

Determinants of Corporate Cash Holdings

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Abstract

This study examines the determinants of corporate cash holdings among non-financial firms listed on the Pakistan Stock Exchange (PSX). Corporate cash holdings play a vital role in ensuring liquidity, financing operational activities, and reducing dependence on external sources of finance. Drawing on Trade-off Theory, Pecking Order Theory, and Agency Theory, the study investigates the impact of cash flow, net working capital, leverage, firm age, firm size, profitability, dividend payout, and capital expenditure on corporate cash holdings. The analysis is based on a panel dataset comprising 1,573 firm-year observations and employs a fixed-effects regression model to control for unobserved firm-specific characteristics. The findings reveal that cash flow, profitability, and firm size have a positive and statistically significant effect on corporate cash holdings, while capital expenditure has a significant negative effect. In contrast, net working capital, leverage, firm age, and dividend payout are found to be statistically insignificant determinants of cash holdings. The results support the Pecking Order Theory, suggesting that firms prefer internally generated funds and therefore accumulate cash reserves from operational earnings. The negative relationship between capital expenditure and cash holdings indicates that firms utilize available liquidity to finance long-term investments. The study contributes to the corporate finance literature by providing evidence from an emerging market and offers practical implications for managers and investors in designing effective liquidity management strategies under conditions of financial constraints and economic uncertainty.

Keywords: Corporate Cash Holdings, Cash Flow, Profitability, Capital Expenditure, Firm Size, Fixed Effects Model, Pakistan Stock Exchange, Corporate Finance

Introduction

Cash holdings represent one of the most liquid assets available to firms and play a critical role in financing operational, investment, and strategic activities. Maintaining adequate cash reserves enables firms to meet short-term obligations, reduce

dependence on costly external financing, and respond effectively to unexpected economic shocks (Gill & Shah, 2012; Habib, 2021).

Corporate finance literature identifies several motives for holding cash, including transaction, precautionary, and speculative motives. Firms operating in emerging economies often face financing constraints, underdeveloped capital markets, and economic uncertainty, which increase the importance of internal liquidity management (Maheswari & Rao, 2017; Rodriguez-Aguilar & Guillen, 2023).

In Pakistan, fluctuations in economic conditions, limited access to external finance, and governance-related challenges make cash management particularly significant. Understanding the determinants of cash holdings is therefore essential for both corporate managers and investors (Afza & Adnan, 2007; Anjum & Malik, 2013).

Cash plays a significant function in a firm and is the most liquid asset. Cash is not only needed to fund the daily running of the business but is also needed to fund investments. Cash that is in possession of the company is termed as cash holding. In this case, cash holding concerns all the cash that firms possess in their possession or cash that can be invested in any physical property (building) and dividends that shareholders receive (R. Yildirim, M. Masih, and O. I. Bacha, 2018). An organization can own several physical assets or bills to collect but upon our cash balance in an organization runs dry, there are two options including bankruptcy or major growth opportunities lost. Therefore, companies are keen to cushion themselves by keeping back a certain amount of cash to cover any temporary out of pocket during payment or investment. The cash available to the company can be directly used in the working of the company. Cash holding where such is necessary to meet all the requirements of the company so that the operational activities of the company continue to go on and such activities may involve purchasing of inventory, payment of debts, financing of operations of the company and others (Z. M. Ashhari and D. R. Faizal, 2018).

Literature Review

Corporate Cash Holdings

Corporate cash holdings refer to cash and cash equivalents maintained by firms to support operational and investment activities. Previous studies have documented significant variation in cash-holding behavior across firms and countries (Dittmar et al., 2003; Al-Najjar, 2013).

According to Keynes (1936), firms hold cash for three primary motives:

Transaction motive

Precautionary motive

Speculative motive

The transaction motive arises from the need to finance day-to-day business operations, while precautionary and speculative motives enable firms to manage uncertainty and exploit future investment opportunities (Keynes, 1936; Miller & Orr, 1966). Trade-off Theory suggests that firms balance the costs and benefits of holding cash to achieve an optimal liquidity level (Drobetz & Grüninger, 2007). Pecking Order Theory argues that firms prefer internal financing and therefore accumulate cash from retained earnings before seeking external funds (Myers & Majluf, 1984). Agency Theory

proposes that excessive cash holdings may create conflicts between managers and shareholders because managers may invest surplus cash in projects that maximize personal benefits rather than shareholder wealth (Jensen, 1986).

Determinants of Corporate Cash Holdings

Cash Flow

Cash flow represents internally generated funds available for operations and investment activities. Firms with stronger cash flows tend to maintain larger cash reserves because they have greater internal financing capacity and lower dependence on external financing (Ogundipe et al., 2012; Mugableh, 2021).

Leverage

Leverage measures the extent to which a firm relies on debt financing. Highly leveraged firms generally maintain lower cash reserves because debt obligations absorb available resources and lenders impose monitoring constraints (Belghitar & Khan, 2013; Rizwan & Javed, 2011).

Net Working Capital

Net working capital can serve as a substitute for cash because current assets such as receivables and inventories can be converted into cash when required. Consequently, firms with higher net working capital tend to hold less cash (Opler et al., 1999; Al-Najjar, 2013).

Profitability

Profitability reflects a firm's ability to generate earnings from its assets. Profitable firms often accumulate greater cash reserves due to stronger internal cash generation and reduced financing constraints (Ogundipe et al., 2012; Ali et al., 2021).

Capital Expenditure

Capital expenditures represent investments in fixed assets and long-term projects. Firms with substantial investment spending may use available cash resources to finance projects, thereby reducing cash holdings (Bates et al., 2009; Belghitar & Khan, 2013).

Firm Size

Larger firms generally enjoy easier access to capital markets and diversified cash inflows, reducing the need to maintain high precautionary cash balances (Al-Najjar, 2013; Kwan & Lau, 2020).

Firm Age

Older firms possess stronger reputations, established banking relationships, and easier access to external financing. Therefore, mature firms may require lower precautionary cash reserves compared to younger firms (Anjum & Malik, 2013).

Theoretical Framework

This study is grounded in three dominant corporate finance theories.

Trade-off Theory argues that firms determine an optimal level of cash by balancing the benefits of liquidity against the opportunity costs of holding idle funds (Keynes, 1936; Drobetz & Grüninger, 2007). The benefits include reduced financial distress and transaction costs, whereas the costs include forgone investment returns. Pecking Order Theory proposes that firms prioritize internal financing over external debt and equity financing because of information asymmetry between managers and investors (Myers & Majluf, 1984). Consequently, firms accumulate cash generated from operations to finance future investments. Agency Theory suggests that managers may retain excessive cash balances to pursue personal objectives, resulting in agency conflicts between managers and shareholders (Jensen, 1986). Dividend payments can reduce these conflicts by limiting managers' discretionary control over cash resources.

Research Methodology

This study adopts a positivist research philosophy, employing a deductive approach and a quantitative, mono-method strategy to investigate the determinants of cash holdings among non-financial firms listed on the Pakistan Stock Exchange, with a longitudinal time horizon from 2012 to 2020. Using secondary data from annual reports, the research measures the dependent variable, the cash ratio, against independent variables including net working capital, cash flow, leverage, profitability, and capital expenditure, while incorporating dividend policy as a moderator and firm size and age as control variables. The analysis was conducted using Stata software to perform descriptive statistics, correlation, and regression analyses, specifically employing Ordinary Least Squares, fixed and random effects models, and the Hausman test to determine the most appropriate model for the panel data.

Data Analysis

Table No 1

Descriptive

Variable	Obs	Mean	Std. Dev.	Min	Max
Cash Holdings	1573	123.8737	2508.288	0	64785
Cash Flow	1573	28504.92	250246.70	-573099	715044
Net Working Capital	1573	155765.80	1525131.00	-3200000	4100000
Leverage	1573	1.416256	35.16823	-436.38	1037.38
Firm Age	1573	47.76097	16.19557	14	165
Firm Size	1573	138.6805	2507.557	8.09	64785
Profitability (ROA)	1573	1.468245	19.13265	-164.31	319.53
Dividend	1573	4.314978	5.584276	0	14.78
Capital Expenditure	1573	3942184	5632947	-123260	2.10E+07

The descriptive statistics summarize the characteristics of the variables used in the analysis. The dataset consists of 1,573 firm-year observations of non-financial companies listed on the Pakistan Stock Exchange. The results indicate substantial

variation across firms, reflecting differences in financial structures and liquidity management practices.

Table 2.
Fixed-Effects Regression Results

Variable	Coefficient	Std. Error	t-stat	p-value
Cash Flow	1.61E-07	4.79E-08	3.36	0.001***
Net Working Capital	2.06E-08	1.72E-08	1.20	0.232
Leverage	-0.0000538	0.0003426	-0.16	0.875
Firm Age	-0.0040574	0.0243543	-0.17	0.868
Firm Size	1.000291	6.05E-06	170000	0.000***
Profitability (ROA)	0.0027704	0.0006612	4.19	0.000***
Dividend	0.0016134	0.0033309	0.48	0.628
Capital Expenditure	-1.09E-07	6.02E-09	-18.15	0.000***
Constant	-14.24141	1.163497	-12.24	0.000***

Significance: *** $p < 0.01$

Table 2 presents the results of the fixed-effects regression model examining the determinants of corporate cash holdings among non-financial firms listed on the Pakistan Stock Exchange. The fixed-effects model was selected because it controls for unobserved firm-specific characteristics that remain constant over time, thereby providing more reliable estimates of the determinants of cash holdings. The results indicate that **cash flow** has a positive and statistically significant effect on corporate cash holdings ($\beta = 1.61E-07$, $t = 3.36$, $p = 0.001$). This finding suggests that firms generating higher internal cash flows tend to retain larger cash reserves. The result supports the Pecking Order Theory, which argues that firms prefer internally generated funds over external financing. Therefore, profitable cash-generating firms accumulate cash to finance future investments and reduce financing costs.

Net working capital exhibits a positive coefficient ($\beta = 2.06E-08$), but the relationship is statistically insignificant ($p = 0.232$). This implies that although firms with higher working capital tend to hold slightly more cash, the effect is not strong enough to conclude that net working capital significantly influences cash holdings in Pakistani firms. Thus, net working capital does not appear to be a major determinant of corporate cash reserves in the sample. The coefficient of **leverage** is negative ($\beta = -0.0000538$) but statistically insignificant ($p = 0.875$). The negative sign is consistent with Trade-off Theory, which suggests that highly leveraged firms may maintain lower cash balances because debt can serve as an alternative source of financing.

However, the lack of statistical significance indicates that leverage does not have a meaningful impact on cash-holding decisions in the sampled firms.

Similarly, **firm age** has a negative but insignificant relationship with cash holdings ($\beta = -0.0040574$, $p = 0.868$). This result suggests that older firms tend to hold slightly less cash than younger firms, possibly due to better access to external financing and established market reputations. Nevertheless, the effect is statistically insignificant and therefore cannot be considered a significant determinant of corporate cash holdings. The findings reveal that **firm size** has a positive and highly significant relationship with cash holdings ($\beta = 1.000291$, $p < 0.001$). This indicates that larger firms maintain higher levels of cash reserves compared to smaller firms. The result may reflect the greater operational requirements and investment opportunities available to large firms. However, the exceptionally large coefficient and t-statistic reported in the model suggest a possible specification issue that should be interpreted with caution. The thesis itself notes a potential pathological relationship involving the size variable.

Profitability (ROA) shows a positive and statistically significant impact on corporate cash holdings ($\beta = 0.0027704$, $t = 4.19$, $p < 0.001$). This finding indicates that more profitable firms accumulate larger cash reserves. The result supports prior empirical studies and Pecking Order Theory, which suggests that firms with greater earnings generate more internal funds and therefore have a greater capacity to retain cash. In contrast, **capital expenditure** has a negative and highly significant effect on cash holdings ($\beta = -1.09E-07$, $t = -18.15$, $p < 0.001$). This suggests that firms investing heavily in long-term assets tend to reduce their cash reserves because available cash is utilized to finance capital projects. The result is consistent with Trade-off Theory and prior literature, which argues that investment expenditures consume internal liquidity. The coefficient of **dividend payout** is positive ($\beta = 0.0016134$) but statistically insignificant ($p = 0.628$). This indicates that dividend payments do not significantly influence cash-holding behavior among the sampled firms. Therefore, dividend policy cannot be considered a significant predictor of corporate cash holdings in this model. Finally, the **constant term** is negative and statistically significant ($\beta = -14.24141$, $p < 0.001$), indicating the baseline level of cash holdings when all explanatory variables are held constant.

Table 3.
Summary of Determinants of Corporate Cash Holdings

Determinant	Effect on Cash Holdings	Significance
Cash Flow	Positive	Significant
Profitability	Positive	Significant
Firm Size	Positive	Significant
Capital Expenditure	Negative	Significant
Net Working Capital	Positive	Not Significant
Leverage	Negative	Not Significant

Determinant	Effect on Cash Holdings	Significance
Firm Age	Negative	Not Significant

Table 3 provides a concise summary of the direction and significance of the relationship between the selected explanatory variables and corporate cash holdings. The results reveal that only four variables—cash flow, profitability, firm size, and capital expenditure—significantly influence corporate cash holdings, while net working capital, leverage, and firm age do not have a statistically significant impact.

Cash Flow

The results indicate that cash flow has a **positive and significant** effect on corporate cash holdings. This finding suggests that firms generating higher internal cash flows tend to accumulate larger cash reserves. The result supports the Pecking Order Theory, which argues that firms prefer internal financing over external financing due to lower transaction and information costs. Therefore, firms with strong cash-generating ability retain more cash to finance future investments and operational requirements.

Profitability

Profitability also demonstrates a **positive and significant** relationship with cash holdings. This implies that highly profitable firms maintain larger cash balances because they generate sufficient internal funds that can be retained rather than distributed or externally financed. The finding is consistent with previous studies that suggest profitable firms face fewer financing constraints and therefore have greater flexibility in managing liquidity.

Firm Size

Firm size shows a **positive and significant** effect on cash holdings. This result indicates that larger firms hold more cash than smaller firms. Large firms generally have greater operational complexity, larger investment portfolios, and higher transaction volumes, all of which may increase their demand for liquidity. However, because the regression output reported an unusually large coefficient for firm size, this result should be interpreted cautiously, as the thesis notes the possibility of a specification anomaly related to the size variable.

Capital Expenditure

Capital expenditure exhibits a **negative and significant** relationship with cash holdings. This finding suggests that firms undertaking substantial investments in fixed assets tend to utilize available cash resources, thereby reducing cash reserves. The result supports the Trade-off Theory, which proposes that firms use accumulated liquidity to finance productive investments rather than holding idle cash balances.

Net Working Capital

Although net working capital has a **positive relationship** with cash holdings, the effect is statistically insignificant. This indicates that variations in working capital do not significantly explain differences in cash-holding behavior among the sampled

firms. Therefore, net working capital cannot be considered a major determinant of corporate cash holdings in this study.

Leverage

Leverage has a **negative but insignificant** relationship with cash holdings. The negative sign suggests that highly leveraged firms may rely more on debt financing and therefore require lower cash reserves. However, because the relationship is statistically insignificant, leverage does not appear to play a decisive role in determining cash-holding policies among Pakistani non-financial firms.

Firm Age

Firm age demonstrates a **negative but insignificant** effect on corporate cash holdings. This suggests that older firms tend to hold slightly less cash than younger firms, possibly because mature firms have established reputations and easier access to external financing. Nevertheless, the absence of statistical significance indicates that firm age is not an important determinant of cash holdings in the sample.

Discussion of Regression Results

The regression results reveal that **cash flow** positively and significantly influences corporate cash holdings ($\beta = 1.61\text{E-}07$, $p < 0.01$), supporting the Pecking Order Theory which suggests that firms rely on internally generated funds before seeking external financing.

Profitability (ROA) also exhibits a positive and statistically significant effect on cash holdings ($\beta = 0.0027704$, $p < 0.01$), indicating that profitable firms accumulate larger cash reserves to finance future investment opportunities and precautionary needs.

Capital expenditure has a significant negative impact on cash holdings ($\beta = -1.09\text{E-}07$, $p < 0.01$), implying that firms with higher investment expenditures tend to utilize available cash resources for long-term projects.

The coefficients of **net working capital**, **leverage**, **firm age**, and **dividend payout** are statistically insignificant, suggesting that these variables do not significantly explain variations in cash holdings within the sampled firms.

Conclusion and Discussion

The determinants of corporate cash holdings have important implications for financial management. Firms with strong cash flows and profitability generally maintain higher cash reserves because internally generated funds provide flexibility in financing investments and operational requirements (Mugableh, 2021; Ali et al., 2021).

Leverage and net working capital often function as substitutes for cash, thereby reducing the need for large cash balances (Belghitar & Khan, 2013; Al-Najjar, 2013). Similarly, capital expenditures consume internal funds and may decrease cash reserves as firms invest in long-term productive assets (Bates et al., 2009).

Firm size and age also influence liquidity policies because larger and more mature firms typically face fewer financing constraints and possess stronger access to external capital markets (Kwan & Lau, 2020; Anjum & Malik, 2013).

Within the Pakistani context, cash-holding decisions are influenced by market imperfections, governance issues, and economic uncertainty. Therefore, understanding the determinants of cash holdings can assist managers in designing effective liquidity policies that maximize firm value while minimizing financing risks (Afza & Adnan, 2007; Shah, 2010).

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