = 0.126). There is no indication of multicollinearity with a tolerance value of the independent variables studied above 0.10. Meanwhile, the value of VIF is not more

than 10. Furthermore, the DW value (2.0216) is in the area above the dU value, there is no autocorrelation.

### Hypothesis Testing Results

This study tests the hypothesis that FCF (H<sub>1</sub>), cash holding (H<sub>2</sub>), and financial performance (H<sub>3</sub>) affect overinvestment in manufacturing companies listed on the Indonesia Stock Exchange. The results of multiple regression testing are shown in Table 3.

**Table 3.** Hypothesis Testing Results

Variables	Coefficient	Standard Error	t-stat.	Sig.
Constant	3.183	0.749	4.249	0.000
Free cash flow ( $FCF_{it}$ )	-0.938	0.171	-5.485	0.000
Cash Holding ( $CH_{it}$ )	0.351	0.074	4.743	0.000
Firm Performance ( $FP_{it}$ )	0.287	0.085	3.376	0.002

Coefficient of Correlation (R) = 0.63

Coefficient of Determination (R<sup>2</sup>) = 0.54

Adjusted (R<sup>2</sup>) = 0.51

F-stat. = 36.88

Sig. F = 0.000

The t-statistical test was carried out to measure how much influence an independent variable has as an individual in explaining variations in the dependent variable. The results show that free cash flow affects significantly and negatively overinvestment (coef. = -0.938; t-stat. = -5.485) at a significance level of 1%. It illustrates that a higher FCF does not encourage a manager to overinvestment. This result support hypothesis 1 (H<sub>1</sub>). The FCF shows the total flexible cash that can be shared with shareholders (Brigham & Daves, 2004; Yeo, 2018). A firm with extra FCF has better performance than other companies without additional FCF because the companies take advantage of diverse chances that other companies may not be able to obtain, which, like free cash flow, shows an image for investors that the dividends distributed by the company are not just a strategy to deal with the market with the intention increase company value. The FCF is company cash that can be dispersed to creditors or shareholders that are not used for working capital or investment in fixed assets (Ross

et al., 2008). Furthermore, Chen et al. (2016) state that FCF is cash flow that is available to be shared with all investors (shareholders and debt owners).

Cash holding affects overinvestment positively (coef. = 0.351; t-stat. = 4.743) at a 1% significance level. These results indicate that high cash holdings encourage companies to overinvest. These results support hypothesis 2 (H<sub>2</sub>). As previous research has revealed that cash holding serves as an incentive to overinvestment (Bhuiyan et al., 2019) and that overinvestment imposes substantial agency costs on shareholders. Research conducted by Rinofah (2018) intends to detect the impact of cash holding on investment decisions in Indonesia. The results of Rinofah (2018) are in line with Huang et al., (2015) that cash holding influences the level of investment positively. Bhuiyan and Hooks (2019) also tested the impact of cash holding on overinvestment. Their research results show that high cash holdings encourage managers to overinvest.

Firm performance affects overinvestment positively (coef. = -0.287; t-stat. = -3.376) at a 1% significance level. It indicates that higher firm performance does not motivate a manager to overinvest. These results support hypothesis 3 (H<sub>3</sub>). This result is consistent with the results of Rinofah (2018), Kusumaningrum (2023), Farooq et al., (2015), and Nguyen Trong & Nguyen, (2020). Investment financing by increasing debt requires management to make effective investments to increase profitability and satisfy company obligations to debtholders and stockholders (Rinofah, 2018). Such underlying motivation explains overinvestment. Under agency theory which shows the conflict between shareholders and managers, Jensen & Meckling (1979) reveal that with an inclusive recognition of core operations, managers decide to wealthier themselves with higher salaries, promotions, and other pecuniary benefits. On the other side, shareholders have their control system to monitor business activity to eliminate big problems risen from managers' opportunistic behavior. Unfortunately, management activities to overinvestment, which is reflected in investment in projects with a negative NPV, cannot monitor directly by shareholders. Kusumaningrum (2023), Farooq et al., (2015), and Nguyen Trong & Nguyen, (2020) conducted research related to the correlation between firm

performance and overinvestment. The results of their research prove that financial performance is negatively related to overinvestment.

The coefficient of determination is used to measure how much influence free cash flow, cash holding, and financial performance have on overinvestment in manufacturing companies listed on the Indonesia Stock Exchange. In Table 4.3, the value of R Square, 0.54 indicates that the contribution of free cash flow, cash holding, and financial performance to overinvestment is 54%. While the rest, namely with a value of 46%, is affected by other variables besides the variables examined in this study.

## **5. Conclusion**

This study purposes to investigate the effect of financial performance, FCF, and cash holding on overinvestment in manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2017-2021. The results show that FCF affects overinvestment significantly and negatively at a 1% significance level. It illustrates that a higher FCF does not encourage a manager to overinvestment. This result support hypothesis 1 (H<sub>1</sub>). Cash holding affects overinvestment positively and significantly at a significance level of 1%. These results indicate that higher cash holdings inspire managers to overinvestment. These results support hypothesis 2 (H<sub>2</sub>). Firm performance influences overinvestment negatively and significantly at a significance level of 1%. This result indicates that higher firm performance does not motivate a manager to overinvestment. These results support hypothesis 3 (H<sub>3</sub>). The limitation of this study is that it does not examine the impact of the Covid-19 pandemic on overinvestment. This research takes data for 2020 and 2021. The world and Indonesia have been hit by a pandemic during those two years. Further research is recommended to examine the effect of the Covid-19 pandemic on overinvestment in addition to the influence of free cash flow, cash holding, and firm performance variables.

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