

RESEARCH ARTICLE

Determinants of Cash Holding of Listed Manufacturing Companies in the Indonesian Stock Exchange

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Abstract: This study is primarily aimed at identifying significant factors that affect the level of cash holding of 77 manufacturing companies listed in the Indonesian Stock Exchange for the period 2009 to 2013. Factors normally identified in the literature that affect cash holding, including the levels of growth opportunity, networking capital, and financial leverage of firms, are examined in the study. Other than these variables, this study also incorporated the profitability and capital expenditure of the firms as controlled variables. Out of 138 manufacturing companies, 77 companies were selected as sample of the study using the purposive sampling technique. Secondary data were gathered from the companies' annual reports and analysed using panel regression of the Generalized Least Square (GLS) estimation model. This study empirically found that the level of growth opportunity has a positive effect, while the networking capital has an insignificant effect and financial leverage has a negative effect on cash holding of the companies, respectively. As for the controlled variables, profitability is recorded to have a positive effect, whereas capital expenditure has a negative effect on cash holding of the companies, respectively. These findings implied that in managing the level of cash holding, the manufacturing companies should take into consideration the importance of companies' growth opportunity, financial leverage, profitability, and capital expenditure.

Keywords: Cash holding, Growth opportunity, Networking capital, Financial leverage, Profitability, Generalized Least Square, Capital expenditure

JEL Classification: C33, G11, G32, L25, L60

Financial statements are the primary means for a company to communicate its financial information to external users. Generally, financial statements consist of five elements, that is, financial position statement, performance statement (income statement), equity statement, cash flow statement, and notes to financial statements. Financial position, performance, and

cash flows are the primary statements of financial statements. According to the Indonesian Institute of Accountants (2009), the objective of financial statements' report is "...to provide information about the financial position, performance, and cash flows of a company that is useful to the majority of users in order to make economic decisions and show management

accountability for the use of the resources entrusted to them” (p. 7).

One of the items of financial statements, especially on the financial position, which can be used as a basis for decision making for external users and the establishment of company policies is cash and cash equivalents. Kieso, Weygandt, and Warfield (2011) stated that

cash, the most liquid of assets, is the standard medium of exchange and the basis for measuring and accounting for all other items... cash equivalents are short-term, highly liquid investments that are both: (i) readily convertible to known amounts of cash, and (ii) so near their maturity that they present insignificant risk of changes in interest rates. (p. 344)

Cash is the most liquid asset that serves as blood, which drives companies in their routine operation. The company’s policy for holding cash is a step to protect the company from a shortage of cash (cash shortfall). The greater the uncertainty or volatility of cash flow of the company, the greater the likelihood of operational cash shortages, and companies are encouraged to hold cash in a larger amounts (Dittmar, 2008). The financial managers hold cash in adequate portions with the intention to reinvest in assets of the company, distribute to the investors, and to meet the companies’ routine operational needs. Based on the trade-off theory, companies arrange cash at the optimal level by considering the marginal costs and benefits of cash holding (Afza and Adnan, 2007). The amount of cash held by the companies to run their various activities is called cash holding (Harford, 2000). Thus, cash holding represents the retained cash by a company for the purpose of precaution, transaction, and speculation (Baker and Powell, 2005).

Additionally, the benefits of cash holding, among others, are to face financial distress, provide a more optimal investment policy in the event of financial distress, and support the external funding (Afza and Adnan, 2007). This is also consistent with the views expressed by Ferreira and Vilela (2004) that cash holding of companies can reduce the likelihood of financial distress due to unexpected losses. However, holding too much cash for the company, it can be an indication of agency problems between management and shareholders of the company (Jensen and

Meckling, 1976). Subramaniam, Tang, Yue, and Zhou (2011) in their research found that there is no optimal level of cash holding policy, because from time to time its optimal level is constantly changing. Therefore, there is no definite limit to the optimal level of cash that must be retained by the company. The determination of the optimal level of cash holding is one of the important financial decisions that must be taken into consideration by a financial manager. When a company obtains cash inflows, then the manager must make a proper decision whether to distribute them to the shareholders in the form of dividends, repurchase stocks, invest, or retain it for the benefit of the company in the future (Ginglinger and Saddour, 2007).

In the Indonesian context, there has been a phenomenon showing that some listed manufacturing companies at the Indonesian Stock Exchange for the year 2009–2013 hold varying levels of cash, ranging from 0.009% to 43.6% out of their total assets. The high variability of the amount of cash holding of the manufacturing companies in Indonesia is an interesting issue to be further empirically explored in this study. Consequently, some questions that have gained researchers’ attention in recent years in several countries, including Indonesia are: What is the optimal level of cash holding by the manufacturing companies in Indonesia, and what are the potential determinants of the different levels of cash holding by the manufacturing companies in Indonesia?

Comparing to previous studies conducted on the cash holding policy in the developed markets, similar researches on cash holding companies in the emerging economies, particularly in Indonesia, have been relatively scarce considering the vast growth of the Indonesian emerging stock market. Thus, the study that proves the company’s motivation in holding excess cash and empirically explores factors that are potentially affecting cash holding of a company is necessary and timely (Couderc, 2005). Studying cash holding policy in the Indonesian manufacturing companies is also motivated by determining whether observed cash holding fluctuations does not only occur in developed countries, but also occurs in the developing countries, especially in Indonesia. In the study by Bates, Kahle, and Stulz (2009), it showed that the cash holding of firms in the United States had increased since 1980 until 2006. In Australia, Canada, France, United States, Britain, and Germany, Datta and Jia (2012) found that firms record an increasing trend,

while in Japan, firms are found to exhibit a decreasing trend of cash holding.

The above empirical evidences proved that firms in different countries decided to have a different amount of cash holding. This could be due to different underlying factors affecting the companies' working management policy and thus contribute to the firm's cash holding policy. Since identifying all those factors are not practical, this study will only focus its analysis on three important factors (i.e., levels of growth opportunity, net working capital, and financial leverage) that are hypothesized to affect the cash holding of the manufacturing companies in Indonesia. These factors have been documented by previous studies as the major factors considered by the Chief of Financial Managers (CFOs) worldwide in deciding the optimal level of the companies' cash holding (Ozkan and Ozkan, 2004, William and Fauzi, 2013).

This study attempted to empirically ascertain the determinants of cash holding of listed manufacturing companies in the Indonesian Stock Exchange during the periods 2009 to 2013. It is indeed timely to investigate the issue, considering Indonesia as one of the fastest growing emerging capital markets in the globe. Although there are a very few studies on cash holding policy of companies in Indonesian stock markets (William and Fauzi, 2013; Jinkar, 2013), these studies failed to provide evidences on the working capital management satisfactorily and comprehensively. For example, William and Fauzi (2013) and Jinkar (2013) found a positive relationship between the net working capital and companies' cash holding, but these findings contradicted the results of previous studies on the developed capital markets, which found a negative effect of net working capital on companies' cash holding.

The above contradicting findings provide more motivation for this study to further investigate the issues by adopting the General Least Square (GLS) estimation model, hoping to arrive at a conclusive finding. In the studies by William and Fauzi (2013) and Jinkar (2013), they have incorporated cash items in calculating the net working capital, resulting in an overlap with the measurement of cash holding since cash item is one the components of net working capital. Such mismeasurement of the net working capital has led to misleading findings, thus these findings contradicted the empirical evidences in the developed markets. To avoid the mismeasurement of net working

capital, this study therefore excluded the cash items in calculating the net working capital; similar to the measurement of variables used in the previous studies on developed capital markets (see e.g. Subramaniam et al., 2011). Therefore, the findings of this study are comparable to the findings in other emerging and developed capital markets.

In addition, there are also several other reasons for selecting cash holding of manufacturing companies to be investigated in this study. Firstly, the manufacturing companies are the largest industry in the Indonesian Stock Exchange. Secondly, this study also includes the variable of growth opportunity that was ignored in the previous study by William and Fauzi (2013) and Jinkar (2013). According to Kallapur and Trombley (2001), the main factor that determines the growth opportunity is the industry factor. To avoid the industry effect in the analysis, this study only selected one type of industry, that is, the manufacturing industry. Finally, to avoid the cyclical economic impact on the analysis, the 2008 global financial crisis period was excluded. The period of analysis only covers the period from 2009 to 2013.

The rest of this study is structured as follows: Section 2 provides a brief overview of the concept of cash holdings and review of previous studies. Section 3 describes the data and discusses the methodology used in this study. Section 4 presents the results and analysis, and finally, Section 5 provides the conclusions, limitations, implication, and proposed research agenda in the future.

Literature Review

Many factors have contributed to the firm's cash holding policy. Among them are three important factors, namely the levels of growth opportunity, net working capital, and financial leverage. Growth opportunity is hypothesized as an important factor affecting company's level of cash holding. The value of growth opportunities of the firm is the present value of the firms option to make future investment (Myers, 2003). The relationship between growth opportunity and cash holding can be explained through the speculative demand theory expressed by Keynes (1936). According to the theory, a company would use cash for speculative purposes by observing a variety of profitable new business opportunities. A growing company can acquire other companies but to do so will

need large amounts of cash. Ozkan and Ozkan (2004) found that the growth opportunity has a positive effect on cash holding. Their finding is consistent with the findings of William and Fauzi (2013) and Ferreira and Vilela (2004).

The second determinant of cash holding of manufacturing companies is the net working capital. According to Titman, Keown, and Martin (2011), “net working capital is an important measure of a firm’s ability to pay its bills on time and is equal to the difference in the dollar amount of current assets (assets the firm expects to convert to cash within the year) and current liabilities (debts the firm must repay within the year)” (p. 51). The net working capital can play a role as a cash substitute, that is, when the amount of cash reaches the upper limit, the company bought securities, and if the amount of cash reaches the lower limit, the company will sell the securities to add cash (Miller and Orr, 1966). As for the net working capital relation to cash holding, William and Fauzi (2013) found that there was a positive relationship between net working capital and cash holding. The finding of William and Fauzi (2013) is in line with the finding of Jinkar (2013). However, findings of William and Fauzi (2013) and Jinkar (2013) contradicted the findings by Opler, Pinkowitz, Stulz, and Williamson (1999) and Ogundipe, Ogundipe, and Ajao (2012) who documented the negative relationship between the net working capital and the firms’ cash holding. In other words, Opler et al. (1999) found that the companies with a large net working capital generally hold the cash in small amounts.

The last factor investigated in this study that has an effect on cash holding of the manufacturing companies is the financial leverage. Financial leverage involves the use of fixed cost financing and it is employed in the hope of increasing the return to common shareholders (Van Horne and Wachowicz, 2008, p. 427). This is in accordance with the theory of transaction costs model (Opler et al., 1999) which stated that the smaller the cash held by the company the more likely that there will be a crisis in liquid assets that, in turn, may result to a high cost of external financing (debt). Because of the increment in cost and the crisis in liquid assets, it would force the company to hold large amounts of cash (Opler et al., 1999). However, the findings pertaining to the relationship between financial leverage and cash holding showed mixed empirical results. Previous studies have documented both positive (Guney, Ozkan,

and Ozkan, 2007; Schwetzler and Reimund, 2004) and negative (Saddour, 2006) relationships between the financial leverage and the companies’ cash holding.

Growth Opportunity and Cash Holding

Generally, a company holds the cash to meet its need for profitable investment projects in the future. Through this reason, it can be stated that having assets in liquid form would be more favourable to companies with higher investment opportunity than companies with uncertain investment opportunity due to their financial problems (Denis and Sibilkov, in Bigelli and Vidal, 2012). The relationship between growth opportunity and cash holding is shown by study conducted by Opler et al. (1999), which found that companies with high growth opportunity would hold a large amount of cash. The presence of growth opportunity within a company is an important factor that positively affects cash holding, as shown in various empirical studies (Kim, Mayer, and Sherman, 1998; Opler et al., 1999; Ferreira and Vilela, 2004; Ozkan and Ozkan, 2004; Jinkar, 2013; William and Fauzi, 2013). They found that growth opportunity has a positive relationship with cash holding.

Based on the above explanation, the first hypothesis of this study is proposed as follows:

- H₁: Growth opportunity has a positive effect on cash holding of manufacturing companies in Indonesia.

Net Working Capital and Cash Holding

Net working capital is also expected to be an important factor for a company in determining the policy of cash holding. Opler et al. (1999) found that net working capital negatively affected cash holding. The greater the net working capital of a company, the lower the cash would be retained by the company. Kim et al. (1998) also found that companies with large net working capitals would generally hold cash in small amounts. In other words, net working capital has a negative influence on cash holding.

At times, net working capital is also necessary to sustain activities of the company without having to wait for revenue from the main activity such as sales revenue receipts, so that if the company has a high net working capital, it will automatically reduce their cash balances (Opler et al., 1999). In general, the company with this condition would hold low amounts of cash

(Afza and Adnan, 2007). Despite that Ogundipe et al. (2012) found that net working capital has a negative effect on cash holding in the Nigerian companies, William and Fauzi (2013) found that net working capital has a positive influence on cash holding in the Indonesian companies. These findings are also in line with the study carried out by Jinkar (2013). Actually, the studies by William and Fauzi (2013) and Jinkar (2013) on the Indonesian companies showed inconsistent findings to the hypothesis that has been developed by previous studies, which stated that the net working capital negatively affect cash holding. As mentioned earlier this could be due to the incorporation of cash items in measuring the net working capital (William and Fauzi, 2013; Jinkar, 2013) so that it was overlapping with the measurement of cash holding. Consequently, there was a positive relationship between the net working capital and the cash holding.

Based on the above explanation, this study proposed the second hypothesis as follows:

- H₂: Net working capital has a negative effect on the cash holding of manufacturing companies in Indonesia.

Financial Leverage and Cash Holding

Wenyao (2007) found that managers who want to improve the welfare of shareholders, their companies should design cash holding at the appropriate level between the benefits and costs to be borne by the companies. According to Wenyao (2007), financial leverage is one of the factors that determine cash holding of a company. Financial leverage is the ratio that compares the total debt to total assets of the company. If financial leverage is considered as the company's ability to issue debt, the effect of financial leverage on cash holding is negative. However, if a large financial leverage is considered as a potential bankruptcy due to high agency problems of debt, then the effect of financial leverage on the cash holding is positive (see e.g. Guney et al., 2007).

Guney et al. (2007) conducted a study on the effect of financial leverage on the cash holding of the companies in France, Germany, Britain, and Japan. The results showed that the effect of financial leverage on cash holding were positive and negative. As for the companies in Japan, they found a positive influence, while others exhibited negative influences of

the financial leverage on cash holding. They asserted that if financial leverage is the substitution of cash that could be used by companies to invest, then the relationship between financial leverage and cash holding is negative.

Similarly, Couderc (2005) also found that the effect of financial leverage on cash holding is negative. A large financial leverage demonstrates the ease of access to capital markets so that the company would hold small amounts of cash. Saddour (2006) also found that the effect of financial leverage on cash holding is negative. This evidence is also supported by the study of Wijaya, Bandi, and Hartoko (2010) in Indonesia. Their studies revealed that financial leverage has a negative influence on cash holding; meaning that the higher financial leverage, the lower would be the company's cash holding. Debt is a cash substitution as a source of investment, but if the company could easily obtain funding sources from debts, the company would not need to hold large amounts of cash (Couderc, 2005). The finding by Wijaya et al. (2010) was also consistent with the findings by Ozkan and Ozkan (2004), Couderc (2005), Saddour (2006), and Guney et al. (2007).

Based on the above explanation, the last hypothesis of this study is proposed as follows:

- H₃: Financial leverage has an effect on the cash holding of manufacturing companies in Indonesia.

Research Method

The population in this study was 138 manufacturing companies listed in the Indonesian Stock Exchange. Of these companies, the study selected 77 companies using purposive sampling technique with the following criteria: (1) these companies were listed in the Indonesian Stock Exchange at least for one year prior to the observation period, 2009–2013; (2) and have a positive value of equity and reported their financial statements in the national currency, Indonesian Rupiah (IDR); and (3) listed continuously during the period of 2009–2013. Thus, based on the above criteria, only 77 companies were found to meet the set criteria as the sample of the study. Since the study investigates 77 companies for five-year study period, the total number of observations of the study was 385. This study used

the panel or pooled data as it combines the cross section data of 77 companies and time series of data for the 2009–2013 study period. Moreover, as the number of companies investigated in this study is the same during the study period, the study used a balanced panel data. Finally, this study used the secondary data which were obtained from the website of the Indonesian Stock Exchange (www.idx.co.id).

Variable Measurements

This study used three main independent variables (growth opportunity, net working capital, and financial leverage), two controlled variables (profitability and capital expenditure), and one dependent variable (cash holding). The measurement of each variable is presented in Table 1.

Apart from the main variables affecting the companies' cash holding, the levels of growth opportunity, net working capital, and financial leverage, the other two variables—profitability and capital expenditure—are incorporated in this study as the controlled variables. Previous studies have documented that either profitability or capital expenditure has an effect on cash holding. According to Opler et al. (1999), if it is associated with the Pecking Order Theory, an increase in the profitability would lead cash holding to rise. This is because a company would use its profits to increase liquidity and hence the company tends to hold more cash. Al-Amameh (2015) and Shabbir, Hashmi, and Chaudhary (2016) found that profitability positively affected cash holding. In other words, the higher profitability, the higher

Table 1. *Measurement of the Variables*

Variables	Measurement	Reference
Cash Holding (CH)	$CH = \frac{\text{Cash + cash equivalent}}{\text{Total assets}} \times 100\%$	Opler et al. (1999)
Growth Opportunity (GO)	$GO = \frac{\text{Market Value of common Equity}}{\text{Book Value of common Equity}} \times 100\%$	Booth, Aivazian, Kunt, & Maksimovic (2001)
Net Working Capital (NWC)	$NWC = \frac{WC - C}{\text{Total assets}} \times 100\%$ <p>Where: WC (Working capital) = CA – CL; CA = Current assets; CA = Current liabilities; and C = Cash</p>	Subramaniam et al. (2011)
Financial Leverage (FL)	$FL = \frac{\text{Total debt}}{\text{Total assets}} \times 100\%$	Teruel, Solaon, & Ballesta (2009)
Profitability (PR)	$PR = \frac{\text{Net profit after tax}}{\text{Total asset}} \times 100\%$	Van Horne & Wachowicz (2008)
Capital Expenditure (CE)	$CE = \frac{\text{Net PPE}}{\text{Total assets}} \times 100\%$ <p>Where: PPE = Property, Plant, Equipment (Fixed assets)</p>	Gordon & Lyengar (1996)

cash holding would be. However, Ferreira and Vilela (2004) found that profitability negatively affected cash holding. This was due to the company policy to utilise profit to pay the debt, so that when profitability is high then cash holding is low. The finding of Ferreira and Vilela (2004) is consistent with the finding by Kim et al. (1998).

As for the capital expenditure, the previous studies found that it has associated with the cash holding. Kusnadi (2003) reported that when a company has a plan to make a huge investment, capital expenditure has a positive effect on cash holding. This is supported by Ogundipe et al. (2012) as well. However, Riddick and Whited (2009) found that capital expenditure has a negative effect on cash holding. This was due to an increase in the productivity of investment that would reduce cash holding of a company. The finding by Riddick and Whited (2009) was consistent with the finding by Bates et al. (2009) and Jinkar (2013).

Model of the Analysis

Since this study utilized the panel data of 77 companies for the period 2009 to 2013, this study adopted the panel regression analysis based on the Generalized Least Square (GLS) estimation model, following Drom and Walker (1996) and Abd. Majid and Maulana (2012). In this context, the observations are combined both cross-sectional and time series data over several time periods (Gujarati, 2003). Hence, the general form of panel regression model is as follows:

$$CH_{it} = \alpha + \beta_1 GO_{1it} + \beta_2 NWC_{2it} + \beta_3 FL_{3it} + \beta_4 PR_{4it} + \beta_5 CE_{5it} + u_{it} \quad (1)$$

Where CH represents the cash holding firm, α is the intercept, GO is the growth opportunity, NWC is the net working capital, FL is the financial leverage, PR is the profitability, CE is the capital expenditure, u is the error term, and it is the firm i and year t .

To analyse the data, there are two models that most prominent used in the GLS, namely the Fixed Effects Model (FEM) and the Random Effects Model (REM) or Error Components Model (ECM) (Gujarati, 2003). To identify the most appropriate model to analyse the data in the study, the Hausman test was used. If the result of p-value of Hausman test is insignificant (larger than 10%), then the REM is found to be the most suitable panel regression model to be used. However, if the result of the p-value is significant, then the FEM

should be used in the GLS estimation model. In the FEM, it is allowed to have a different intercept in the regression model among individual, so that the Model (1) can be rewritten as follows:

$$CH_{it} = \alpha_i + \beta_1 GO_{1it} + \beta_2 NWC_{2it} + \beta_3 FL_{3it} + \beta_4 PR_{4it} + \beta_5 CE_{5it} + u_{it} \quad (2)$$

In the above formula, subscript i is positioned on the intercept term (α) to indicate that the intercepts of the data might be varied. The differences could be associated with special features of each company, that is, managerial style and management philosophy (Abd. Majid and Maulana, 2012). In this context, some authors used dummy variables to capture the differing intercepts. According to Abd. Majid and Maulana (2012), the FEM would be an appropriate approach in the case where the correlation between the individual specific intercept and regressors is anticipated.

However, the FEM has a disadvantage as it could lead to a smaller degree of freedom and in turn reduce the parameter efficiency. This shortage can be overcome by using the error term variable through the application of the REM or ECM. If the REM is applied, panel data would be estimated by considering the error term which could be timely and individually related to one another. In explaining the fixed effect, it is assumed that each firm has its own and different intercept. However, in the REM, it is assumed that the intercepts are random or stochastic. The model is very suitable to be adopted if the sample is obtained randomly. Thus, the regression model of the REM can be rewritten as follows:

$$CH_{it} = \alpha + \beta_1 GO_{1it} + \beta_2 NWC_{2it} + \beta_3 FL_{3it} + \beta_4 PR_{4it} + \beta_5 CE_{5it} + \varepsilon_{it} + u_{it} \quad (3.1)$$

$$\alpha + \beta_1 GO_{1it} + \beta_2 NWC_{2it} + \beta_3 FL_{3it} + \beta_4 PR_{4it} + \beta_5 CE_{5it} + w_{it} \quad (3.2)$$

In addition, after the data are analysed, the rigorous post-estimation tests, comprising tests of normality, multicollinearity, autocorrelation, and heteroscedasticity were conducted to ensure a robust finding of the study. A Jarque-Bera (JB) is used to test for the normality. If p-value of the JB test is greater than the selected significant level, then the data is found to be normally distributed. As for the multicollinearity test, the Variance Inflation Factor (VIF) is used. If

the VIF is smaller than 10, the data are free from the multicollinearity problem. The Durbin-Watson (DW) test is adopted to check for the autocorrelation, where if the D-W value is around 2, then the data is said to be free from the autocorrelation problem. Finally, the Breusch-Pagan (PG) test is used to test for the heteroscedasticity. If the Chi-squared value is significant with p-value above the selected significant level, then the data are free from heteroscedasticity problem (homoscedastic).

Empirical Results and Discussion

As mentioned previously, to investigate the effects of growth opportunity, net working capital, and financial leverage as well as the controlled variables of profitability and capital expenditure on the cash holding, this study used the GLS regression estimation model either based on the FEM or the REM (ECM). As the the p-value of chi-square of Hausman test is greater than the 10% significance level, this study adopted the REM model. Thus, the panel data of the study would be estimated and analysed based on the REM.

The Empirical Findings and Discussion

The empirical findings of the effects of growth opportunity, net working capital, and financial leverage, as well as the controlled variables of profitability and capital expenditure on the cash holding of manufacturing companies in Indonesia are reported in Table 2.

The Hypotheses Testing Results

Based on Table 2, the findings indicated that simultaneously the independent variables have significant effect at the 1% level of significance on the dependent variable with the adjusted R² (the coefficient of determination) of 0.210. This finding indicated that 21% of variation in the cash holding was simultaneously explained by the levels of growth opportunity, net working capital, financial leverage, profitability, and capital expenditure, while the remaining 79% was explained by other variables that are not investigated in this research model.

The effect of growth opportunity on the cash holding. With regards to the partial relationships between independent and dependent variables as reported in Table 2, the study found that the level of growth opportunity has a positive and significant influence on the cash holding of the manufacturing companies in Indonesia at the 1% level of significance. This result implied that the higher the level of growth opportunity of the firms, the level of cash holding would also increase, and vice versa. This finding provided evidence that the hypothesis of the positive effect of growth opportunity on cash holding is not rejected.

The result of this study are consistent with the findings of studies by Kim et al. (1998), Opler et al. (1999), Ferreira and Vilela (2004), Ozkan and Ozkan (2004), William and Fauzi (2013), and Jinkar (2013) which documented that growth opportunity has a positive influence on the cash holding. A company with high growth opportunity tends to have large

Table 2. *The GLS Estimation Findings Based on the REM (Cash Holding as the Dependent Variable)*

Variable	Estimated Coefficients	t-Statistics	Diagnostic Tests
Constant	24.013***	12.351	HT (p-value) = 0.131;
GO	0.546***	3.443	F-Stats (p-value) = 0.000***;
NWC	-0.050	-1.500	Adj. R ² = 0.210;
FL	-0.197***	-6.447	JB (p-value) = 0,000–0.011;
PR	0.103*	1.733	VIF = 1.031–1.258;
CE	-0.198***	-6.407	BP (p-value) = 0.154;
			DW=1.748

Note: *** and * indicate significances at the 1%, 5% and 10% levels, respectively. HT is the Hausman test used to identify the most suitable model, the FEM or the REM to analyse the panel data in the study; F-Stats is the F-statistics; Adj-R² is the adjusted R²; JB is the Jarque-Bera test for normality; VIF is the variance inflation factor test for multicollinearity; BP is the Breusch-Pagan test for heteroscedasticity; and DW is the Durbin-Watson test for autocorrelation.

amounts of cash. This showed that growth opportunity of a company was an important factor that positively affected the cash holding. Companies preferred to reserve larger cash for precaution of difficulties of external financing by not squandering their investment opportunities (Opler et al., 1999). Our finding supported the speculation motive theory proposed by Keynes (1936). The speculation motive theory explained that the company would utilize the cash to speculate by observing a variety of new business opportunities that are considered beneficial. As the growing companies could acquire the other companies, they required large amounts of cash.

Meanwhile, high growth opportunities of the manufacturing companies in Indonesia could utilize cash holding to invest in profitable sectors, despite having to increase their costs of external financing (William and Fauzi, 2013). The companies with high growth opportunities would usually safeguard the available opportunity to grow, so that for precaution, the company would usually reserve a large cash until the investment opportunity could be executed and, in turns, would provide the value added to the company. Therefore, it might also be said that having assets in liquid form would be more favourable for the companies with greater investment opportunities than the companies with the uncertainty of investment opportunities due to financial problems they face (Jinkar, 2013).

The effect of net working capital on the cash holding. Table 2 exhibited insignificant relationship between the net working capital and companies' cash holding in Indonesia. This finding showed a rejection of the hypothesis. This finding implied that the companies' cash holding was not significantly affected by the net working capital. The finding of this study is inconsistent with the theory of Miller and Orr (1966) who explained that net working capital could play a role as substitute of cash. In other words, net working capital negatively affected cash holding. Besides, our finding is also inconsistent with the findings of William and Fauzi (2013) and Jinkar (2013) who found that net working capital positively affected cash holding of the companies in Indonesia, as one of the emerging capital markets in the world. The insignificant relationship between the net working capital and cash holding relationship could be partially due to the fact that manufacturing companies in Indonesia have not used their non-cash liquid assets, defined as net working

capital minus cash and marketable securities, as substitute for cash holdings.

The effect of financial leverage on the cash holding. Referring to Table 2, the financial leverage was found to negatively affect the cash holding of the companies at the 1% significant level. The greater the financial leverage of the firms, the lower would be their cash holding, and vice versa. This result was consistent with the hypothesis that has been developed earlier, that is financial leverage negatively affects cash holding of the companies.

This result is in line with the results of studies conducted by Ozkan and Ozkan (2004), Couderc (2005), Sadoour (2006), and Wijaya et al. (2010), which documented that financial leverage has a negative influence on cash holding. The negative influence of financial leverage on cash holding could arise when financial leverage was seen as a substitute for cash that can be used by companies to make investments, so that the increase in financial leverage would reduce their cash holdings (Wenyao, 2007). Ease of access to the capital markets causes the companies to invest with sources of funding coming from the debt that will reduce their cash holding. The company that has strong external funding sources certainly does not need to have large amounts of cash, because the debt could actually be used as a substitute for the company's cash to finance its activities (Saddour, 2006). However, our finding contradicted the findings of Baskin (1987), Opler et al. (1999), Ginglinger and Saddour (2007), and Wenyao (2007) who documented that financial leverage positively affected cash holding of the companies. The high financial leverage would increase the likelihood of financial distress. So, the company that has a high financial leverage should hold large amounts of cash to reduce their likelihood of financial distress.

The effect of profitability and capital expenditure on the cash holding. Table 2 also presented the estimated coefficient values of the REM for both controlled variables of the profitability and capital expenditure. The profitability was found to positively affect cash holding of the companies at the 10% level significance. This finding was consistent with the findings of Al-Amameh (2015) and Shabbir et al. (2016) who discovered that profitability has a positive effect on cash holding. This finding also supported the pecking order theory, where an increase in the firms' profitability would raise the cash holding of

the companies (Opler et al., 1999). The companies would use their profits to increase liquidity and hence they tended to hold more cash. However, our finding was inconsistent with the studies by Kim et al. (1998) and Ferreira and Vilela (2004) who discovered that profitability negatively affected cash holding.

Meanwhile, the capital expenditure was found to negatively affect the cash holding at the 1% level significance. This result was consistent with the studies by those of Riddick and Whited (2009), Bates et al. (2009), and Jinkar (2013), who found that capital expenditure has a negative effect on the cash holding. As stated earlier, this could be due to an increase in the productivity of investment that would decrease cash holding. Nevertheless, our results were inconsistent with the results from Kusnadi (2003) and Ogundipe et al. (2012), who documented that when a company has a plan to make a huge investment, the capital expenditure would positively affect cash holding.

After the main findings of the study were presented, the rigorous post-estimation, comprising normality, multicollinearity, autocorrelation, and heteroscedasticity were conducted. Referring to the last column of Table 2, the study found that all the post-estimation tests showed that the data analysed in this study were normally distributed, non-multicollinearity, no-autocorrelation, and homoscedastic. These indicated that all the findings of the study are robust and could be generalised for the companies that have similar characteristics in designing their cash holding policy.

Discussion and Policy Implication

This study empirically examined factors influencing cash holding of the manufacturing companies listed in the Indonesian Stock Exchange, as one of the emerging capital markets. These factors are growth opportunity, net working capital, and financial leverage as the main the variables as well as profitability and capital expenditure as the controlled variables. Following Drom and Walker (1996) and Abd. Majid and Maulana (2012), the hypotheses of the study were tested by panel regression based on the GLS model. This model has an advantage in comparison to the Ordinary Least Square (OLS) regression model. Unlike in the OLS, the GLS gives opportunity to see the behavioural differences, either between individuals or time horizon. This study

investigated 77 manufacturing firms in Indonesia for the period of 2009 to 2013.

The study revealed that, with the exception of net working capital, the four independent variables—growth opportunity, financial leverage, profitability, and capital expenditure—partially and significantly affected cash holding of the manufacturing companies in Indonesia. The two independent variables—growth opportunity and profitability—partially, have positive effects on the cash holding, while the other two independent variables—financial leverage and capital expenditure—have negative effects on the cash holding.

Overall, the results supported the theories and the proposed hypotheses. Our findings were consistent enough with the findings from emerging capital markets. The results of this study were consistent with speculation motive theory proposed by Keynes (1936) where a company would use the cash for speculative purpose by identifying a number of profitable new business opportunities. Companies with a high growth opportunity tended to acquire other companies so that they required large amounts of cash. In other words, the growth opportunity positively affected the cash holding. However, our findings contradicted the theory of Miller and Orr (1966), who stated that net working capital could play a role as substitute of cash. In other words, net working capital should negatively affect the companies' cash holding. Besides, our findings were also in disharmony with the findings of William and Fauzi (2013) and Jinkar (2013), who found that net working capital positively affected cash holding of the companies in Indonesia, as one of the emerging capital markets in the world.

In connection with the relationship between financial leverage and cash holding, there are two possibilities of the relationship direction (Wenyao, 2007). If financial leverage is considered as the company's ability to issue debt, then financial leverage would negatively influence the cash holding. On the other hand, if a large financial leverage is considered as a potential bankruptcy due to high agency problems of debt, then financial leverage would positively influence the cash holding. The finding of this study supported the previous findings on the negative relationship between the financial leverage and cash holding. Nevertheless, our finding contradicted the prior findings that revealed a positive effect of financial leverage on cash holding of the companies.

As for the relationship between profitability and cash holding, our findings supported the proposed hypothesis of a positive effect of profitability on the cash holding. Our finding supported the pecking order theory, where the increase in profitability would lead to an increase in the companies' cash holding (Opler et al., 1999). Particularly, a company preferred to use its profits to increase liquidity and hence it tended to hold more cashes. Likewise, as for the relationship between capital expenditure and cash holding, our finding was consistent with the proposed hypothesis of the negative effect of capital expenditure on the cash holding of the manufacturing companies in Indonesia.

In conclusion, the results of our findings at least provided two implications for both theory and practice. For theory, the results supported the proposed hypotheses or the existing theories, such as the speculation motive theory and the pecking order theory. For practice, the findings of our study could be referred by investors and creditors to assess cash holding of companies by observing the factors affecting it so that it could be used as a basic guide for decision making in investing and financing the companies' activities. Additionally, these results could also shed some lights for the managers of manufacturing companies in Indonesia on several factors to be considered in determining their optimal levels of cash holding.

The present study was only conducted on the manufacturing companies in Indonesia, as one of the emerging markets worldwide during the period of 2009–2013. Therefore, the results could not be generalized to other companies, except for manufacturing companies having similar characteristics. In exploring factors influencing cash holding, the study only incorporated five independent variables with the coefficient of determination of 21%, implying that there were many other variables, which were not included in our model, could explain the remaining 79% of the variation in the level of cash holding of the manufacturing companies in Indonesia. Given the smaller coefficient of determination, we suggest future studies to consider some other independent variables, such as firm size, dividend payment, debt maturity, and so forth, as the determinants of cash holding. Besides, to avoid the overlapping in measurements between net working capital and cash holding, we also suggest that for measuring net working capital, further studies should exclude the items of cash and cash equivalent. Finally, we also suggest that future researches to

include more firms in their analysis on the determinant of cash holding in Indonesia in order to arrive at the conclusive findings.

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