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Cash holdings estimation model for non-financial companies in Indonesia

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ABSTRACT: The study constructs cash holdings estimation model for non-financial companies listed on the Indonesia Stock Exchange, using a dynamic regression model. This model recognizes that the process of adjusting towards standard cash holding involves adjustments to changes. The results from the dynamic panel data model show the higher propensity for companies with high growth, large size, high return volatility, cash flow, and cash substitutes, as well as those that pay dividends also hold more cash holdings. Conversely, the characteristics of issuing high capital expenditure, leverage, and tangible assets tend to promote fewer cash holdings. The results support the motives of these companies as the transactional and precautionary motive.

1 INTRODUCTION

1.1 Background

Previous studies in several countries have shown a relatively large proportion of cash holding to assets, with an average ratio of 23.2% for companies in the United States in 2006 (Bates, 2009). This was 14.08% in European countries that were members of the Economy and Monetary Union in 1987-2000 (Ferreira, 2004); 16.9% in China, within the period of 1998-2009 (Alles, 2012); 12% in Singapore and Malaysia in 1999-2000 (Kusnadi, 2011). This was 12% on average in five ASEAN countries (Malaysia, the Philippines, Indonesia, Singapore, and Thailand) in 2001-2005 (Lee, 2009). In summary, the cash holding companies in many countries from these observations become a substantive part of the assets, and the numbers are continuously increasing, hence the study interests. Aspects relating to investing cash holdings under the framework of the trade-off theory model are transaction costs, information asymmetry, and debt agency costs (Opler, 1999) and (Shah, 2011).

1.2 Research issue

Companies in imperfect capital markets are faced with high external funding costs; hence investment in cash holding is a normal response to fund the company's future funding needs. Furthermore, the standard estimation uses variables that serve as a proxy for logical reasons that are centered on holding. In addition, the cash holding determinant model of (Opler, 1999), (Ferreira, 2004), (Bates, 2009), (Frésard, 2010) was derived from rational reasons that emphasize on the transaction and precautionary motives for futuristic investment opportunities. This uses variables related to external funding costs, cash flow uncertainty, and investment opportunities. This regression specification is widely followed by researchers who intend to determine standard company cash in Nigeria (Ogundipe, 2012); manufacturing in Bangladesh (Islam, 2012); Pakistan (Shah, 2011); Australia (Lee, 2011); and China (Alles, 2012), etc.) Furthermore, business conditions have significant links with cash decisions companies (Ferreira, 2005);

(Baum, 2006). The results of Ferreira, show the constraint felt by companies in the United States by means of funding and retaining more cash during the recession. Therefore, the reason for the increase in liquidity during the periods of tight credit conditions is to be precautionary, and this relationship is due to the elevated difficulty in accessing external funding. This study explains the company's cash holding model in Indonesia's non-financial public companies.

2 LITERATURE REVIEW

According to the trade-off theory, a company chooses the average cash level by comparing the (1) benefits of cash holdings, specifically related to savings in transaction costs to obtain funds and the need to liquidate assets. Furthermore, other benefits include the propensity of using liquidity to fund activities and investments in the unavailability of other sources, or when they are expensive, (2) the cost of cash holdings is the opportunity budget of capital investments in the form of liquid assets, and also the increase in agency problems above substandard assets. In addition, meeting these costs demand that companies maintain cash holdings in order to attain business transaction needs. Furthermore, companies maintain excessive liquidity in an attempt to sustain the precautionary and speculative motives., while cash holdings maintenance allows the anticipation of unexpected events in the future and the minimization of the cost required to obtain external funding (Keynes, 1936).

The regular model of estimating and forecasting cash holdings demand is generated from variables that conceptually and rationally determine the company's average level of cash holdings. These variables are conceptually and rationally developed from the research by (Opler 1999) and (Shah, 2011).

3 RESEARCH METHODOLOGY

3.1 Population and sample

This study evaluates the characteristics of 269 listed companies over a 12 year period or 1516 observations. Therefore, the panel data was used in the formation of estimates of cash holding.

3.2 Model regression method estimated GLS

The statistical model of regression EGLS to estimate cash holdings is:

$$\overline{(CASHHOLDINGS)}_{i,t} = \sum_{i=1}^n \beta_i \bar{X}_{i,t} + \bar{u}_{i,t}$$

Description:

Symbols α_i and α_t are firm-specific effects and effects time. (period-effects) (Levy). X is a vector containing independent variables, namely investment opportunities (GROWTH), company size (SIZE_RILL), financial difficulties (DDISTRESS), cash flow risk (RV) or (VCF), the amount of cash flow ((CFLOW), investment (CAPEX), convertibility (CONVERT), leverage (LEV), dividends (DDIV_DPS), cash conversion cycles (CCC), debt maturity (MATURITY), asset tangibility (TANGIBLE)

4 RESEARCH ANALYSIS

The summary of the estimated results of Regression Models is listed below.

Table 4.1. Summary of estimated results of regression models using autocorrelation corrections.

Regression Model	Data Panel Regression					
Dependent Variable: CASH HOLDINGS						
	Panel Least Square			Cross-section Fixed		
Estimator:	Coefficient	t-Statistic		Coefficient	t-Statistic	
C	0.096	2.622	***	0.091	1.652	*
GROWTH	0.002	1.366		0.003	1.921	*
SIZE_RILL	0.009	4.296	***	0.008	1.935	*
DDISTRESS	-0.005	-1.180		-0.006	-1.437	
RV	2.295	22.832	***	2.450	23.071	***
CFV	-0.034	-1.825	*	-0.011	-0.546	
CFLOW	0.034	2.527	**	0.036	3.136	***
CAPEX	-0.001	-0.029		-0.010	-0.341	
CONVERT	-0.078	-8.088	***	-0.056	-4.107	***
LEV	-0.067	-4.086	***	-0.057	-3.515	***
DDIV_DPS	0.007	4.256	***	0.008	4.670	***
CCC	0.000	-0.277		0.000	0.212	
DEBTMAT	0.018	3.613	***	0.007	1.154	
TANGIBLB	-0.201	-11.078	***	-0.180	-9.036	***
AR(1)	0.775	40.620	***	0.441	8.001	***
Adjusted R-squared	0.860			0.882		
Durbin-Waston stat	2.101			2.089		
Sum squared Resid	2.452			1.762		
Obs	1516			1516		

This table presents the results of estimated estimations of cash holdings from 1516 company years. The dependent variable is CASHHOLDINGS. CASHHOLDINGS = (cash + short-term investment)/total assets, GROWTH = sales growth for 1 year, SIZE_RILL = ln (Total Assets/GDP Deflator), DDISTRESS = dummy variable is 1 if TIER <1, DDISTRESS = 0 if not. RV = residual value of CASHHOLDINGS squared, CFV = standard deviation of CFLOW for the last 3 years, CFLOW = (net income + depreciation & amortization)/total assets, INV = Capital Expenditure/Total Assets, CONVERT = (Current Assets-Cash-Short-Term Investments)/Total Assets, LEV = Total Debt/Total Assets. LEVs exceeding 1 were excluded from the sample. DDIV_DPS = dummy variable 1 if the company pays dividends in the year concerned, and zero if it does not pay dividends, CCC (Cash Conversion Cycle) = Age of Receivables + Age of Inventory-Age of Debt. More than 365 days of CCC were excluded from the sample. MATURITY = Long-term Debt/Total Debt, TANGIBLE = (Inventory + PPE net + Other Tangible Assets)/Total Assets; *** = significant at level 1%, ** = significant at level 5% and * = significant at level 10%.

5 DISCUSSION AND IMPLICATION

The coefficient of GROWTH aligns with the statement of Opler, (1999), Ferreira, (2004), and (Ozkan, 2004), with the view that high-growth companies face expensive funding costs, in an attempt to make the variable coefficients positive, while the SIZE coefficient is significant and positive in all models. These results confirm the findings of Shah (2011), Opler, (1999), which stated that larger companies possess the most appropriate cash to accumulate position

because of the elevation in profits generated. Furthermore, the findings contradict the information asymmetry hypothesis, the transaction cost hypothesis, and the economies of scale in asset management, while financial difficulties (DDISTRESS) has no effect on cash holdings. In addition, the sign indicates the propensity for companies with financial difficulties to reduce the level of cash holdings, although some reports that stipulated the anticipation of financial difficulties. Meanwhile, the RV coefficient was expressed as positive and significant for volatility; thus, companies with high cash holding tend to hold extra cash (Islam, (2012), which is in line with the report by Shah, (2011), Ozkan, (2004). Conversely, the negative sign in the coefficient of cash flow volatility (CFV) is not significant, which insites, arguments on the ability for companies with more volatile cash flow to accumulate unsupported cash holdings. Therefore, both proxies (RV and CFV) are capable of substituting for each other, and the sign of the CFLOW coefficient is consistent with the view (Shah, 2011); (Ferreira, 2004). Capital expenditure (CAPEX) supports the argument based on the assumption that investment as a form of collateral and increased need for investment causes a decline in cash holdings, although this does not contribute to the dependent variable. Meanwhile, the current asset variable as a cash substitution (CONVERT) is supported in an attempt to foster the replacement with current assets, which is consistent with the findings of (Shah, 2011), (Ogundipe, 2012), (Islam, 2012). LEVERAGE (LEV) were all negative and significant and is used as a substitution to hold cash, in order for companies to submit new debt on instances where a lack in cash holdings is observed. Also, another explanation assumes debt as a proxy issued by companies in order for the relationship with cash holdings to be negative, or that the cost of holding cash increases with an elevation in the company's debt. Furthermore, the coefficient of dividend payment (DDIV_DPS) is attributed as positive and significant, confirming that the company paying the dividend is in the right position to maintain significant cash holdings, and a similar result was expressed in Shah's research (2011). Furthermore, all-cash conversion cycle (CCC) ratios were positive and not significant for all specification models, while Debt maturity (DEBTMAT) was positive and significant, which was contrary to the maturity matching and the financial difficulty hypothesis. These findings indicate the company's panic for bankruptcy, subsequently leading to the reservation of cash holdings for long-term debt. Tangible assets (TANGIBLE) possess the capacity to protect companies from the risk of financial difficulties, which is why the relationship becomes negative with cash holdings, supported by the findings of (Islam, 2012). The policy implication revolves around the provision of input to the government, in order to control external funding costs, consequently eliminating the need for companies to face high cash holding costs. Meanwhile, the high transaction costs encourage companies to maintain excessive cash holdings for them to avoid under-investment problems, although there is a potential to cause excess cash holdings, which paradoxically harm the external financiers.

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