

Demystifying the Relationship between Corporate Cash Holdings and its Determinants in Indian Firms

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Abstract

There are two schools of thought regarding cash policy, where one sect finds cash policy is insignificant in today's perfect capital market condition and the other feel corporate cash policy is the key determinant of company growth and success. Corporates constantly balance in maintaining cash reserves to cushion against future contingencies. Shortage of liquid assets may affect the operation of the firm. Cash management of any firm is bounded by precautionary, transaction, and speculative motives. Various predominant factors influence a company's cash reserve policy. The natures of business and R&D expenditure are a few key determinants that demand a firm to maintain a certain level of cash. At the same time maintaining an optimum cash balance is becoming hypothetical under the current scenario. The Company must take an optimum cash policy so that it should not remain ideal without generating any return. This paper is to analyze the impact of cash policy and cash holding patterns of Indian firms. The paper has tried to uncover certain determinants of cash holding. The study highlights the relationship between variables such as cash ratio, leverage, and size of the firm. Panel data regression and the Random Effect model are used. The sample for the study is non-financial companies with ten years data set.

Keywords: Cash Holding Pattern, Optimum Cash Policy, Panel Data Regression

1. Introduction

Perfect capital market theory gives less importance to cash holdings as companies can raise funds to meet their financial commitment. Perfect capital market theory suggests when the funds are available and easy to raise through various means and instruments, the company need not hold cash. As idle cash does not generate any return. Hence the company will deploy them for a more profitable return. But there is evidence that countries and companies are badly affected due to liquidity crises. Whether the financial crisis of 2007–08 or the current pandemic (Covid-19), firms are witness to high liquidity demand across the world. Many European non-finance companies are under stress (Schnabel, 2020). Liquidity shortfalls compel

the European firms to go for liquidating their corporate bond. As per JPMorgan, nearly \$208 billion (77% of the funds on the market within the facilities) had been borrowed by giant firms, and these borrowings are below investment grade. Indian companies are also no exception to the situation.

Less than half of India's top 500 companies, excluding banks, have a cash shortage to pay for their fixed costs. No matter how advanced the financial system and perfect the market, cash management will remain the key component in bringing out the stability among the firms. An optimum cash level is determined based on the firm characteristics. And it is different from firm to firm. Under firm value maximization, it is found that the optimal cash level is increasing with the risk

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associated with the firm (Asvanunt and Recharson, 2016) cash in assets generates a low return. But firms try to hold cash as a precautionary motive. Liquidity requirement increases when there is an increase in the probability of default.

Cash holding pattern and its impact are explained under trade-off theory (Modigliani and Miller, 1958) and pecking order theory (Myers, 1984). Trade-off theory emphasizes capital structure considering financial distress. Financial distress arises when a firm is unable to meet its fixed obligation. Companies operating under unstable business conditions and high leverage led to higher operating risk. On the other hand, pecking order theory suggests that firms prefer to use internal funds than external funds (external equity and debt) when it is available. The cash holding pattern of any firm is usually driven by three motives. They are transaction, precautionary and speculation motives. For instance, companies accumulate cash as a precautionary measure to deal with unexpected eventualities in the future. Moreover, a precautionary motive arises when there is non-synchronization of cash inflow and outflow in the ordinary course of business. In this paper, the optimum cash policy assumes the firm has a financial constraint and meets investment need, and pay off debt (debt service).

Transaction motive reduces transaction costs for routine cash needs relative to cash operating expenses. As per speculative motive, the firm takes advantage of current profitable opportunities and compensates those lenders for certain services and loans. Consequently, creditors are often concerned with corporate savings, as they represent one of the most important components in analyzing debt service capacity and the associated emergency. As there are many facets to corporate cash policy, it is inevitable to understand the factors that influence maintaining liquid funds in firms. In this study, the focus will be on the precautionary motive for holding cash. Cash in assets generates a low return. But firms try to hold cash as a precautionary motive. Liquidity requirement increases when there is an increase in the probability of default.

This paper proceeds with the following analysis. Firstly, the cash holding pattern of various firms

will be analyzed. Secondly, the focus will be on determinants of cash-holding in the context of Indian companies. Finally, the regression analysis will reveal the association between cash holdings and their determinants.

2. Literature Review

Campello *et al.* (2004) pointed out that financially constrained firms face a trade-off between current investments and potentially profitable investment opportunities due to their tendency to hold more cash and forego current profitable investment projects. They also showed that firms facing financial constraints cling to higher Cash Flow (CF) sensitivity of cash. It is also evident that few firms (endogenous) tend to hold more savings on their Balance Sheet. Also, firms that belong to industries with higher cash flow volatility tend to internally hoard more liquid assets on their Balance Sheet to hedge against this uncertainty. High cash holding is associated with high investment in Research and Development activities, growth in assets, and where the firm supports investment and growth. There is also a link between cash holding and corporate diversification. Well-diversified firms hold less cash in comparison to stand-alone companies (Duchin, 2010; Tang *et al.*, 2011).

Martínez *et al.* (2013) investigated the effect of cash holding on firm value. They use the sample of 472 US industrial firms with panel data from 2001-2007. The study empirically tests for the existence of an optimum cash level that maximizes the value of the firm. They also pointed out agency costs and free cash flow. The result showed a positive association between cash reserve policy and the value of the firm. This level varies depending on firm specific factors such as growth potential, access to capital markets, size, and leverage. Many research works to witness the relationship between credit risk and cash holding of firms.

Helwege *et al.* (2014) studied liquidity effects in corporate bond spreads. Here they have considered the credit risk as a credit spread. The paper explores that there is the effect of liquidity on credit spread. But

the significant effect was low. However, Acharya *et al.* (2011) suggested that optimal cash reserve is positive for credit risk. There is a positive correlation between cash holding and credit spread. The volatility in income and high cost of liquidity is encouraging firms to hold more cash in the credit line usage (Boileau and Moyon, 2016). Loncan and Caldeira (2014) investigated the relationship between Capital structure, cash holdings, and firm value. They found those financially constrained firms hold more cash. And they also found that both short-term and long-term debt is negatively related to cash holdings.

In subsequent studies, Altman (1968) and Ohlson (1980) highlight the importance of performance, liquidity, and leverage indicators to gauge the company's financial strength by conducting multiple discriminants and binary choice analysis accordingly. Similar results were shown by recent studies which compare alternative bankruptcy prediction models by incorporating liquidity, profitability, and solvency financial ratios in various bankruptcy prediction models on a sample of US-listed firms (Wu, 2010).

Firm's fundamentals are important drivers in assessing the credit quality and performance of newly issued US corporate bonds. Furthermore, (Demerjian, 2007) shows that the current ratio is informative of credit risk for issuers with high levels of working capital. There are various study examined determinants of cash holding. Various factors influence the cash holdings of a firm. These factors can be macroeconomic or micro. Anand *et al.* (2018) investigated the determinants of cash holding from various angles. Their main hypothesis was to investigate the association between cash holding and microeconomic factors. The study also threw some light on cash holding and its relationship with firm-specific factors. They found that the cash holdings of firms are influenced by factors like oil price volatility, exchange rate, and the stock market.

Few internal factors are firm size, net working capital, and cash flow (Gill and Shah, 2012). Guizani (2017) investigated the determinants of cash holding concerning Saudi firms for a period 2006-14. The study categorized high-liquid firms as conservative firms.

The result revealed that the conservative firms are large, have low leverage, and have less cash fluctuation. The cash holding is also analyzed based on petrochemical and non-petro chemical firms. It is found that there is a significant difference in cash holding between these two groups. Maheswari and Rao (2017) found that there is a positive significant relationship between cash/TA and dividend, Market Book Value Ratio, and Net Debt issuance. It is also found that there is a negative coefficient between Cash/TA with NWC/TA and research and development exp. They have also pointed out that dividend-paying firms hold more cash reserves.

Angelovska and Valentinčič (2020) investigated the cash holdings of small and medium segment firms. The size of the firm does not influence cash holding. There is a negative coefficient with cash flow suggesting the cash holding is for transaction motive. To prove cash holding for precautionary motive, the authors have considered debt and retirement benefits. The study found negative coefficients with leverage-related variables. Similarly, retirement benefit has a positive influence on cash holding.

Aftab *et al.* (2018) examined the cash reserve policy of various firms' regions wise. The study included 5957 companies from 47 countries. The result analysis was conducted in three different stages. In the first stage, it is found that overall cash reserve is positively influenced by financial strength, investments, and cash flow. In the second stage, the cash holding is negatively influenced by debt-equity structure, dividend, intangibles, and profitability. Lastly, region-wise regression result revealed that countries like Asia, Africa, the Middle East, and North America show a positive association between size and cash holding whereas European companies shows a negative association. Similar results were cited for the dividend. But in the context of leverage, most of the countries are showing negative coefficients.

A supplier and client match sample to understand the 2007–08 financial crisis implications on firms' liquidity provision. The discoveries of this paper feature the significance of non-monetary firms in offering substitute credit during monetary pressure and

also, call attention to those strategies pointed toward improving this credit source, like exchange credit protection or assurances, which could demonstrate more power to cultivate financial development. Magerakis *et al.* (2020) explored the determinants of cash holding and pointed out the significance of firm size in the post-emergency time frame. Panel data regression was used to examine large, medium, and small-size firms regarding cash possessions. The findings indicate that cash levels are higher for firms with riskier cash flows, higher growth opportunities, and huge R&D expenditures. On the other hand, the firms' cash holdings decrease when the substitutes of cash, cash flows, and capital expenditures increase. We show that small-sized firms tend to hold more cash than their larger counterparts due to precautionary motives. They also pointed out that there is a significant and varying association or relation between managerial ownership and cash holdings.

Those determinants include Net working capital, cash to operating assets, size of the firm, leverage, and capital expenditure (Aftab, *et al.* 2018; Gill and Shah, 2012; Guizani, 2017; Maheshwari and Rao, 2017). The objective of the study is to examine the factors that are influencing the cash holding pattern of selected Indian companies. The study will try to highlight the degree of influence of these determinants on cash holdings. The hypothesis in line with the above objective is set as follows:

H1: Size of the business influences cash holding.

H2: Leverage influences the Cash holdings of the firm.

H3: Operational efficiency influences Cash holding.

H4: Retained earning influences cash holding.

H5: Sales influence Cash holding.

3. Research Methodology

For this study 52 Private sector listed companies are selected. These companies are selected based on market capitalization. The sample companies belong to specific sectors such as manufacturing and retail. IT companies, the service sector, and financial companies are excluded. The period for the study is ten years, i.e., 2011 to 2020. After eliminating missing values total number of observations is 511. Descriptive statistics

and linear regression are used to understand data and basic relationships among variables. For the cross-sectional panel data analysis panel, the least square regression model (Baltagi, 2008) is used.

The basic panel data regression model for the study is (Baltagi, 2008)

$$Y_{it} = \alpha + \beta X_{it} + \mu_{it} \quad 1$$

where, 'i' denotes cross-sectional dimension and t denotes time dimension. Y_{it} represents the dependent variable, i.e., Cash/TA and X_{it} represent a set of explanatory variables. The cash under this case is considered as cash and cash equivalents. Meaning, it consists of cash, bank, and all other marketable securities.

And while computing cash to total assets (Cash/TA), Cash and cash equivalents are deducted from total assets and the ratio was established. Alpha (α) is the constant and β represents the coefficient. In the broader sense, the cash holding of a company comprises *near-cash* which means cash and cash equivalents (including marketable securities). As mentioned earlier the cash holding for this study has been taken as Cash/TA Maheshwari and Rao (2017), Acharya *et al.* (2011). Cash to total assets focuses on firms' precautionary motive. The independent variables are operating efficiency, leverage, and growth of the firm. EBIT/TA and Sales/TA are proxies for efficiency (Altman, 1968) is the operating profit margin that measures operational efficiency of firm. The leverage ratio and NWC/TA represent liquidity (Ohlson 1980), retained earnings/TA, Sales/TA, and size of the business (Aftab *et al.* 2018; Gill and Shah, 2012; Guizani, 2017; Maheshwari and Rao 2017). Log of Book value of total assets is a proxy for the size of the firm.

Pecking order theory says a firm with higher profitability holds higher cash. Hence profitability and efficiency ratios such as EBIT/TA and retain earning/TA, Sales/TA are used to understand the cash holding position. Earnings Before Interest and Tax (EBIT) is the proxy to understand the efficiency or how the company performing. The tradeoff theory says there

is an inverse relationship between cash holding and net working capital (Modigliani, 1958). The NWC/TA is taken to uncover the impact of working capital on cash holding. Net working capital is calculated by considering the excess of current assets over current liabilities.

By considering the above variables, the regression model can be expressed as follows:

$$C/TA_{it} = \alpha + \beta_1 EBIT/TA_{it} + \beta_2 NWC/TA_{it} + \beta_3 lev_{it} + \beta_4 NWC_{it} + \beta_5 Retained\ earning/TA_{it} + \beta_6 Sales/TA_{it} + \beta_7 size_{it} + \mu_{it} \quad 2$$

The Hausman test ($p > .05$; $p\text{-value} = 0.53$) suggested using random effect over fixed effect model.

4. Result and Discussion

The descriptive statistics give an overall glimpse of the entire variable. It is observed (Table 1) that the Cash/TA for the entire company maintained an average of 9.62% of their total assets. NWC is 18% and Leverage (mean) is 20 percent of its total assets. Sales of the selected companies are on an average 93 percent of their total assets. The scatterings of variables are at minimum deviation. They are a good fit for the model since variance and skewness are in line.

The Karl Pearson correlation coefficient (Table 2) shows the relationship among the variables. There is a significant positive relation between cash/TA with NWC and EBIT/TA. Similarly, there is a significant negative relationship between cash holding with size and leverage. The overall correlation matrix indicates that amongst variables the correlation coefficient is not more than 0.8. This indicates multicollinearity does not exist. This helps that variables are the best fit for running a regression analysis.

The regression result showed a statistically significant result for various exogenous variables. Table 3 indicates there is a positive coefficient for CF/TA, NWC/TA, and EBIT/TA. It means an increase in these variables leads to an increase in cash level. For instance, for every unit increase in CF there 0.21 increase in cash reserve. In the case of working capital, every increase in one unit of working capital will increase 0.28 increases in cash reserve. Whereas leverage, retained earnings, and sales have a negative coefficient. Under leverage, every one unit increase in leverage lead to a 0.17 decrease in cash holding. Similarly, every one unit increase in retained earnings will lead to a 0.15 decrease in Cash holding. The negative association between leverage and cash holding is in line with Maheswari and Rao (2017). This indicates the decrease in these variables leads to

Table 1. Descriptive statistics

Descriptive Statistics							
Variables	N	Min	Max	Mean	Std. Deviation	Var	Skew
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Cash/TA	511	0	0.7	0.0962	0.10789	0.012	2.455
Size of the business (Log of book value of assets)	511	6.83	14.09	9.7498	1.44809	2.097	0.398
NWC/TA	511	-0.2	0.79	0.1711	0.18101	0.033	0.382
CF/TA	511	-1.15	0.38	-0.0124	0.08006	0.006	-6.18
Leverage Debt/TA	511	0	1.05	0.1993	0.19391	0.038	0.886
Retained earnings/TA	511	-1.06	1.04	0.0554	0.10551	0.011	0.367
EBIT/TA	511	-0.09	0.72	0.1484	0.10236	0.01	1.281
Sales / TA	511	0	2.86	0.9308	0.52419	0.275	1.159
*Data compiled through SPSS 25							

Source: Author's calculation.

Table 2. Pearson correlation

Variables	Cash/TA	Size of the business (Log sales)	NWC/TA	CF/TA	Leverage Debt/ TA	Retained earning/TA	EBIT/TA	Sales/ TA
Cash/TA	1	-.334**	.422**	0.068	-.356**	-0.032	.243**	0.064
Size of the business (Log sales)	-.334**	1	-.305**	.188**	.397**	-0.083	-.411**	-.443**
NWC/TA	.422**	-.305**	1	-0.031	0.021	-0.012	-0.034	-.106*
CF/TA	0.068	.188**	-0.031	1	0.049	.285**	-.101*	-.182**
Leverage Debt/ TA	-.356**	.397**	0.021	0.049	1	-.188**	-.584**	-.365**
Retained earning/TA	-0.032	-0.083	-0.012	.285**	-.188**	1	.170**	0.082
EBIT/TA	.243**	-.411**	-0.034	-.101*	-.584**	.170**	1	.577**
Sales / TA	0.064	-.443**	-.106*	-.182**	-.365**	0.082	.577**	1

Source: Authors calculation.

Table 3. Regression result

Period random effect result				
Variables	Coefficients	Std. Error	t-stas	Probability
C	0.186577	0.040381	4.620366	0
CF/TA	0.210461	0.053138	3.960654	0.0001
EBIT/TA	0.120642	0.053947	2.236309	0.0258
Leverage/TA	-0.17611	0.023746	-6.79702	0.000008
NWC/TA	0.231685	0.039985	9.756946	0.00
Retained earnings/TA	-0.15594	0.00987	-3.90005	0.0001
Sales/TA	-0.01801	0.003513	-1.82439	0.0687
Size	-0.0087	0.003513	-2.47598	0.0135

Source: Authors calculation.

an increase in cash holdings. This result indicates if a company's working capital needs more cash similarly high leverage company holds less cash.

5. Conclusion

The paper attempted to re-examine the determinants of cash holdings. There are varied significant results derived from various variables. For instance, the trade-off theory says there is a negative relationship between NWC and cash, but here the results are the opposite. The result showed a positive relationship between cash and NWC. It means when there is an increase in Networking capital there is a requirement to hoard more cash. Similarly, it is found that there is a positive coefficient

for CF/TA, NWC/TA, and EBIT/TA. It means an increase in these variables leads to an increase in cash level. EBIT/TA is a measure of operational efficiency. In this study, it is found more efficient firms hold more cash. Operational efficiency contradicts (Aftab *et al.*, 2018) where there is a negative relationship between cash holding and profitability.

High cash flow volatility firms hold high cash reserves (Campello *et al.*, 2004) whereas leverage, retained earnings, and sales have a negative coefficient. The relationship among variables varies year over year and company to company. There is much research conducted taking these determinants and their influence on cash holding. And various countries

with varied companies show a puzzling relationship between cash holdings and determinants. This paper highlighted the relationship between cash holdings and various variables concerning Indian Companies. The study will give the direction of holding cash and cash equivalents when the company is going for leverage, growth or expansion, nature of the operation, etc.

Various other macroeconomic factors are influencing the cash holding pattern. A cash holding pattern can also be influenced by market-based credit risk such as credit spread, credit default swap, etc. These variables could be considered to understand the cash holding pattern of Indian companies.

6. References

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