



Determinants of Cash Holdings in Developed and Developing Countries

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Abstract

This paper aims to find out the determinants of amount of cash holdings in developed and developing countries. One of the reason is because majority of studies that exist only focus on developed countries such as US or UK. Therefore, it is important to study cash holdings in the context of developing countries as well. Samples are drawn from DataStream Database using a sample period between 2009-2014 by including recent output with firm selection criterion based on data availability of firms (Al-Najjar, 2013), whereas financial firms with SIC codes 6000-6799 were not included as well as utility firms with SIC codes 4000-4999, resulting in total sample of 5402 observations from 23 countries. EViews was employed for the regression analysis with amount of cash holdings as the dependent variable. The results show that most of the hypotheses are not confirmed because of insignificant results and/or unexpected signs of coefficients. As the research about cash holdings in developing countries is not extensive yet, it is possible that there are differences to be found between developed and developing countries.

Faktor yang Menentukan Ketersediaan Kas di Negara Maju dan Berkembang

Abstrak

Penelitian ini bertujuan untuk mencari tahu faktor yang menentukan ketersediaan kas di negara-negara maju dan berkembang. Hal tersebut disebabkan karena mayoritas penelitian yang ada hanya fokus pada penelitian di negara maju seperti US dan UK. Sehingga, penelitian mengenai ketersediaan kas di negara berkembang juga penting untuk dilakukan. Sampel diambil dari Database DataStream pada periode 2009-2014 dengan memasukkan data terbaru pada pemilihan perusahaan berdasarkan ketersediaan data perusahaan (Al-Najjar, 2013), sedangkan perusahaan keuangan dengan kode SIC 6000-6799 serta perusahaan utilitas dengan kode SIC 4000-4999 tidak disertakan, sehingga total sampel penelitian sebanyak 5402 observasi dari 23 negara. Penelitian dilakukan dengan menggunakan regresi pada EViews dengan menggunakan ketersediaan kas sebagai variabel dependen. Hasil penelitian menunjukkan jika sebagian besar hipotesis tidak dapat dikonfirmasi. Dikarenakan penelitian mengenai ketersediaan kas di negara berkembang belum banyak dilakukan, sehingga ditemukan perbedaan antara negara maju dan berkembang.

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INTRODUCTION

Cash accounts for a large portion of the firm's assets, but only after the study of Opler et al. (1999), research has begun to focus on which factors explain the amounts of cash held by firms (Al-Najjar, 2013). There are both benefits and costs of holding cash. Firms can benefit from cash holdings since the need of external finance is lower and they are able to invest in profitable projects in the future (Dittmar et al., 2003). On the other hand, holding cash may abstain firms from investing in valuable projects or may even make them trade off current profitable projects (Al-Najjar, 2013). Therefore, too high cash holdings might lead to agency problems if the interests of management and shareholders are too different (Jensen, 1986).

The majority of studies on the determinants of cash holdings has focused only on developed countries such as the US and the UK (Opler et al., 1999; Ozkan & Ozkan, 2004; Harford et al., 2008; Gao et al., 2013). Later on, studies have also investigated the impact of corporate governance on cash holdings, but the results are relatively contradictory (Kusnadi & Wei, 2011), indicating that more research is needed on these variables. Iskandar-Datta and Jia (2012) show that there is a similarity in the determinants of cash holdings in the US and other industrialized countries. However, when using a sample of international firms in developed and developing countries, Kusnadi and Wei (2011) find that the level of cash holdings varies across countries. The findings from developed countries may not be generalizable to developing countries and there is only a limited number of studies concerning developing markets (Tahir & Alifiah, 2015). Therefore, it is important to study cash holdings in the context of developing countries as well.

Al-Najjar (2013) is one of the first to investigate the determinants of cash holdings in developing markets. However, that study only focuses on four emerging countries (Brazil, Russia, India and China) and compares the results with firms from the US and the UK. In addition,

there are a few individual country studies (Uyar & Kuzey, 2014; Wasiuzzaman, 2014). This paper extends the study of Al-Najjar (2013) by focusing on a larger number of countries. In addition, as the study of Harford et al. (2008) shows the impact of corporate governance on firm cash holdings in the US, this paper includes a few corporate governance variables as well. Moreover, this paper compares findings between developed (US and UK) and developing countries (21 countries).

The main research question of this study is as follows: "What are the determinants of the amount of cash holdings in developed and developing countries?" In order to research this, a quantitative analysis is conducted using data from DataStream. The sample consists of firms from developed and developing countries during the period 2009-2014. Since the end of 2008 up to 2014, Federal Reserve enlarged the holding of long-term securities by doing the open market purchases to support economic condition. Implementation of open market purchases is conducted to achieve the targeted interest rate by considering the liquidity. Since the liquidity is the alternative to cash holdings, therefore the practice of open market purchases may affect the cash holdings in some countries during the end of 2008 until 2014. In particular, this paper contributes to the existing research by looking at the similarities and differences in cash holdings between developed and developing countries.

The rest of the paper is organized as follows. Section two provides a brief overview of the existing literature. Section three provides the methodology applied. The results are presented in section four. Finally, section five starts with a discussion and concludes the paper by providing possible limitations and directions for future research.

Hypothesis Development Shareholders Rights and Anti-Takeover Provisions

According to Harford et al. (2008), the first set of governance proxies is related to sha-

reholder rights and the prevalence of anti-takeover provisions. Shareholder rights incorporate the interests of controlling shareholders and the protection of minority shareholders, whose interests are otherwise likely to be damaged (Qi & Zhiqiang, 2011). Dittmar et al. (2003) find a negative relation between the protection of shareholders rights and cash holdings, where firms in countries with low shareholder rights hold up to twice as much cash. Qi and Zhiqiang (2011) find similar results in their research on the moral hazard of financing constraints. The study finds that controlling shareholders, when unrestricted, prefer to hold more cash.

However, other studies find different results, especially when the development status of countries is taken into consideration. For developed countries, Harford et al. (2008) and Huang et al. (2013) find a positive relationship between shareholders rights and the amount of cash holdings as opposed to Dittmar et al. (2003) and Qi and Zhiqiang (2011). On the other hand, for developing countries, the results are more unified where less rights imply holding excess cash, due to the less developed financial markets (Chang & Noorbakhsh, 2006). Al Najjar (2013) confirms previous findings that, in emerging market context, firms operating in countries with lower level of shareholder protection hold more cash. According to Al Najjar (2013) shareholders protection is the main cash holding financial determinant. Thus, based on previous literature and the mixed evidence for developed countries, the following hypotheses can be constructed:

H1a: There is a negative relationship between shareholders rights and the amount of cash holdings.

H1b: This relationship is stronger for developing countries.

Regarding anti-takeover provisions, there is a debate on whether these provisions isolate managers from market mechanisms or are optimal devices that allow managers to maximize takeover bids while minimizing opportunism (Harford et al., 2008). The managerial entrenchment hypothesis states that when the management opportunistically seeks for protection from displacement, then antitakeover provisions are instituted at the expense of stockholders. Contrary, the stockholder interest hypothesis states that antitakeover provisions benefits the stockholders. Antitakeover provisions are viewed as a stockholder's response to the free rider problem associated with tender bit and defining the property rights to effect control transfer (DeAngelo & Rice, 1983). According to the managerial entrenchment hypothesis, antitakeover provisions serve to increase incumbent management's job protection, which increase stockholders' costs for preventing harmful to the shareholders self-serving actions by managers. The stockholder interest hypothesis, on the other hand, predicts that antitakeover provision adoption gives a rise to stockholders' wealth. Stockholders' benefits might come from managers' increased incentives to take long-term profitable projects, which seem to be unprofitable in the short-term or, simply, from preventing more costly forms of dissipation by managers seeking job protection (DeAngelo & Rice, 1983). In general, anti-takeover provisions are used to measure the balance of power between stockholders and managers (Harford et al., 2008).

Harford et al. (2008), using a previously developed index as a proxy for anti-takeover provisions (GIndex), find that cash holdings are negatively related to the GIndex. Kusnadi and Wei (2011) find that the legal protection of minority stockholders affects cash holdings, because of the lower cash flow sensitivity in countries with strong legal protection than those with weak legal protection. Developed countries are considered to have stronger legal protection than developing countries and this stronger legal protection leads to a decrease in cash holdings. Following these findings the second hypothesis is as follows:

H2a: There is a negative relationship between anti-takeover provisions and the amount of cash holdings.

H2b: This relationship is stronger for developing countries.

Board Structure

The board of directors has control over the management of the company and the effectiveness of this control mostly depends on board structure (Harford et al., 2008). The board structure of companies includes the board size and the board independence. First, considering board size, there is mixed evidence on its impact on firm cash holdings (Harford et al., 2008). Yermack (2006) discovers that the smaller the board size, the more efficient the board is in decision making, whereas Harris and Raviv (2006) find that the larger the board size, the more optimal the board is in monitoring.

Second, board independence influences firm cash holdings as well. A firm's board can consist of inside directors and outside (or independent) directors. Harford et al. (2008) point out that inside directors offer companies information and detailed features of the company's business and thus lead the corporations to be more understanding. On the other side, independent directors provide proficiency and objectivity, which diminish managerial entrenchment and expropriation of company resources (Harford et al., 2008). The literature of governance states that an increase in independence of managers leads to an increase of monitoring that may improve the company's performance (Harford et al., 2008). Seo et al. (2014) examine the impact of board independence on corporate cash holdings and found that companies with a high level of independent directors tend to hold more cash.

Sheikh and Khan (2015), in turn, investigate the effect of board attributes (CEO duality, board size and board independence) and insider ownership to cash holding of non-financial companies in Pakistan. They find that both board size and board independence have a positive relationship with cash holdings, though only board independence is statistically significant. Moreover, it is stated that independent directors force managers to hold more cash that is used to both planned and unplanned payments, such as contractual claims on due dates to avoid technical bankruptcy. Sheikh and Khan (2015) also find that non-family firms with a bigger bo-

ard size tend to have excess cash for unexpected opportunities or problems that may arise because of economic and political conditions. Lee and Lee (2009) investigate the interaction between corporate governance structures and corporate cash holdings in ASEAN countries. They find that companies with high outside directors and smaller board size tend to have lower cash holdings.

Even though there is some mixed evidence on the impact of board size and independence on firm cash holdings, the effect is mostly positive. In addition, the previous two studies are done in developing countries (Pakistan and ASEAN) and it could be assumed that the effect is even stronger because of unexpected economic and political conditions. This leads to the following hypotheses:

H3a: There is a positive relationship between board size and the amount of cash holdings.

H3b: There is a positive relationship between board independence and the amount of cash holdings.

H3c: These relationships are stronger for developing countries.

METHOD

Data Collection and Analysis

In order to test the aforementioned hypotheses, unbalanced panel data is taken from the DataStream database. A sample period between 2009-2014 is used to include recent output with the firm selection criterion based on data availability of firms (Al-Najjar, 2013), whereas financial firms with SIC codes 6000-6799 were not included as well as utility firms with SIC codes 4000-4999. Following Duchin (2010), observations were eliminated if there was missing information on cash holdings. Since the end of 2008 up to 2014, Federal Reserve enlarged the holding of long-term securities by doing the open market purchases to support economic condition. Implementation of open market purchases is conducted to achieve the targeted interest rate by considering the liquidity. Since the liquidity

is the alternative to cash holdings, therefore the practice of open market purchases may affect the cash holdings in some countries during the end of 2008 until 2014.

A sample of 5402 observations from 23 countries was then created. For the developed countries, the US and UK were used. For the developing countries, a larger variety in countries is used as there is less data on each country on its own. The countries are Brazil, Chile, China, Czech Republic, Egypt, Hungary, India, Indonesia, Kuwait, Malaysia, Mexico, Morocco, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey and United Arab Emirates. Due to limited information for most of the developing countries, we used already prepared set of companies in Datastream.

EViews was employed for the regression analyses with the amount of cash holdings as dependent variable. Entity and time fixed effects were incorporated after the Redundant and Hausman tests indicated so. To investigate the influence of developed versus developing markets, two subsamples were created in which separate regressions were performed to check the effects of the independent variables on the amount of cash holdings. This was done to examine whether there is a change in the interrelationships after accounting for country development status. The measurement of the variables is explained below, while table 1 shows the regression equations.

Table 1. Regression equations (excluding control variables)

Variable	Regression Equation
Shareholder rights	Cash Holdings = $\beta_0 + \beta_1 \times \text{Shareholder rights} + \epsilon$
Anti-takeover provisions	Cash Holdings = $\beta_0 + \beta_1 \times \text{Anti takeover provisions} + \epsilon$
Board size	Cash Holdings = $\beta_0 + \beta_1 \times \text{Board size} + \epsilon$
Board Independence	Cash Holdings = $\beta_0 + \beta_1 \times \text{Board independence} + \epsilon$

$$\text{Cash Holdings} = \beta_0 + \beta_1 \times \text{Shareholder rights} + \beta_2 \times \text{Anti takeover provisions} + \beta_3 \times \text{Board size} + \beta_4 \times \text{Board independence} + \epsilon$$

Dependent and Independent Variables

To determine the amount of cash holdings of a firm, the amount of cash and cash equivalents is divided by the firm's total assets, which determines a cash ratio (Al-Najjar, 2013). The interpretation of the cash ratio is valued relative to the independent variables. To determine the development status of the countries included in the sample, the Dow Jones Developed Markets Index is used. Here, a list of developed countries is given. Two separate datasets are used for the developed and developing countries.

The independent variables related to the agency theory are measured in accordance with Harford et al. (2008). For shareholders rights, the shareholders' rights index is used as well as the anti-takeover index. To measure the influence of the board of directors, both board size and board independence are used. Board size is measured using the number of directors on the board. However, because of the high correlation between board size and firm size, it is divided by the logarithm of total assets. Board independence is measured using the DataStream board independence variable, which indicates whether firm has a policy for independency. A dummy variable is then created with 0 if a firm has no board independency policy and 1 if a firm does have a board independency policy.

Control Variables

As a trade-off exists in the optimal amount of firms' cash holdings, previous research has already proven the significance of several variables. These relate to the trade-off theory and pecking-order theory and will therefore be added as control variables to determine the relative impact of the newly tested independent variables. The following control variables were implemented in the research:

Capital expenditures relates to the capital expenses of a firm, where cash holdings decrease if a firm spends more. Therefore, a negative relation is expected between capital expenditures and cash holdings. It is measured as capital expenditures divided by sales (Ramírez & Tadesse, 2009; Salamaa & Putnamb, 2013).

Leverage relates to the amount of debt a firm holds. If leverage increases, an increase in the amount of cash holdings is less beneficial than in low levels of leverage. A negative relation is expected between leverage and cash holdings. It is measured as total debt divided by total assets (Pinkowitz et al., 2006; Salamaa & Putnamb, 2013).

Net working capital concerns the liquidity of a firm and can therefore be considered an alternative to cash holdings. If a firm's net working capital is high, this can be easily converted to cash and thus there is less need for cash holdings. A negative relation is expected between net working capital and cash holdings. It is measured as current assets minus current liabilities minus cash holdings and then divided by total assets (Dittmar et al., 2003; Ramírez & Tadesse, 2009).

Profitability showed that more profitable firms have the ability to stockpile cash, whereas less profitable firms are more dependent on external financing. A positive relation is expected

between profitability and cash holdings. It is measured as EBIT divided by total assets (Dittmar & Mahrt-Smith, 2007; Al-Najjar, 2013).

Size showed that it is less costly for large firms to provide information to external financing partners and therefore they access debt and equity markets more often. A negative relation is therefore expected between size and cash holdings. It is measured as the logarithm of total assets (Ramírez & Tadesse, 2009; Hapsari, 2012; Salamaa & Putnamb, 2013).

RESULT AND DISCUSSION

Several outliers needed to be deleted from the dataset. Data points that are more than three standard deviations from the mean were considered as outliers (Osborne & Overbay, 2004). This decreased the sample to 2,445 firm-year observations for the dependent variable in developed countries and 2,957 firm-year observations in developing countries.

Table 2 reports the descriptive statistics for the variables used in the analysis. The dependent variable Cash holdings has a mean, median and standard deviation of 32.030, 26 and 21.711 respectively for developed countries and 33.938, 31.170 and 19.781 for developing countries. The value range for this variable is quite large and it captures a large diversity of

Table 2. Descriptive Statistics

Variable	N	Mean	Median	Std. Dev.	Min.	Max.
<i>Developed Countries</i>						
Cash holdings	2445	32.030	26	21.711	0	99
Board size	2354	9.958	10	2.305	3	17
Board independence	2355	0.646	1	0.478	0	1
Shareholder rights	2355	61.552	64.94	25.253	0.52	99.02
Anti-takeover	2355	35.586	31.14	27.947	0.11	83.55
Capital expenditure	2410	4.612	3.145	4.258	0	22.96
Leverage	2445	22.306	20.59	15.774	0	74.38
NWC	2445	0.140	0.120	0.174	-0.394	0.698
Profitability	2429	0.111	0.106	0.082	-0.186	0.395
Size	2445	15.455	15.543	1.651	10.839	18.986

<i>Developing Countries</i>						
Cash holdings	2957	33.938	31.170	19.781	0	94.190
Board size	2225	10.281	10	3.284	4	21
Board independence	2227	0.419	0	0.493	0	1
Shareholder rights	2227	41.110	36.170	30.284	0.210	99.040
Anti-takeover	2227	73.482	82.100	15.320	30.590	83.550
Capital expenditure	2955	0.100	0.056	0.148	0	2.074
Leverage	2957	0.234	0.228	0.164	0	0.795
NWC	2957	0.075	0.068	0.173	-0.595	0.731
Profitability	2957	0.106	0.092	0.095	-0.334	0.568
Size	2957	7.711	7.660	0.894	5.372	10.576

Table 3. Regression Results

Variables	Cash holdings	
	Developed	Developing
Board size	-0.329** (0.187)	-0.001 (0.180)
Board independence	-1.377 (1.080)	-0.840 (1.008)
Shareholder rights	0.000 (0.012)	0.006 (0.013)
Anti-takeover	-0.040 (0.026)	0.062** (0.027)
Capital expenditure	0.026 (0.099)	-8.960*** (2.323)
Leverage	0.062* (0.033)	3.674 (4.171)
NWC	64.535*** (3.023)	6.554** (2.569)
Profitability	-6.382 (4.142)	19.891*** (4.237)
Size	-1.366 (0.965)	9.156*** (2.681)
Constant	48.568*** (14.719)	-44.015** (20.946)
Observations	2309	2224
R ²	0.890	0.856
Adjusted R ²	0.864	0.811

cash holdings of firms in the sample. From the mean and median, it seems that firms in developing countries have more cash holdings. Moreover, when considering the statistics of independent variables, there seem to be differences between developed and developing countries. There are missing values for some of the independent variables.

Table 3 reports regression results. The impact of Board size, Board independence, Shareholder rights and Anti-takeover as well as control variables on firm Cash holdings are estimated separately for developed and developing countries. The results are briefly described below and discussed in section five.

Hypothesis 1a stated that there is a negative relationship between shareholder rights and the amount of cash holdings. This is not confirmed by the regression results since the coefficients are approximately zero and not statistically significant. Consequently, the related hypothesis 1b (this relationship is stronger for developing countries) cannot be confirmed.

Hypothesis 2a stated that there is a negative relationship between anti-takeover provisions and the amount of cash holdings. Anti-takeover has a coefficient of -0.040 for developed countries but it is not statistically significant. Instead, the coefficient has a value of 0.062 for developing countries and it is significant at 5% level but this is opposite to the hypothesized relation. The subsequent Hypothesis 2b predicted that the relationship is stronger for developing countries. This again is not confirmed.

Hypothesis 3a stated that there is a positive relationship between board size and the amount of cash holdings. This is not confirmed by the regression results since Board size has a coefficient of -0.329 (significant at 10% level) for developed countries and -0.001 for developing countries. Hypothesis 3b stated that there is a positive relationship between board independence and the amount of cash holdings. The coefficients of Board independence are negative and not significant, meaning that firms with independent boards hold less cash than firms with dependent boards, so the hypothesis is not

confirmed. Hypothesis 3c stated that these relationships are stronger for developing countries. Even though the hypothesized positive relationships are not confirmed and all the results are not significant, it can be observed that the values of coefficients are less negative for developing countries.

Regarding the control variables, all of them are not significant or do not have the expected signs. Capital expenditure has its expected sign and it is significant for developing countries but it is positive and insignificant for developed countries. Leverage has unexpected signs in both subsamples. Net working capital has unexpected sign and it is statistically significant for both developed and developing samples. Profitability has its expected sign and it is highly significant for developing countries but it is negative and insignificant for developed countries. Size has the expected sign for developed countries but it is insignificant. For developing countries, the sign is opposite to expected (positive) and it is significant.

It appears that most of the hypotheses are not confirmed because of insignificant results and/or unexpected signs of coefficients. Regarding shareholder rights, previous studies (Dittmar et al., 2003; Harford et al., 2008) have found both positive and negative impacts on cash holdings that may explain the insignificant results of this study. Moreover, the developed sample includes the US and UK, which are considered to be quite similar countries, but there still might be some differences that are reflected in the results. The same holds for the developing sample; it consists of multiple countries.

One unexpected finding concerns the relation between anti-takeover provisions and cash holdings in developing countries. A negative relationship was expected, but the results show a positive and statistically significant relation. As the research about cash holdings in developing countries is not extensive yet, it is possible that there are differences to be found between developed and developing countries.

It is also not surprising that the hypotheses regarding board size and board indepen-

dence are not confirmed when considering the results in the light of previous results. Harford et al. (2008) indicate that there are conflicting findings about the impact of board size on firm cash holdings. Other studies have found board size to be insignificant in the context of developing countries (Sheikh & Khan, 2015). In addition, Lee and Lee (2009) find that firms with more independent directors tend to have lower cash holdings, which is consistent with the results obtained in this study. Overall, the results of this study indicate that more research is needed in the field of corporate governance and cash holdings, as well as the differences between developed and developing countries.

CONCLUSION AND RECOMMENDATION

To conclude, this study has strived to explain differences in cash holdings and its determinants for a sample of developed and developing countries. Though not all hypothesized relationships were found significant or had their expected sign, this study is a first step in comparing and analyzing cash holdings in different subsamples. The paper contributes to the existing research in several ways. First, whereas most studies on the determinants of cash holdings have focused on developed countries and there is only a limited number of studies in developing countries (Tahir & Alifiah, 2015), this study contributes by examining the determinants of cash holdings in developing countries and comparing findings between developed and developing countries. Second, this study investigates the impact of board characteristics on cash holdings. Previous research has highlighted the importance of studying internal corporate governance factors in relation to cash holdings, which is where this study adds to the call for research (Al-Najjar, 2013; Amess et al., 2015).

There still are a few limitations to this study. First, the data collection process led to the removal of one variable, as there was no quantitative secondary data available in DataStream, whereas this was the case for all others. Taking

time constraints into account, it was not possible to collect primary data on all observations. Moreover, the industries of the sample firms were not taken into account, even though cash holdings might be more important in those industries that have difficulties with finding external funding for investments (Amess et al., 2015). This might explain the insignificant and/or unexpected results and is a reason for further research that goes into more detail on different industries in the different sets of countries. Several other opportunities arise for further research. Related to industry research, there could be a trade-off between the costs of holding cash and the impact this might have on the financial behavior of firms, which is an important issue (Tahir & Alifia, 2015). Moreover, board structure and its more specific characteristics might have an influence on cash holdings (Amess et al., 2015). Though this study has provided research on board characteristic, more is needed on individual decisions related to compensation and possible punishment. This would related to specific, detailed research on individuals and the consequences of decisions. Research in these areas can aid managers and thus firms, in general, to work on their cash holdings policy and to reach an optimal amount of cash holdings for the firm.

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