Cash holdings and corporate performance: Evidence from Sri Lanka

Ratnam Vijayakumaran and Nagajeyakumarn Atchyuthan

Department of Financial Management, University of Jaffna, Jaffna, Sri Lanka.

Abstract

Recently, debate on corporate cash holdings has received greater attention in the corporate finance literature. Corporate finance theories provide competing hypotheses on the relationship between cash holdings and corporate performance. This study empirically examines the relationship between cash holdings and corporate performance using a sample of firms listed in the Colombo Stock Exchange (CSE) over the period 2011-2015. Controlling for unobserved heterogeneity and other firm characteristics, this study finds that cash holdings is positively related to firm performance.

1. Introduction

According to Modigliani and Miller's (1958) irrelevant theory, financing decisions are irrelevant to the value of a firm under perfect capital market conditions. Therefore, in a perfect capital market, holding large amount of cash is irrelevant, because companies have easy access to the capital market to finance their profitable investment projects at negligible transaction costs. However, in the real world, the cost of external funds is higher than that of internal funds due to the market frictions such as transaction costs, information asymmetry, and agency cost and various other financial restrictions (Jensen and Meckling, 1976; Myers, 1977; Myers and Majluf, 1984). Therefore, holding cash allows firms avoid the high cost of external financing and gives flexibility to firms to exploit the profitable investment opportunities. Opler, Pinkowitz, Stulz, and Williamson (1999) argue that when the investment opportunities are large enough to hold larger cash, they will have a positive

effect on corporate financial performance.

By contrast Jensen's (1986) free cash flow hypothesis argues that in the presence of the conflicts of interests between shareholders and managers, large cash holdings create managerial incentives that may lead managers to spend cash on investing in less profitable projects instead of distributing it to shareholders. Similarly, Harford (1999) notes that firms with large cash holdings tend to invest in mergers and acquisitions, which decreases corporate values. Dittmar and Mahrt-Smith (2006) and Harford, Mansi, and Maxwell (2006) show that poorly governed firms tend to dissolve their cash quickly in ways that destroy firm value.

With the recent financial crises, greater research attention has been devoted to the optimum level of cash holding and its effect on financial performance and value of firms. The essence of cash management is to assure the day to day normal business activities, manage financial resources and enhance the liquidity. Three related facts have

contributed to highlight the importance of cash holdings in firms: first, the dramatic increase of cash reserves by firms around the world in recent years; second, the relevance of cash holdings among firms' financing choices; third, important role of cash holdings in risk management strategy.

Yet, there are only a handful of empirical studies have investigated the effect of cash holding on financial performance and value of firms (for example, Martı́nez-Sola et al., 2013) and to our knowledge no previous studies have examined the association between cash holdings and financial performance of firms in Sri Lanka. This study focuses on the research question of whether and how cash holdings affect corporate performance. In doing so, our study contributes to the literature on cash holdings from a frontier market namely Sri Lanka.

Reminder of this paper organized as follows. Section 2 reviews relevant literature and develops hypothesis. The model specification and estimation methods are discussed in Section 3. Section 4 describes the sample and data, and provides descriptive statistics. Section 5 discusses empirical results. Finally, Section 6 concludes.

2. Review of the literature and hypothesis
2.1 Theoretical review
2.1.1 Tradeoff theory
According to the tradeoff theory, firms consider the marginal benefits and cost of holding cash to maximize the shareholder's wealth (Dittmar et al., 2003). The benefits of cash holding stem from the theory of Keynes (1936), regarding the intention of liquidity assets: transaction cost motive, precautionary motive, and speculative motive. According to the transaction cost motive, holding cash allow firms to avoid or save transaction costs to raise funds or to liquidate assets. In relation to the transaction motives, firms hold the cash only to overcome the higher opportunity cost in case of lower cash levels (Dittmar et al., 2003).

According to precautionary motive, that cash holdings helps firms finance their investments or project if other financing source is not available. In addition, Ozkan and Ozkan (2004) emphasize that to overcome the probability of higher cost of external financing firms also invest in liquid assets or they may enhance their cash level. Likewise, this argument is also supported by Opler (1999) and Bates and Kahle (2009). In addition, speculative motive argues that economic players hold cash or marketable securities in order to earn profit from future interest rate rises.

2.1.2 Pecking order theory:
Extending pecking order theory (Myers and Majluf 1984) to the explanation of the determinants of cash leads to the conclusion that there is no optimal cash level. It is used as a buffer between retained earnings and investment needs. Under this theory, the cash level would just be the result of the financing and investment decisions. According to this theory, issuing new equities is very costly for firms because of information asymmetries. Thus, firms finance their investments primarily with internal funds, then with debt

and finally with equities. When operational cash flow are high, firms use them to finance new profitable projects, to repay debts, to pay dividends and finally to accumulate cash. When retained earnings are insufficient to finance new investments, firms use their cash holdings, and then issue new debt.

2.1.3 Free cash flow theory

According to the free cash flow theory of Jensen (1986), managers prefer to hold high cash level to enhance the volume of total assets in their control. They also try to gain the distinctive powers in the firm's investment and financing decisions. These policies may lead to the over investment issues (Ferreira and Vilela, 2004). Furthermore, Ferreira and Vilela (2004) argue that firms with strong affiliation with banks and firms operating in superior investor protection countries hold lower cash levels. These conditions support the existence of managerial discretion and agency cost issues in liquidity management.

Finally, it can be argued that management may accumulate cash because it does not want to make payouts to the shareholders. Drobetz and Grüninger (2007) support this argument showing that dividend payments are negatively related to cash reserves. This indicates that management may accumulate cash by cutting the dividend or it does not make payouts to shareholders, to keep funds within the firm.

2.2 Empirical review

Although corporate finance theories suggest that cash holdings can improve or adversely affect corporate performance, there are only a limited empirical work on the relationship between cash holdings and corporate performance of companies. Wang (2002) examines the relationship between cash holdings and firm profitability and value for Japanese and Taiwanese listed firms using a panel data over the period from 1985 to 1996 and finds the existence of a negative relationship between cash holdings and profitability. Fresard (2010) uses annual firm-level data from COMPUSTAT's tapes over the period 1973-2005 and finds that firms holding higher cash than their competitors achieve better performance and profitability when measured by return on assets. He also presents evidence suggesting that the firms' market-share increases than that of their competitors as a result of increasing levels of corporate cash holdings. Finally; he suggests that firm's cash policy encompasses a substantial and valuable strategic dimension. In a similar vein, using a sample of US public companies, Palazzo (2011) reports a positive relation between return on equity and cash holdings. The author attributes this finding to the precautionary savings motive for cash holding.

Researches focusing on emerging market also examine the relationship between cash holdings and firm performance. For example, more recently Abushammala and Sulaiman (2014) examine the effect of cash holdings on firms' profitability using a panel of 65 Jordanian non-financial listed firms over the period 2000 to 2011. Their results show that there is

a positive relationship between cash holdings and profitability. To our knowledge no one has focused on the effect of cash holding on financial performance of firms in the context of Sri Lanka.

2.3 Hypothesis

From the literature review, it is clear that corporate finance theories provide competing hypotheses on the relationship between cash holdings and financial performance of a firm. While trade-off theory and pecking order theory suggest a positive relationship between cash holdings and financial performance, agency theory predicts a negative relationship. Empirical research also provides mixed results. Whereas Wang (2002) reports a negative association between cash holdings and firm profitability, recent empirical studies (e.g. Fresard, 2010; Palazzo,2011; Abushammala & Sulaiman, 2014) provide evidence suggesting that cash holdings positively affect financial performance of firms in developed countries as well as in emerging markets. In this line, we hypothesise that

H1: There is a significant positive relationship between cash holdings and corporate performance.

3. Model specification and estimation methodology

3.1 Model specification

We estimate following regression model that links corporate performance with cash holdings:

$Perform_{it} = \beta_0 + \beta_1 cash_{it} + \beta_2 fsize_{it} + \beta_3 lev_{it} + \beta_4 sgrowth_{it} + \beta_5 tang_{it} + v_i + v_t + _{it}$ (1)

Where i indexes firms, t years. $cash_{it}$ measures cash and cash equivalent to total assets holding by firm i at time t. Table 1 provides definitions and expected signs for all variables used in this paper. The error term in Equation(1) is made up of three components. v_i is a firm-specific effect; v_t, a time-specific effect, which we control for by including time dummies. These dummy variables change in time but are equal for all firms in each of the periods considered and thus capture business cycle effects. $_{it}$ is an idiosyncratic error term.

3.1.1 Dependent variables

In this study we use two alternative proxies to measure the corporate performance (denoted by *perform* in equation 1), namely return on assets (ROA) and return on equity (ROE). While ROA is defined as net income (net profit) divided by year-end total assets, ROE defined as net income divided by total equity.

3.1.2 Cash holdings

The independent variable is cash holdings (denoted by *cash),* which is used to capture the effect of cash on corporate performance. Following previous studies (e.g.Martı́nez-Sola et al., 2013), cash holdings is calculated as cash and cash equivalents divided by total assets. As hypothesized, we would expect a positive relationship between cash holdings and performance.

3.1.3 Control variables

Our regression model includes several additional variables to control for a set of firm specific characteristic that are likely to

be correlated with corporate performance. These include firm size (*fsize*), leverage (*lev*) *and sale growth (sgrowth) and tangibility (tang)*. Firm size is measured by the natural logarithm of total assets at the firm level. As discussed in Dixon, Guariglia, and Vijayakumaran (2015), a positive relationship between firm size and corporate performance is often considered as a stylized fact, as bigger firms expected to use new innovative technology, be more diversified and better managed.

Leverage, which is defined as the total debt to total assets ratio, is used to capture the effect of capital structure. We expect a negative relationship between leverage and performance, as high leverage is generally associated with unhealthy balance sheets. Growth opportunities are proxied by growth of sales which is denoted by *sgrowth.* Since growth opportunities represent a firm's growth prospects and investment opportunities, there should be a positive relationship between the growth opportunities and performance. Previous empirical studies also report a positive effect of growth opportunities on firm performance (see Claessens et al., 2002; King and Santor, 2008). In the context of Sri Lanka, Manawaduge et al. (2011) find a positive but insignificant relationship between growth opportunities and firm performance.

Tangibility (represented by tang), is measured by the ratio of tangible fixed assets to total assets. Diverse relationships can be observed between firms' performance and tangibility depending on the degree of efficient utilization of tangible assets by the firm. If a firm utilizes its tangible assets efficiently then we would expect a positive relationship between tangibility and performance, otherwise the relationship would be negative.

Table 1. Definitions of variables

Variable	Acronyms	Measurement
Performance	perform	Return on assets (ROA): Net income/ total assets
		Return on equity(ROE):Net income/total equity
Cash	cash	Cash and cash equivalents divided by total assets
Firm size	fsize	Natural logarithm of total assets
Leverage	lev	Total debt divided by total equity
Sales growth	sgrowth	$Sales_t$- $Sales_{t-1}$/ $Sales_{t-1}$
Tangibility	tang	Fixed assets/ Total assets
Year dummies	v_t	Year dummies for the years 2009 to 2013

3.2 Estimation methodology

To examine the extent to which cash holdings affects corporate performance, we use fixed effects regressions. A pooled OLS (Ordinary Least Square) does not take into account the potential endogeneity of cash holdings arising from the unobserved firm heterogeneity (e.g, managerial ability). We use the Hausman specification test to decide whether fixed effect method (FEM) or random effect method (REM) is econometrically a more appropriate approach to our data. Highly significant Hausman X^2 (112.53, P-value= 0.000) statistics reveal systematic differences in coefficients between both models, which indicates highly significant firm-specific effects and their correlation with the dependent variable, thus showing that FEM provides better specification of our model relative to REM.

4. Data and descriptive statistics

4.1 *Sample and data set*

The data used in this study are obtained from annual reports of individual companies listed on the Colombo Stock Exchange (CSE) for the period of 2011-2015. We use convenient sampling (based on availability of necessary data) to collect data from five sectors namely Manufacturing, Hotels and Travels, Food, Beverage and Tobacco, Chemicals and Pharmaceuticals, and plantation. To reduce the influence of potential outliers, we exclude observations in the one percent tails of each of the regression variables. We then benchmarked the trimmed data with descriptive statistics reported in other papers to ensure that the sample was representative of the population of non-financial firms listed on the CSE. Finally, After this screening and computing the variables, we end up with a panel of 311 firm-year observations for our empirical analysis.

4.2 *Descriptive statistics*

Table 2 presents descriptive statistics for the variables used in the analysis for our pooled sample. The pooled mean (median) return on assets *(roa)* and return on equity *(roe)* are 6.3% (-12.3%) and 10.7% (31.3%) respectively. The average level of cash held of our sample companies is 6.15%.

With respect to the control variables included in our regression model, the average size of the firms in our sample measured by total assets is about 6.06 billion rupees. The leverage ratio is 39.7%, suggesting that about 40% of the sample firms' assets are financed by debt capital. The average (median) sales growth, measured as changes in sales, is 20.4 %. The average tangible assets of the firms proxied by the ratio of fixed assets to total assets are given by 39.86 %.

Table 2 Summary statistics

Variable	Obs	Mean	Std. Dev.	Median	Min	Max
Return on assets (*roa*)	311	0.0636	0.0759	-0.1237	0.4595	0.0636
Return on equity (*roe*)	311	0.1071	0.1385	-0.3136	0.7900	0.1071
Cash (cash)	311	0.0615	0.1096	0.0003	0.5661	0.0615
Firm size (*fsize*) (Rs. billion)	311	6.0600	10.5900	0.7800	92.6886	6.0600
Leverage (*lev*)	311	0.3972	0.1961	0.0164	0.8006	0.3972
Sales growth (*sgrowth*)	311	0.2044	0.8934	-0.9989	9.9506	0.2044
Tangibility (*tang*)	311	0.3986	0.2731	0.0201	0.9728	0.3986

5. Empirical results

5.1 Correlation analysis

Table 3 reports the Pearson correlation coefficients between variables. Cash holdings (*cash*) shows a positive and statistically significant correlation with firms' performance measured by return on assets *(roa)* and return on equity (roe). This result is consistent with the findings of previous studies, for example Fresard (2010) and Palazzo (2011). Turning to control variables, firm size (*fsize)* has a significant positive correlation with return on assets *(roa)* and return on equity (roe). Sales growth (*sgrowth)* is not significantly associated with *roa* and *roe..* Total leverage exhibits a negative and insignificant correlation with both *roa* and *roe*. Finally, the ratio of tangible fixed assets to total assets *(tang)* does not have any significant association with *roa* and *roe*. Furthermore, Table 3 suggests that given that the observed correlation coefficients are relatively low, multicollinearity should not be a serious problem in our study.

Table 3 Correlation matrix

	roa	roe	cash	fsize	lev	sgrowth	tang
roa	1.000						
roe	0.926*	1.000					
cash	0.258*	0.213*	1.000				
fsize	0.084*	0.108*	-0.113	1.000			
lev	-0.237	-0.067	-0.218	0.261*	1.000		
sgrowth	0.062	-0.046	0.117	-0.072	-0.070*	1.000	
tang	-0.051	-0.089	-0.079	-0.042	-0.389	0.069	1.000

Notes: This table reports Pearson correlation coefficients. *denotes significance at the 5% level or more. See Table 1 for definitions of all variables

5.2 Multivariate analysis

Table 4 presents estimation results of our regression model (1) using fixed effect estimator, where the dependent variable is return on assets *(roa)*. roa is regressed on cash holdings and a set of control variables including firm size, leverage, sales growth, and tangibility and a set of year dummies.

Table 4. Relationship between corporate performance *(roa)*, cash holdings and firm characteristics

Variables	Coefficient
cash	0.147***
	(3.500)
fsize	0.015**
	(2.103)
lev	-1.031**
	(0.198)
sgrowth	0.832
	(1.010)
tang	-0.061
	(0.847)
constant	1.023
	1.17
Year dummies	Yes
Observations	311
Adjusted R^2	0.438
F test	18.4
P values	0.000

See Table 1 for definitions of all variables. * indicates significance at the 10% level. ** indicates significance at the 5% level. *** indicates significance at the 1% level. The figures reported in parentheses are t-statistics.

As can be seen in Table 4, firstly, the estimated coefficient on cash holdings is positive and significant at the 1% level. This result provides support to our hypothesis H1, suggesting that large cash holdings is associated with higher corporate performance. That is, large cash holdings allows firms avoid high cost of external financing and gives flexibility to firms to exploit the profitable investment opportunities. This finding thus is consistent with arguments of trade-off and pecking order theories but inconsistent with agency explanations for corporate cash holdings. This result is also consistent with the findings of previous empirical studies, for example Fresard (2010) and Palazzo (2011).

Looking at the control variables, we observe that firm size *(fsize)* is positive and significant at the 5% level, suggesting that large firms enjoy economies of scale, and face less asymmetric information problem and thus are able to obtain external financing at lower cost of capital. The coefficient of leverage (lev) is negatively related to firm performance at the 5% level, suggesting that the use of more debt capital in the capital structure is harmful to firm's financial performance. The coefficient associated with sales growth *(sgrowth)* is not significantly associated with firm performance at conventional levels. This finding is consistent with the finding of Manawaduge et al. (2011). Finally, the estimated coefficient on tangibility is negative but not significant at conventional levels. Consistent with Manawaduge et al. (2011), this result suggests that Sri Lankan manufacturing firms do not efficiently utilize tangible fixed assets.

The adjusted R^2 suggests that 43.8% of

the total variance of the performance (ROA) is explained by the model.

Table 5. Relationship between corporate performance (*roe*), cash holdings and firm characteristics

Variables	Coefficient
cash	0.510***
	(4.261)
fsize	0.009**
	(1.990)
lev	-0.851**
	(1.97)
sgrowth	0.0792
	(0.907)
tang	-0.457
	(0.220)
constant	0.497
	(0.580)
Year dummies	Yes
Observations	311
Adjusted R²	39.85
F test	17.66
P values	0.000

See Table 1 for definitions of all variables.
* indicates significance at the 10% level.
** indicates significance at the 5% level.
*** indicates significance at the 1% level. The figures reported in parentheses are t-statistics.

5.3 Robustness tests

As a robustness test, we estimate our regression model 1 with return on equity (roe) as a dependent variable instead of return on assets, using the fixed effect estimator. As we can see in Table 5, the results show that once again, coefficient on cash holdings is positive and precisely determined, suggesting that cash holdings is positively associated with corporate performance *(roe)*, in line with our hypothesis H1. As for the control variables, they show a similar pattern as in Table 4.

6. Conclusions

According to Modigliani and Miller's (1958) irrelevant theory, cash holdings is irrelevant to the value of a firm under perfect capital market conditions. However, subsequent developments in corporate finance theories with regard to transaction costs, information asymmetry, and agency costs and various other financial restrictions (Jensen and Meckling, 1976; Myers, 1977; Myers and Majluf, 1984) suggest that in the presence of market frictions, cash holdings may affect corporate performance. This study examines empirically the relationship between cash holdings and performance of a panel of Sri Lankan listed firms, using *the fixed effects estimator*. The study uses 311 firm year observations over the period 2011-2015.

Controlling for unobserved firm heterogeneity and other firm characteristics, we document that cash holdings positively affects performance of firms in emerging markets as found in their counterparts in developed countries. Therefore, our study concludes that cash holdings phenomenon of Sri Lankan listed firms is not explained by agency theory but trade-off theory and pecking order theory.

Future research may expand this study by examining how corporate governance practices in Sri Lanka affect the cash holdings of firms as well as the relationship between cash holdings and firm performance.

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