



Jurnal Keuangan dan Perbankan
UNIVERSITY OF MERDEKA MALANG

Article history:

Received: 2018-12-24

Revised: 2019-01-15

Accepted: 2019-03-28

Keywords:

Corporate governance; Debt; Investment, Optimal cash holdings speed of adjustment

JEL Classification: C33, G31, G34,

Kata kunci:

Tata kelola perusahaan, Utang, Investasi, Kecepatan penyesuaian kas optimal

✉ Corresponding Author:

Heru Kristanto H. C.:

Tel. +62 274 486733

E-mail: heru_kris2010@yahoo.com



This is an open access article under the CC-BY-SA license

The optimal cash holdings speed of adjustment and firm value: An empirical study in Indonesia

Heru Kristanto Hendro Cahyono¹, Mamduh M. Hanafi², Bowo Setiyono²

¹Department of Management, Faculty of Economics and Business, UPN “Veteran” Yogyakarta, Jl. SWK 104 (Lingkar Utara), Condongcatur, Yogyakarta, 55283, Indonesia

²Department of Management, Faculty of Economics and Business, Universitas Gadjah Mada

Jl. Sosio Humaniora No.1, Bulaksumur, Yogyakarta, 55281, Indonesia

Abstracts

This study employs two models of the speed of cash holdings adjustment to measure the effect of cash management on firm value, they are the deviation standard cash holding model and partial speed of adjustment model. Using sampling companies from Indonesia during 2001-2017, the study employs some techniques of regression for dynamic panel data with fixed effects, the pooled ordinary least square with fixed effects, and regression moderated analysis. Research findings show that: first, the deviation standard cash holding and partial speed of adjustment affect firm value; second, by using the deviation standard cash holding model, it shows that managerial ownership, institutional ownership, investment and debt moderate the effect of the deviation standard cash holding on firm value; third, by using the partial speed of adjustment model, it shows that investment moderates the effect of partial speed of adjustment on firm value. The implications of the study are to explain two speed of cash holding adjustment models and their impacts on the increasing trend of firm value.

Abstraksi

Penelitian menggunakan dua model pengukuran kecepatan penyesuaian kas optimal (the speed of cash holding adjustment) untuk mengukur pengaruh pengelolaan kas terhadap nilai perusahaan. Model pengukuran yaitu model standar deviasi kas dan model partial speed of adjustment. Menggunakan sampel perusahaan di Indonesia selama tahun 2001-2017. Penelitian menggunakan teknik regression for dynamic panel data dengan fixed effects, the pooled ordinary least square with fixed effects, dan regression moderated analysis. Riset menemukan hasil bahwa pertama, standar deviasi dan partial speed of adjustment berpengaruh terhadap nilai perusahaan. Kedua, dengan model standar deviasi kas terbukti bahwa kepemilikan manajerial, kepemilikan institusional, investasi, dan utang memoderasi pengaruh standar deviasi kas terhadap nilai perusahaan. Ketiga, dengan model partial speed of adjustment terbukti bahwa investasi memoderasi pengaruh partial speed of adjustment terhadap nilai perusahaan. Implikasi dari hasil penelitian ini adalah menjelaskan dua model pengukuran kecepatan penyesuaian kas optimal. Kecepatan penyesuaian kas akan meningkatkan nilai perusahaan.

How to Cite: Cahyono, H. K. H., Hanafi, M. M., & Setiyono, B. (2019). The optimal cash holdings speed of adjustment and firm value: An empirical study in Indonesia. *Jurnal Keuangan dan Perbankan*, 23(2), 246-257. <https://doi.org/10.26905/jkdp.v23i2.2604>

1. Introduction

Cash holdings decision must be taken by managers to maintain operating activities of companies. As a matter of fact, Indonesian companies have lower cash flow than other fellow Southeast Asian countries, referring to a typicality of companies in developing countries which have lower cash ratio than those of developed countries (Da Cruz, 2015; Chen et al., 2015). In addition, the cash holding ratio (cash + short term investment of total asset) of non-financial public companies in Indonesia from 2000 to 2011 ranges from 9.8-13.1 percent (Hendrawati, 2015; Da Cruz, 2015). The upward trend of cash holding in Indonesia and other countries resonates motivational theory of holding cash or Keynesian (Opler et al, 1999; Chang, Deng, & Wang, 2015; Shipe, 2015; Orlova & Rao, 2018).

A topic on optimal cash holdings speed of adjustment is based on literature about Leverage Speed of Adjustment (Huang & Ritter, 2009), focusing on a central idea about trade-off theory of capital structure (Byoun, 2008). A framework of trade of the speed of adjustment is a balance between adjustment cost and deviation cost from the cash target (Huang & Ritter, 2009; Orlova & Rao, 2018). The study of leverage speed of adjustment is extensively carried out with additional factors such as adjustment cost (Faulkender, et al., 2012), level and size of debt deviations from targets (Byoun, 2008) and company-specific characteristics (Anderson & Hamidi, 2016).

In general, cash holdings go through dynamic changes due to internal and external conditions of companies. Jiang & Lie (2016), Anderson & Hamidi (2016), Orlova & Rao (2018) reveal that cash holdings speed of adjustment includes some factors. Furthermore, the defining factor is the deviation cost of target ratio, cash adjustment costs and manager's intents are to make the adjustment into the optimal level. The deviation cost from the target ratio is a cost representing financial distress and excessive cash. If negative excess cash flow occurs,

the company will cut the investment and increase new capital so that the adjustment cost levels up. If positive excess cash flow takes place, the company should pay either debts or dividends. Companies intend to achieve optimal cash holdings and issue appropriate cash policies (Orlova & Rao, 2018; Shipe, 2015; Jiang & Lie, 2016).

Effective and efficient corporate governance can encounter agency problems due to excess cash flow of the company. For some companies, insider ownership often ignores policies that could bring impact on the increasing value of the company (Anderson & Hamidi, 2016). Empirical evidence reveals that the greater managerial ownership, the lower cash flow management will be. This condition leads to a decrease in firm value (Opler et al., 1999, Hendrawati, 2015; Jiang & Lie, 2016). The similar empirical evidence of institutional ownership' effect on firm values is varied. Some research shows that institutional ownership has a negative effect on firm value while the rest shows a positive effect of the institutional ownership on the firm value (Da Cruz, 2016; Thomsen & Pedersen, 2000; Johnson & Milton, 2003). The board of commissioners plays a very important role in the company. The independent commissioners can reduce excessive risk-taking and moral hazard behavior by non-independent commissioners (Byrd & Hickman, 1992; Coles, McWilliams, & Sen, 2001).

Some companies with large free cash flow tend to make an excessive investment (Jensen & Meckling, 1976; Opler et al., 1999, Anderson & Hamidi, 2016) and are gravitated to make an acquisition which consequently leads to the decreasing trend in the company's performance (Harford, 1999). Based on their research findings, Lau & Block (2012) confirm that the company's future performance will be lower among over-investment companies. Byers et al. (2008) collect some relevant empirical evidence that bank debt can replace monitoring mechanisms, particularly when corporate governance is weak. In addition, debt will push managers to generate cash flow in an attempt to fulfil the obligations of the company.

Optimal cash holdings speed of adjustment is exceptionally important for companies because the faster they make an adjustment to optimal cash holdings, the more stable the liquidity of the company is. The speed of optimal cash holdings adjustment will increase the firm value (Opler et al., 1999; Orlova & Rao, 2018; Shipe, 2015; Jiang & Lie, 2016, Anderson & Hamidi, 2016). Meanwhile, the researcher's goal to undertake this study is to analyze the effect of optimal cash holdings speed of adjustment on the firm value.

In fact, the optimal cash holdings speed of adjustment employs two models: standard deviation and partial adjustment to test moderator variables of an optimal level of cash holdings speed of adjustment on firm value. The moderator variables are managerial ownership, institutional ownership, independent commissioners, investment and debt. The research finding shows that the optimal cash holdings speed of adjustment increases the firm value. The smaller the standard deviation, the higher the corporate value. Moreover, the moderator effect shows mixed results.

Further, this study is arranged with the following sections: Section 2 discusses reviews of literature and development of hypotheses. Section 3 explores the research methodology. Section 4 discusses the results and discussion. The last is section 5: conclusions and implications.

2. Hypotheses Development

A previous study by Opler et al. (1999) discusses the estimation of a company's cash holdings with partial adjustment model. Some empirical studies from Venkiteshwaran (2011), Dittmar & Duchin (2011) report companies' efforts on adjusting cash holdings to the target level. Based on studies by Dittmar & Duchin (2011), Da Cruz (2015), Anderson & Hamidi (2016), younger companies will take the faster optimal level of cash adjustment than those of older ones. The cost adjustment plays an important role in cash flow adjustment. They also found

the effect of corporate governance in optimal cash holdings speed of adjustment.

A wide range of research on corporate cash holdings employs capital structure theory: trade-off theory, agency theory, pecking order theory, and market timing. These theories are employed to explain the effect of corporate liquidity on the increasing trend of firm value (Opler, et al., 1999; Venkiteshwaran, 2011; Dittmar & Duchin, 2011; Orlova & Rao, 2018). The model employed in this study is optimal cash holdings speed of adjustment which is similar to trade-off theory approach (Byoun, 2008; Jiang & Lie, 2016).

The benefit of the increasing trend on the optimal cash holdings speed of adjustment is to prevent the incurrence of over-investment, to maintain cash reserve and also to maintain the smoothing effect on the dynamic condition of economics. In addition, an optimal cash holdings speed of adjustment can reduce transaction costs, cost-benefit trade-offs that increase firm value. The empirical study by Venkiteshwaran (2011) and Shipe (2015) found that the optimal cash holdings speed of adjustment will increase the firm value. In fact, it is an indicator of healthy cash flow management (Orlova & Rao, 2018; Shipe, 2015; Lozano & Duran, 2016).

H_1 : the optimal cash holdings speed of adjustment affects firm value.

Jensen & Meckling (1976) state that agency problems occur due to conflicting contractual agreements between the owner and the manager. The insiders take selfish actions by accumulating cash flow beyond the normal level. Indeed the cash flow is a financial resource that can be directly controlled by managers (Jensen & Meckling, 1976; Hendrawati, 2015; Lozano & Duran, 2016).

An empirical study by Dittmar & Duchin (2011) shows that access to banks, the size of free cash flow and the quality of corporate governance influence optimal cash holdings speed of adjustment. Some research from Dittmar & Mahrt-Smith

The optimal cash holdings speed of adjustment and firm value: An empirical study in Indonesia

Heru Kristanto Hendro Cahyono, Mamduh M. Hanafi, Bowo Setiyono

(2007) and Jiang & Lie (2016) reveal that young companies will reduce excess cash flow faster than the older ones due to the low proportion of managerial ownership, contrasting to older companies which have a larger proportion of managerial ownership. This situation indicates weak control of corporate governance in monitoring cash flow management among older companies. The cash volatility is mixed based on different structures of company ownership. Large excess cash flow tends to inflict agency problem. (Chen, et al., 2015; Anderson & Hamidi, 2016; Hendrawati, 2015).

H₂: managerial ownership moderates the effect of optimal cash holdings speed of adjustment on firm value.

Institutional investors tend to have more influence on company management because they have greater ownership. Institutional investors will reduce opportunistic problems and agency costs. The Institutional investors provide support for external financing and internal cash flow allocation on some profitable projects. The research by Anderson & Hamidi (2016) and Lozano & Duran (2016) explain that the voting block institutional ownership will influence cash flow of firm management. The higher the institutional ownership, the lower cash flow is.

H₃: institutional ownership moderates the effect of optimal cash holdings speed of adjustment on firm value.

The board of commissioners has the responsibility to monitor, enforce discipline, and remove an ineffective management team. They ascertain that managers act on the basis of shareholders' interests. The independent commissioners can suppress excessive risk-taking and moral hazard behavior from non-independent commissioners (Byrd & Hickman, 1992; Coles, McWilliams, & Sen, 2001). The research found that the more powerful the independent board of commissioners, the better the function of strategic control from the commission-

ers. The strict supervision by independent commissioners can reduce the excessive risk of commissioners' behavior. The independent commissioner is expected to carry out responsibility on monitoring the management team in order to work effectively for increasing shareholder prosperity (Shipe, 2015).

H₄: independent commissioners moderate the effect of optimal cash holdings speed of adjustment on firm value.

Companies with large cash flow have a tendency to make acquisitions, leading to a decrease in operating performance (Jensen & Meckling, 1976; Harford, 1999). Lau & Block (2012), Anderson & Hamidi (2016) found that the operating performance of the company is lower than those of making excessive investment expenditures. This negative relationship gets stronger if free excess cash flow occurs. Companies that encounter investment funding challenges will use internal funding, that is cash and cash flow. Companies with restricted fundings will avoid underinvestment and tend to have large cash flow (Han & Qiu, 2007). High investment can lead to funding challenges of firms. The speed of external environmental changes and investment opportunities will influence the level of optimal cash holdings. The cash holdings level will experience high volatility in companies with large investment and vice versa. The empirical studies of Shipe (2015) explain that companies with high investment opportunities will slow down optimal cash holdings adjustment.

H₅: investment moderates the effect of optimal cash holdings speed of adjustment on firm value.

Debts play an important role in maintaining liquidity. The increasing trend in debts inflicts agency problems and brings negative implications for the cash holdings of companies. In fact, companies with huge debt will experience an increasing trend in financial distress, which is eventually lead-

ing to bankruptcy. Therefore, the use of cash holdings will be more careful and efficient. Debt gives a positive signal and benefits on cash holdings in order to increase firm values. The availability and quantity of internal funding influence the optimal level of cash holdings speed of adjustment (Shipe, 2015; Orlova & Rao, 2018). Other studies explain the tendency of using internal funding and external funding cost for the optimal cash holdings speed of adjustment (Byoun, 2008; Faulkender et al., 2012). Companies with large debt will pay high-interest expense as part of managers' strategy on maintaining company liquidity.

H₆: debt moderates the optimal cash holdings speed of adjustment on firm value

3. Method, Data, and Analysis

This study employs a range of data sources. Variables used for estimating optimal cash are obtained from Bloomberg. The variables of corporate governance and the Indonesian Capital Market Directory (ICMD) are taken from 2000-2017 and Osiris. The sampling subjects are selected based on purposive sampling on some non-financial public companies in Indonesia. Financial companies are not employed in the study because they have a different capital structure. The number of sampling companies is 197 with a number of observations up to 3,349.

The dependent variable is Tobin's Q or company value. It is defined as the market value of equity plus total debt divided by the book value of total assets. The independent variable is optimal cash holdings speed of adjustment. This study employs the standard cash deviation model (Byoun, 2008) and the partial speed of adjustment model (Dittmar & Duchin, 2011; Orlova & Rao, 2018). The moderator variables are managerial ownership, institutional ownership, independent commissioners, investment and debt. The control variable is the natural logarithm of sales and total assets/ sales.

The optimal cash holdings measurement employs some models proposed by Opler, et al. (1999), Anderson & Hamidi (2016), Orlova & Rao (2018):

$$C/TA_{i,t} = \alpha_0 + \beta_1 MTB_{i,t} + \beta_2 Sales\ Growth_{i,t} + \beta_3 Size_{i,t} + \beta_4 NWC_{i,t} + \beta_5 CapExp_{i,t} + \beta_6 Lev_{i,t} + \beta_7 Div_{i,t} + \beta_8 Age_{i,t} + \beta_9 Industri_{i,t} + \varepsilon_{i,t} \quad (1)$$

Indicating C/TA as a cash & cash equivalent / total asset, MTB as a market value of equity / total assets. Sales growth is $ales_{t0} - sales_{t-1} / sales_{t0}$, size. It is a natural log of total asset. NWC is a net working capital / total asset. Capital expenditure refers to capital expenditure/ total assets. Leverage is total debt / total assets. Dividends are dummy 1 for those who pay dividends, dummy 0 for those who do not pay dividends. Age is the natural log of the company's age. Industry is a dummy variable. The optimal cash of the company is obtained by considering β coefficients on every cash estimation variable model by Opler et al. (1999).

The measurement of the partial speed of cash adjustment employs a model of Dittmar & Duchin (2011) and Orlova & Rao (2018). β coefficients are cash holdings speed of adjustment. The bigger β coefficient, the faster the cash holding speed of adjustment; whereas the smaller β coefficient, the slower the cash holding speed of adjustment. Standard partial adjustment model:

$$Cash_{i,t+1} - Cash_{i,t} = \beta (Cash_{i,t+1}^* - Cash_{i,t}) + e \quad (2)$$

Cash_{i,t+1} represents cash holdings at t+1. Cash_{i,t} is cash holding at t. Cash_{i,t+1}^{*} is the optimal level of cash holdings. β is cash holdings speed of adjustment and e is an error term.

The standard deviation of cash employs Byoun's model (2008). The larger the standard deviation of cash, the slower the speed of optimal cash adjustment. The smaller the standard deviation of cash, the faster the speed of optimal cash adjustment (Jiang & Lie, 2015; Chang, Deng, & Wang,

The optimal cash holdings speed of adjustment and firm value: An empirical study in Indonesia

Heru Kristanto Hendro Cahyono, Mamduh M. Hanafi, Bowo Setiyono

2015). The speed of adjustment based on the standard deviation of cash flows model:

$$SD = Cash_{t_0}/Asset_{t-1} - Cash_{t_0}/Asset_{t_0} \quad (3)$$

The variable of SD is the standard deviation of target cash holdings. $Cash_{t_0}$ is the cash and cash equivalent at t_0 . $Asset_{t-1}$ represents total assets at $t-1$. $Asset_{t_0}$ is total assets at t_0 .

The first hypothesis testing is formulated in the following equation:

$$Tobin,s Q_{i,t} = \alpha_0 + \beta_{1,t} + \beta_{2,t}SD_{i,t} + e_{i,t} \quad (4)$$

$$Tobin,s Q_{i,t} = \alpha_0 + \beta_{1,t} + \beta_{2,t}SofAdj_{i,t} + e_{i,t} \quad (5)$$

In attempt on testing hypotheses 2, 3, 4, 5, 6, we add the moderation equation:

$$Tobin,s Q_{i,t} = \alpha_0 + \beta_{1,t} + \beta_{2,t}SD_{i,t} + \beta_{2,t}SD_{i,t} * Variabel\ moderasi + e_{i,t} \quad (6)$$

$$Tobin,s Q_{i,t} = \alpha_0 + \beta_{1,t} + \beta_{2,t}SofAdj_{i,t} + \beta_{2,t}SofAdj_{i,t} * Variabel\ moderasi + e_{i,t} \quad (7)$$

Tobin-Q is a firm value. SD is the standard deviation of cash flows. SofAdj is a partial speed of adjustment. The moderator variables are managerial ownership, institutional ownership, independent commissioners, investment and debt.

4. Results

Table 1 shows descriptive statistics from 3349 samples from 2001-2017 (years of observation). Descriptive statistics describe the mean, maximum, minimum, standard deviation. Dependent variable: C_TA is (cash & cash equivalent)/total assets. Independent variable: MTB_TA is a market value of equity / total assets. Sales is (sales_{t0} - sales_{t-1})/sales_{t0}. Size is the natural log of total assets. NWC_TA is net working capital/total assets. CE_TA is capital expenditure/total assets. Debt_TA is total debt/total assets. DIV is dummy 1 for those who pay dividend and dummy 0 for those who do not pay dividends. LOGAGE is a natural log of age initiated after listed on the IDX.

The statistical description of the company's cash holdings estimation is presented in table 1. The average cash is 8.89 percent and the highest cash is 72.35 percent of total assets. The average cash is in line with previous studies from Hendrawati (2015) and Da Cruz (2015). The means of the market value of equity/ total assets is 0.8115. It means that the average capital market value is lower than the asset book value. The average sales growth is 5.47 percent. Net working capital / total assets which are indicators of the company's working capital have a mean of 0.4104. Capital expenditures have a mean of -0.048. Debt has a mean of 30.42 percent of total

Table 1. Descriptive statistics of research variables

Variable	Mean	Maximum	Minimum	Standard. Dev
C_TA	0.0889	0.7235	0.0059	0.0969
MTB_TA	0.6115	2.1689	0.0042	0.5403
Sales	0.0229	2.1663	0.0082	0.9150
Size	6.0824	8.4707	2.7533	0.7625
NWC_TA	0.4103	0.8076	0.0029	0.3062
CE_TA	0.0487	0.7844	0.0000	0.0622
Debt_TA	0.2924	0.6634	0.0004	0.2055
DIV	0.4580	1.0000	0.0000	0.4983
LOGAGE	6.0824	6.0031	2.7533	0.7625

assets. Around 45.80 percent of sample companies do pay a dividend. The results of the Fixed Effects Dynamic Panel regression to predict optimal cash is elaborated in Table 2.

Table 2. Summary of estimation on companies' cash holdings in Indonesia using Fixed Effects Dynamic Panels (Lag 1).

Dynamic Panel Fixed Effect		
Variable	Coefficient	t-stat.
C	0.0217	1.9048***
MTB	0.0019	2.3234**
Sales	0.0029	1.9217**
Size	0.0003	0.1233
NWC_TA	0.0623	13.190***
CE_TA	0.0271	3.2815***
Debt_TA	-0.006	-2.426**
DIV	0.0062	4.5481***
LOGAGE	0.0023	0.7834
C_TA(-1)	0.3953	27.186***
R-square	0.8071	
Adjusted R ²	0.7937	
F-statistic	60.146	
Prob (F-stat.)	0000	
DW-Stats.	2.1296	
N	3349	

Note * = significant at level 10%, ** = significant at level 5%, *** = significant at level 1%.

The study uses the Fixed Effects Dynamic Panel Model or auto regression lag 1. Based on testing model specifications, the fixed effects model is regarded as a better one (Wooldridge, 2013). We then conduct model testing to reduce estimation bias and measure the accuracy of prediction. The normality testing shows that the value of Jarque-Berra is higher than 5% with a probability of 0,000. It indicates the normal distribution of data. The autocorrelation test with the Durbin-Watson test shows no autocorrelation. Collinearity between variables is smaller than 0.9 and indicates no multicollinearity. Test for heteroscedasticity using the

Breusch-Pagan Godfrey test model shows non-significant Obs*R-square value, indicating no heteroscedasticity. The redundant fixed effects test shows the cross-section fixed statistical value of 7.056055 with a probability of 0.000. It shows that the best model uses the fixed effects model compared to the random-effects model. The correlogram test shows that autocorrelation and partial autocorrelation move exponentially close to 0.00 in lag 1.

Based on table 3, it shows that R-squares are 80.71% and Adjusted R-squares are 79.37%. The prediction results of cash determinations show that the market to book, sales growth, net working capital, capital expenditure, debt, dividend, the age of the company can influence the cash holdings. The result resonates with the research of Venkiteswaran (2011), Chen et al. (2015), and Orlova & Rao (2018) that variable size and the age of the sales company do not significantly affect the company's cash flow. Cash coefficient/ total asset (-1) or the previous year's cash is 0.3753, showing positive value. It means that the larger the previous year's cash, the bigger the cash company will be.

The hypothesis testing uses the Least Squares Fixed Effects Panel regression. The selection of the regression model is employed using redundant fixed effects. The result shows that the fixed effects model is better than the random-effects model. It can be seen from the high statistical value of fixed effects with the probability of 0,000. We also test moderator variables using a Wald test restriction. This testing is employed to estimate the important contribution of moderating variables in a prediction model. The result of testing shows that managerial ownership, institutional ownership, commissioners independent of investment and debt are important variables in this research model. The Wald test result can be seen in Table 3.

The optimal cash holdings speed of adjustment and firm value: An empirical study in Indonesia

Heru Kristanto Hendro Cahyono, Mamduh M. Hanafi, Bowo Setiyono

Table 3. The Wald testing

Variable Independent	t-stat	Chi-square	Prob.
Sof Adj * KM	-2.0819	4.3343	0.0371
Sof Adj * KI	-0.2086	0.0435	0.0083
Sof Adj * IB	-3.5192	2.3851	0.0004
Sof Adj * Inv	-5.0339	6.3505	0.0000
Sof Adj * Debt	-3.6247	3.1366	0.0000
SD * KM	1.1988	1.4371	0.0230
SD * KI	3.8037	14.470	0.0000
SD * IB	1.8492	3.4197	0.0645
SD * Inv	-3.846	14.704	0.0000
SD * Debt	-3.487	12.160	0.0000

The result of hypothesis testing can be seen in Table 4. The first hypothesis testing shows that cash standard deviation has a negative effect on firm value. The wider the cash deviation or cash standard deviation, the lower the value of the company. The partial speed of adjustment has a positive effect on firm value. The faster the adjustment to the optimal cash holdings, the higher the firm value. The result of two model testings indicates that the faster optimal cash holdings speed of adjustment, the higher the firm value. The result of first hypothesis testing supports previous theory and empirical studies in which accelerating optimal cash holdings will increase the firm value (Opler et al., 1999; Anderson & Hamidi, 2016; Venkiteswaran, 2011, Lozano & Duran, 2016). The optimal cash holdings are a decision that must be taken by managers to maintain company liquidity. The optimal cash policy influences the efficiency of company operations, investment, financial behavior, dividend payments and other activities (Shipe, 2015; Jiang & Lie, 2016; Orlova & Rao, 2018).

Table 4 shows the results of multiple regression and regression of research moderator variables. The dependent variable is Tobin-Q or firm value. Independent variables are SoAdj and SD. SofAdj is $Cash_{i,t+1} - Cash_{i,t} = \beta (Cash_{i,t+1}^* - Cash_{i,t}) + e$. SD is $Cash_{i0}/Asset_{i-1} - Cash_{i0}/Asset_{i0}$. The moderator variable is KM representing managerial ownership, KI is institutional ownership, IB is independent commissioners, Inv is a noncurrent asset/total asset, and debt is debt/total assets.

Table 4. Results of moderation regression

Fixed Effect Dynamic Panel			
Independent variables	Coefficients	t-Stat	F-stat.
Sof Adj	0.004	2.507***	38.76
Sof Adj * KM	-0.004	-0.25	32.81
Sof Adj * KI	-0.000	-0.13	38.21
Sof Adj * IB	-0.003	-0.27	38.35
Sof Adj * Inv	0.003	0.52	38.52
Sof Adj * Debt	0.014	1.73**	40.73
SD	-0.226	0.685***	37.66
SD * KM	1.454	4.650***	31.01
SD * KI	-0.211	-1.16**	37.45
SD * IB	0.482	1.185	36.82
SD * Inv	-0.352	-5.311***	37.22
SD * Debt	0.389	1.55*	38.28

Note * is significant at level 10%, ** significant at level 5%, *** significant at level 1%.

5. Discussion

The testing of the moderator effect of both optimal cash holdings adjustment speed models shows mixed results. The partial speed of adjustment model shows that only investment variables can moderate the effect of optimal cash adjustment speed on firm value, which is represented by the value of t-Stat of 1.73 and significance of 5%. The standard cash deviation model shows that the variables KM, KI, Inv, and Debt moderate the effect of optimal cash adjustment speed on firm value. The difference comes from distinct characteristics of two models. The standard deviation model comes from a static cash amount. The cash does not represent the source of changes; whereas cash in partial speed of adjustment model has reflected some factors that influence cash changes. The partial speed of adjustment model includes the prediction of cash.

The managerial ownership strengthens the influence of cash standard deviations on firm value. The results show that managerial ownership is capable of monitoring and taking a good control of the company's cash flow management. There is a tendency that managerial ownership is more concerned with deviation from optimal cash holdings

to maintain liquidity. The study is similar to research finding by Anderson & Hamidi (2016) which investigated family companies in Belgium where the company's cash flow was suppressed at a low level due to agency conflict, where large managerial ownership increases moral hazard or personal incentives. The Institutional ownership weakens the influence of cash standard deviations on firm value. Some institutional owners were reluctant to control the cash management of the company. They tend to monitor and control the company's cash deviations or standard deviations of cash flows (Anderson & Hamidi, 2016; Jiang & Lie, 2016). The independent commissioner did not moderate the effect of cash standard deviation and partial speed of adjustment on firm value. This finding is consistent with Hermalin & Weisbach (2003). The research findings reveal that independent commissioners have limited information about company operations and have irrelevant skills. This condition will have an impact on the reluctance of the board of commissioners to be critical and proactive in exercising control regarding the role and task of monitoring.

The investment weakens the effect of cash flows standard deviations on the firm value. The greater the investment, the weaker the effect of cash flows standard deviation on firm value. The greater the investment, the higher capital expenditure. As a result, large capital expenditure makes lower free cash flow. The long return investment will bring low cash inflows (Harford, 1999; Lau & Block, 2012).

The test results show that debt reinforces the optimal cash holdings speed of adjustment on the

firm value. The finding is in line with Byoun (2008), Faulkender, et al., (2012), and Orlova & Rao (2018). Some previous studies found that internal funding and cost from external funding influence optimal cash holdings speed of adjustment. If the company makes investment with insufficient internal funds, the company can increase the debt.

Robustness checks

In this study, the estimation of company cash holdings goes uncertainty. The uncertainty conditions appear in the company cash determinant model and the optimal cash adjustment method. The method of optimal cash holdings speed of adjustment is partial speed of adjustment, target cash standard deviation (Opler et al., 1999; Chang, Deng, & Wang, 2015; Lozano & Duran, 2016). The fixed effects dynamic panel estimator has two advantages: controlling the possibility of endogeneity problems and the dynamic changes in the company's cash flow. The robustness test is carried out by comparing a range of regression models and various proxies in the company's cash holdings policy literature (Chang, Deng, & Wang, 2015; Lozano & Duran, 2016; Orlova & Rao, 2018). The test results support the selection of Fixed Effects Dynamic Panels to estimate the company's optimal cash holdings. It can be seen on Table 5. The cash standard deviation and partial speed of adjustment are relevant for estimating cash management policies in Indonesia. It can be seen in Table 6.

Table 5. Robustness checks: company cash estimation Independent variable: Cash/Total Asset

	F-stat	R ²	Adjusted R ²	Sig.
Panel least squares	105.64	0.20	0.20	***
Panel least squares fixed effects	40.397	0.72	0.70	***
Panel dynamic least squares	488.12	0.58	0.58	***
Panel dynamic fixed effects	60.146	0.80	0.79	***

Note * = significant at 10%, ** = significant at 5%, *** = significant at 1%.

6. Conclusion, Limitations, and Suggestions

Conclusion

The research findings reveal that the faster the optimal cash holdings speed of adjustment, the higher the firm value. The interaction effect of organizational governance on the effect of cash standard deviation and partial adjustment on firm value shows mixed results. It is necessary to increase the monitoring and controlling role of managerial ownership, institutional ownership, and independent commissioners on the company's cash flows management. The optimal cash holdings speed of adjustment offers a relevant solution to increase firm value. Investment does not interact with the effect of partial speed of adjustments on firm value. Debt increases the effect of the interaction of the partial speed of adjustment on firm value. The different results of both cash holdings speed of adjustment come from distinct characteristics of each formula.

The theoretical implications of this research findings are to explain the development of cash holdings baseline model from cash holdings determinant model by Opler et al. (1999), in order to contribute some empirical literature about the moderator variables between optimal cash holdings speed of adjustment and firm value. The research implication is to explain the selection of predictive models of cash determinants. Accordingly, this research contributes to the empirical literature of cash management and research methodology of the optimal cash holdings speed of adjustment, particularly in Indonesia.

Limitations and suggestions

Prediction variables that affect the company's cash are still limited to the financial report on the IDX, Bloomberg, and Osiris. There are still a number of companies that have not yet completed the financial report in the observation year, which is 2001-2017. Therefore, the number of samples is limited. This research has not used the comparison model of the speed of optimal cash adjustment. These findings are still limited to cash, optimal cash, and optimal cash adjustment speed as the factors that influence the increase of the firm value. In relation to corporate governance, especially in making the level of managerial ownership, institutional ownership, independent commissioners, the results of the hypothesis testing will be different.

The researcher gives suggestions for the next research to add the cash determinant model, both dependent and independent variables. The addition of the determinant model is expected to find the factors that determine the cash appropriately and to add empirical studies of the company's cash determinants in Indonesia. It is suggested to use another optimal cash adjustment speed model. Corporate governance as an interaction variable can be made in terms of ownership scale, namely managerial ownership and institutional ownership, which enable the results of hypothesis testing to be different. The researcher suggests further research to add various moderating variables to add to the results of research variables that strengthen and weaken the influence of the optimal cash and the speed of optimal cash adjustment on the firm value.

References

- Anderson, R. W., & Hamadi, M. (2016). Cash holding and control-oriented finance. *Journal of Corporate Finance*, 41, 410-425. <https://doi.org/10.1016/j.jcorpfin.2016.10.009>
- Byoun, S. (2008). How and when do firms adjust their capital structures toward target? *Journal of Finance*, 63(6), 3069-3096. <https://doi.org/10.1111/j.1540-6261.2008.01421.x>
- Byrd, J. W., & Hickman, K. A. (1992). Do outside directors monitor managers? Evidence from tender off the bird. *Journal of Financial Economics*, 32(2), 195-221. [https://doi.org/10.1016/0304-405X\(92\)90018-S](https://doi.org/10.1016/0304-405X(92)90018-S)

- Chang, L., Deng, K., & Wang, X. (2015). The dynamic speed of cash holding adjustment in transition economy: A new approach and evidence. *Emerging Market Finance and Trade*. <https://doi.org/10.1080/1540496X.2016.1110460>
- Chen, Y., Dou, P., Rhee, S. G., Truong, C., & Veeraraghavan, M. (2015). National culture and corporate cash holding around the world. *Journal of Banking and Finance*, 50(1), 1-18. <https://doi.org/10.1016/j.jbankfin.2014.09.018>
- Coles, J. W., McWilliams, V. B., & Sen, N. (2001). An examination of the relationship of governance mechanisms to performance. *Journal of Management*, 27(1), 23-50. <https://doi.org/10.1177/014920630102700102>
- Da Cruz, A. F. (2015). Essays in Cash Holdings. *Thesis*. University of Brasilia. Brasilia.
- Dittmar A., & Duchin, R. (2011). Dynamic of cash. *Working Paper*. University of Michigan.
- Dittmar, A., & Mahrt-Smith, J. (2007). Corporate governance and the value of cash holdings. *Journal of financial economics*, 83(3), 599-634. <https://doi.org/10.2139/ssrn.687464>
- Faulkender, M., & Wang, R. (2006). Corporate financial policy and the value of cash. *The Journal of Finance*, 61(4), 1957-1990. <https://doi.org/10.1111/j.1540-6261.2006.00894.x>
- Faulkender, M., Flannery, M., Hankins, K., & Smith, J. (2012). Cash flows and leverage adjustments. *Journal of Financial Economics*, 103(3), 632-646. <https://doi.org/10.1016/j.jfineco.2011.10.013>
- Han, S., & Qiu, J. (2007). Corporate precautionary cash holding. *Journal of Corporate Finance*, 13(1), 43-57. <https://doi.org/10.1016/j.jcorpfin.2006.05.002>
- Harford, J. (1999). Corporate cash reserves and acquisitions. *The Journal of Finance*, 54(6), 1969-1997. <https://doi.org/10.1111/0022-1082.00179>
- Hendrawati, E. (2015). Peran corporate governance dalam mengendalikan masalah keagenan yang ditimbulkan oleh excess cash holding. *Disertation*. Universitas Gadjah Mada. Yogyakarta.
- Hermalin, B. E., & Weisbach, M. S. (2001). Board of directors as an endogenously determined institution: A survey of the economic literature. *Economic Policy Review*, 9, 7-26. <https://doi.org/10.3386/w8161>
- Huang, R., & Ritter, J. (2009) Testing theories of capital structure and estimating the speed of adjustment. *Journal of Financial and Quantitative Analysis*. 44(2), 237-271. <https://doi.org/10.1017/s0022109009090152>
- Jiang, Z., & Lie, E (2016). Cash holding adjustment and managerial entrenchment. *Journal of Corporate Finance*, 36, 190-205. <https://doi.org/10.1016/j.jcorpfin.2015.12.008>
- Johnson, S., & Mitton, T. (2003). Cronyism and capital controls: evidence from Malaysia. *Journal of Financial Economics*, 67(2), 351-382. [https://doi.org/10.1016/s0304-405x\(02\)00255-6](https://doi.org/10.1016/s0304-405x(02)00255-6)
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360. [https://doi.org/10.1016/0304-405x\(76\)90026-x](https://doi.org/10.1016/0304-405x(76)90026-x)
- Lau, J., & Block, J. H. (2012). Corporate cash holdings and their implications on firm value in family and founder firms. *Corporate Ownership and Control*, 9(2), 309-326. <https://doi.org/10.22495/cocv9i2c2art2>
- Lozano, M. B., & Duran, R. F. (2016). Family control and adjustment to the optimal level cash holding. *The European Journal of Finance*, 23(3), 266-295. <https://doi.org/10.1080/1351847x.2016.1168748>
- Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of financial economics*, 52(1), 3-46. [https://doi.org/10.1016/s0304-405x\(99\)00003-3](https://doi.org/10.1016/s0304-405x(99)00003-3)
- Orlova, S., & Rao, R. (2018). Cash holding speed of adjustment. *International Review of Economic and Finance*, 54, 1-4. <https://doi.org/10.1016/j.iref.2017.12.011>

The optimal cash holdings speed of adjustment and firm value: An empirical study in Indonesia

Heru Kristanto Hendro Cahyono, Mamduh M. Hanafi, Bowo Setiyono

- Shipe, S. (2015). Volatility of cash holding and firm value. *Job Market Paper*. Florida State University.
- Thomsen, S., & Pedersen, T. (2000). Ownership structure and economic performance in largest European companies. *Strategic Management Journal*, 21(6), 689-705.
[https://doi.org/10.1002/\(sici\)1097-0266\(200006\)21:6<689::aid-smj115>3.0.co;2-y](https://doi.org/10.1002/(sici)1097-0266(200006)21:6<689::aid-smj115>3.0.co;2-y)
- Venkiteshwaran, V. (2011). Partial adjustment toward optimal cash holding level. *Review of Financial Economics*, 20(3), 113-121. <https://doi.org/10.1016/j.rfe.2011.06.002>
- Wooldridge, J. M. (2013). *Introductory Econometrics a Modern Approach*. 5th Edition. South-Western.
-