

Impact of Working capital, Leverage and Profitability on Cash Holding in Corporate Hospitals: Evidence from India

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Abstract

This study investigates how net working capital, financial leverage, and profitability influence cash holdings in listed corporate hospitals in India, with firm size included as a control variable. The analysis covers the period from 2015–16 to 2025–26 and is based on the Trade-off Theory and Pecking Order Theory, which explain firms' liquidity management decisions. Using secondary data from seven listed corporate hospital chains, the study employs Pooled Ordinary Least Squares (OLS), Fixed Effects, and Random Effects regression models on a balanced panel of 77 firm-year observations. Among these models, the Fixed Effects model was found to be the most appropriate because it provides stronger explanatory power and better controls for firm-specific characteristics that do not change over time. The model explains 87.8% of the variation in cash holdings. The findings reveal that net working capital has the strongest and most significant positive impact on cash holdings, indicating that hospitals with better short-term liquidity management tend to maintain higher cash reserves. Financial leverage also has a significant positive effect, suggesting that hospitals with higher debt levels hold more cash as a precaution against financial uncertainty. In contrast, profitability and firm size do not have a statistically significant influence on cash holdings. Overall, the study highlights that effective working capital management, rather than profitability or organizational size, is the primary factor determining cash reserves in India's corporate hospital sector. These findings provide valuable insights for healthcare financial managers, investors, and policymakers in designing strategies to strengthen liquidity management and support the sustainable growth of the country's expanding private healthcare industry.

Keywords: Cash Holdings, Net working Capital, Financial leverage, Corporate hospitals, Fixed Effects Model, Trade-off Theory.

Introduction

Privatization in India represents a significant shift in economic policy, aimed at enhancing efficiency and fostering growth in different fields. It has successfully transformed many sectors including health sector and improved service delivery. Health sector in India also seen spurred remarkable growth in the private healthcare sector in the form of increase in the number of private health centres like hospitals, nursing homes, clinics and diagnostic centres from 10,000 to 75,000 within a span of 10 years. [Hooda SK, 2015]. Again in the year 2000, the Government of India allowed 100% foreign direct investment (FDI) in the hospital sector through automatic route increased the foreign investment in the hospital sector from 2013 to 2014 to the extent of (₹)39.95 billion from ₹0.31 billion in 2001 to 2002. Most importantly the Government of India has accorded greater attention to make India a preferred destination for medical tourism globally under the initiative of “Heal in India” to promote medical value travel (MVT) in the country have contributed to making India's private hospital industry a lucrative avenue for investment [Hooda SK, 2015]. Thus, Private health sector plays very fundamental role in the health sector in India by complementing

service delivery by the public health service providers. These providers are business entities whose primary objective is to maximize returns on investment and other facets of profitability.

In the modern corporate ecosystem, cash availability in corporate hospitals is needed to carry out the business operations, serving as a critical buffer against financial difficulties and plays a vital role as a strategic tool for value creation. For capital-intensive and socially vital sectors like healthcare, managing corporate liquidity is not merely a financial choice, but an operational necessity. In India, the corporate hospital sector has been characterised as transitioned from localized, doctor-promoter clinics into highly sophisticated, capital-structured corporations facing rapid technological advancements, intense regulatory oversight, and aggressive consolidation, necessitating them to maintain optimal liquidity. Consequently, understanding the determinants of cash holdings in this unique industry has emerged as a critical area of financial research.

The corporate finance literature outlines two primary, competing frameworks to explain why firms hold cash: the Trade-off Theory and the Pecking Order Theory. The Trade-off Theory suggests that firms evaluate the optimal level of cash by balancing the marginal benefits of holding liquidity (such as lower transaction costs and avoiding financial distress) against its opportunity costs (the return forfeited by not investing the cash). Conversely, the Pecking Order Theory proposes that asymmetric information forces firms to prioritize internal financing over external debt or equity, leading them to accumulate cash during periods of high profitability to fund future investments. This strategic cash management behaviour of corporate hospitals is driven heavily by three intertwined corporate variables: Net Working Capital (NWC), Financial Leverage, and Firm size.

The Interplay of Key Variables

[Net Working Capital] ---> (Tied-up Liquidity vs. Receivable Delays)

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[Financial Leverage] ---> (Debt Service Pressure vs. Bank Credit Lines) ---> [OPTIMAL CASH HOLDINGS]

|
v

[Firm Size] ---> (Capex Demands vs. Future Expansion Opportunities)

- **Net Working Capital (NWC):** The working capital cycle of a hospital is always be volatile as they need to make immediate upfront cash payments to maintain critical inventories, including life-saving pharmaceuticals, surgical implants, high-value medical consumables and manage delayed reimbursements from private corporate insurance providers and subsidized government health schemes like Ayushman Bharat (PM-JAY).
- **Financial Leverage:** The corporate hospitals need to expand bed capacities, building tertiary care units, and acquiring regional competitors and requires massive capital injections, typically funded through debt. Financial leverage exerts a dual effect on cash reserves. Under the precautionary motive, highly leveraged hospitals may hoard larger cash buffers to ensure uninterrupted debt servicing and avoid the catastrophic reputational and financial risks of default. But hospitals with established leverage maintain strong relationships with commercial banks to use it as a reliable external credit lines and avoiding maintenance of costly, idle internal cash.

- **Firm size:** The Indian healthcare market is experiencing unprecedented demand fuelled by rising disposable incomes, medical tourism, and aging demographics. To capture this market share, corporate hospitals are locked in a growth race, requiring continuous capital expenditure on advanced diagnostic machinery, robotic surgery setups, and digital infrastructure. High-growth firms often hoard substantial cash to finance investment modern equipment to seize sudden market expansion or acquisition opportunities without relying on volatile, expensive external capital markets.

Review of Literature

A significant number of empirical researches are found on the impact of working capital management, Profitability and leverage on cash holdings showing the contribution of each variable and its varying significance on cash holdings. A summary of such empirical literature on the impact of these variables on cash holdings is reported here.

1. Bulan Nettiary Kelara¹ et al (2004) assessed cash holdings in health care industry to view insights into the financial resilience during the COVID-19 in developing countries like Indonesia, Malaysia, Thailand, and Vietnam and found Malaysia is the only country where financial constraints have a negative effect on cash holding, Financial leverage does not affect cash holdings in all countries studied, Profitability has a positive effect on cash holding in Indonesia and Malaysia, but a negative effect in Thailand, and no effect in Vietnam and Growth opportunity only has a positive effect on cash holding in Thailand, while in Indonesia, Malaysia, and Vietnam, this factor does not have a significant effect.

2. Nirosha Hewa Wellalagea (2023) examined the effects of audit quality and firm growth on the relationship between corporate cash holdings and firm performance by using a sample of about 2500 unique non-financial Indian firms and the results obtained revealed that cash holdings have an inverse U-shaped (concave) relationship with firm performance, which is stronger for firms with higher audit quality than firms with lower audit quality and that firm growth affects the cash holdings and firm performance relationship and the moderating effect of audit quality.

3. K. Riyazahmed and M. Sriram (2024) examined the impact of cash holdings on financial performance metrics, such as return on assets and Tobins'Q and the impact of external shocks like the global pandemic, in addition to various determinants of cash holdings of 38 non-financial firms listed on the National Stock Exchanges for eight years from 2014 to 2021. It found that cash holdings significantly affected the financial performance of companies measured by ROA and the global pandemic did not impact cash holdings.

4. Jaeseong Lim and Bong Keun Jeong (2025) examined the relationship between corporate cash holdings and firm performance within the IT industry with the help of principal component analysis (PCA), machine learning (ML) algorithms, and Shapley additive explanation (SHAP) values to estimate and interpret model outcomes and the evidence supports an inverted U-shaped relationship between cash holdings and profitability.

5. H.L. Rivenson et al (2000) assessed the management of cash and investment policies at a dozen major not-for-profit health systems. It indicated that cash holdings have increased dramatically since 1993 on account of investment earnings. It was also revealed that cash holdings are significant, that decisions about cash balances are strategic, and that most systems aim to increase cash balances to levels that permit access to capital markets on more favorable terms.

6. Sneha Lata das (2000) examined the working capital requirements of 55 private healthcare providers in India in their operating activities for the of 2018-2021. The result indicated that private hospitals maintain balance in working capital using delayed payment strategy and using profit as a source of finance. It is

identified that working capital is determined by its financial needs. The study suggested that the government may consider change healthcare policy and give support in the form of funding and tax waiving to hospitals.

7.Nirosha Hewa Wellalage (2023) examined the effects of audit quality and firm growth on the relationship between corporate cash holdings and firm performance by using a sample of about 2500 unique non-financial Indian firms from 2000 to 2017. The results showed that cash holdings have an inverse U-shaped (concave) relationship with firm performance, which is stronger for firms with higher audit quality than firms with lower audit quality and that firm growth affects the cash holdings and firm performance relationship and the moderating effect of audit quality.

8.Esther Njoki Wanjuki, Thomas Githui and Jhon Omurwa (2021) assessed the relationship between cash management and financial performance of 25 private hospitals in Nairobi County, Kenya using descriptive design. The study found that cash conversion cycle and cash budgeting had a positive and significant effect on financial performance of private hospitals, but cash banking and cash flow had no significant effect on financial performance. The study recommended for usage of cash budgeting, cash banking, cash conversion cycle and cash flow forecasting) by private hospitals, frame clear guidelines and policies to ensure efficient management of cash, adopt automated cash management technology to aid in maintaining healthy cash flow position and Investment in cash management technology to improve the accuracy and efficiency of cash management and motivate the staff to focus on development and innovation.

9.Maheswar Sethi and Ravindra Kumar Swain (2019) in their article investigated the determinants of cash holdings of in 500 Indian manufacturing firms for a period from 2005-2017 using Firm Size, Growth Opportunities, Leverage, Cash Flow, Dividend, Net Working Capital, R&D Expenditure, Assets Tangibility, Profitability, Interest Expenses, Cash Conversion Cycle, Inverse of Altman's Z score, Firm Age and Cash Flow Volatility as study variables. The study found positive impact of growth opportunities, leverage, cash flow, dividend, net working capital, research and development Expenditure and Profitability on cash holdings but firm size, assets tangibility and interest expenses negatively affect cash holdings.

10.Howard L. Rivenson et al. (2024) examined the management of operating and strategic cash flows to establish target balances and the purposes for which cash is held by 608 hospitals over the period of 1996-1999 to determine conceptual framework. It was found that NFP hospitals able to determine targeted levels of operating cash, but not strategic cash balances and highlighted the fact that strategic cash balances were positively related to profitability and growth in assets, but negatively associated with the use of debt.

11.Ravinder Kumar Arora (2019) examined the pattern of cash holdings of 266 Indian companies included in the S&P BSE 500 index for the period 2005–2015 to identify the factors that influence the level of cash balances, estimate the amount of excess cash held by these companies and analysing how these companies spend their excess cash. It was found that the pattern of cash holdings of the sample companies is supported by the static trade-off and the financing hierarchy model. It was seen that firms with large cash balances have strong growth opportunities, larger cash flows, higher cash flow volatility, higher leverage, higher level of promoter holding and belong to the government-owned sector, companies with more liquid assets other than cash have more tangible assets, hold lower cash balances, size of the firm is not related to the amount of cash holding and firms with large cash balances have higher leverage.

12.Chakravarthi et al (2023) studied transformation in the Indian private hospitals sector in Maharashtra with the help of primary data, witness seminars, and desk research. It was found that earning profits is the main aim hospitals viewed as businesses to yield profits by adopting business strategies to ensure financial viability and returns; it is identified that transformation was motivated by industry advocacy, availability of insurance, and patient expectations drive these changes towards corporatisation, and the growth is seen in the form of structural and behavioural changes across the healthcare sector.

13. Dr. Ghada Nabile Ahmed Abd- Elmaged (2026) examined the impact of cash holding on firm value with the moderating role of firm size of basic eight companies in Egyptian resources sector listed in the EGX100 index during the period from between 2010 to 2023. The study used quantitative approach applied on secondary data analysed with the help of fixed effect and random effect tests. The findings showed that cash holding has a positive significant impact on firm value and Cash holding has a negative significant impact on firm value with the moderator variable Viz size.

14. Yuyun Umniyatun et al (2022) analyze the financial performance of private hospitals during the pandemic for the period 2018-2020 with the help of ratios liquidity ratio, activity ratio, profitability ratio, and cost recovery rate (CRR) and found that non-covid private hospitals studied during the COVID-19 pandemic was lower than before Covid 19 on account of a decrease in the number of visits resulted in a lower income. It was concluded that increase in the net profit by open services that were closed during the pandemic by observing health protocols, controlling costs, and increasing utilization of fixed asset.

15. Sari Rahmadhani et al (2023) investigated the influence of growth opportunity, net working capital, cash conversion cycle, cash flow, and firm size on cash holding in non-financial companies listed on the Indonesia Stock Exchange, Stock Exchange of Thailand and National Stock Exchange of India in 2018-2022 using secondary data of 269 non-financial company. The analysis showed that the growth opportunity and firm size variables have a significant negative effect on cash holding, the net working capital and cash flow variables have a significant positive effect, while the cash conversion cycle variable does not affect cash holding.

From the reviewed research, it is evident that different studies have been undertaken to know impact of relevant variables like net working capital, leverage on profitability cash conversion cycle. To enable firms to realize the determined objectives studies help them by providing guidance to frame policies to be adopted. So the present study examined the impact of net working capital leverage profitability and size on cash holdings which is an important variable which played an effective role to maintain the activities or performance of providing services effectively in corporate hospitals.

Problem Statement

Now-a days, healthcare institutions are in numerous shapes and sizes competing each other for both financial survival and quality care to the patients. They are different from other types of organisations like manufacturing or other kinds of services in the sense of meeting the needs of a patient, the burden of managing all the billing processes and delayed revenue recognition. Amidst this, maximising cash management potential is vital for achieving operational excellence across the organisation be a highly effective organizational component.

Healthcare financial management has grown highly complex due to shifting insurance models, strict regulations, evolving patient payment behaviors, and unpredictable emergency care costs. To protect cash flow while sustaining top-tier operational performance, healthcare administrators and chief financial officers striving to understand and adapt to these systemic challenges.

Moreover, the healthcare organisations are undergoing an intricate revenue cycle that involves multiple stakeholders and payment sources. Claims processing, insurance verifications, and billing procedures create layers of complexity that can significantly impact cash flow timing, involve multiple departments, procedures, and billing codes, each requiring separate verification and processing steps. It also has to face the challenge of substantial gap getting insurance reimbursement extending over 30 to 120 days which affect working capital availability, investment in new equipment and facilities, staff compensation, training and

retention programs, operational improvement initiatives, vendor payment schedules, high operational costs irrespective of payment delays or revenue fluctuations.

Thus, effective cash flow allows healthcare organizations keeps daily operations running smoothly and protects the future of the clinic letting doctors and others focus on It **ensures** sufficient liquidity to meet daily operational needs while planning for long-term sustainability, allowing providers to focus on patient care leading to give steady, high-quality care to patients.

Under this environment of corporate hospitals, the following questions have been raised to be answered by the present research. The principal research question is -

"To what extent and in what manner do Net Working Capital, financial leverage, and firm size jointly determine the cash holding behavior of corporate hospitals?"

Specific Sub-Research Questions

Q1.1: What is the relationship between Net Working Capital and cash holdings in corporate hospitals?

Q2.1: Is financial leverage (Total Debt/Total assets) affect cash holdings in corporate hospitals?

Q3.1: How do firm size of corporate hospitals (measured by log of total assets) manage cash?

Research Significance

The available empirical literature has analyzed relationship of cash holding with net working capital, leverage, firm size and growth across technology sectors, but specialized research on the hospitals—specifically within emerging market contexts like India—remains scanty. Even-though Corporate hospitals always have plenty of patients, managing their daily cash flow is difficult on account of erratic expenses and government restrictions.

This study aims to bridge this empirical gap by evaluating the impact of Net Working Capital, financial leverage structures, and operating profit on the cash holdings of listed Indian corporate hospitals which helps healthcare executives, institutional private equity investors, and financial analysts with an empirical framework to optimize liquidity, mitigate default risks, and sustainably fund healthcare expansion. This study analysed the relationship of the selected variables to highlight the impact of the selected variables on cash holdings of corporate hospitals.

Sampling

Sampling Selection for the Study

Convenience sampling combined with purposive sampling was utilized to select the target sample for this study. The target population comprises 17 corporate hospital chains operating and listed on Bombay Stock Exchange in India. Out these, the sample for the study was selected using the following criteria.

Sample Inclusion Criteria

To ensure data consistency, companies were selected based on the following benchmarks:

Hospitals which are listed and Publicly traded corporate healthcare entities in India, having data for the total study period of financial years 2015-16 to 2025-26 and their operations are confined to multi-specialty healthcare to the patients.

Variables and Measurement

In this study, the explanatory variables were selected based on alternative theories related to working capital management and previous studies. The variables used in this study are based on the previous research regarding the relationship between working capital management and different variables. These variables are categorized as follows.

Dependent Variable:

Cash Holding: Cash Holdings are the amount of cash held by the company to meet the activities of company operations. Every company will try to provide the optimal amount of cash, which means neither large amount nor little amount. Simanjuntak & Wahyudi (2017).

Net Working Capital: Net working capital or working capital is a fund to invest in current assets used in the company's operating costs in cash, securities, receivables, inventories, and other current assets. With sufficient working capital, the company can operate sufficiently, and the company will be able to deal with the problem arising from the crisis in terms of financial problems. The firm is expected to manage working capital effectively and efficiently to fulfil operational needs.

Leverage: According to Santosa (2010) and Kasmir (2014) leverage measures the extent to which the company's activities are financed with debt. Meanwhile, according to Ali et al. (2016), leverage is when a company buys its assets regularly with the belief that the profit generated from these assets will be larger than the loan received to purchase the asset.

Firm Size Firm size is the size of a company seen from its size equity value, sales value, or asset value (Riyanto, 2013). In the present study, firm size is taken as log value of total assets of the hospitals.

Methodology

In the healthcare industry, efficient cash flow management is not just a financial function but is the cornerstone of business sustainability. From hospitals and clinics to private practices and health tech startup face unique financial challenges like rising costs, complex billing cycles, insurance reimbursements, and fluctuating patient volumes have to manage cash flow effectively. Thus, it has become an essential function for any healthcare business looking to thrive and that require meticulous attention to cash flow.

In this context, the study finds it significant to examine the influence of different financial components, such as net working capital, leverage, profitability, etc., on cash reserves. The current study was designed to examine influence of different financial factors, such as net working capital, leverage and profitability with firm size as control variable on cash holdings of corporate hospitals in India by framing the following hypothesis for testing:

Ho: There is a significant influence of profitability, net working capital and leverage on the cash reserves maintained

Variable measurement and model specification

The model estimating the influence of working capital, leverage and profitability on firms' cash holdings is given in the equation below:

$$\text{Cash} = \beta_0 + \beta_1 \text{NWC} + \beta_2 \text{LEV} + \beta_3 \text{PROF} + \beta_4 \text{SIZE} + \mu$$

where Cash is the predicted variable as shown in equation (1). Cash is calculated as Cash and its equivalents divided by Total Assets.

The explanatory variables are:

Net Working Capital (NWC) which is measured as Working Capital (current assets minus current liabilities) scaled by Total Assets. Profitability represented by PROF is measured as Operating Profit scaled by Total Assets, Leverage represented by LEV is measured as Total Debt scaled by Total Assets. Firm Size represented by FS is a control variable measured as log normal of Total Assets. The predicted and predictor variables deployed in the study are chosen based on the past studies

Results of Analysis

This section of the study provides empirical analysis of effect of net working capital, operating profit, leverage and firm size of corporate hospitals listed on Mumbai Stock Exchange companies over a period of eleven years 2015-16 – 2025-2026. Data for this study were obtained through secondary sources from the data sources of money control.com supported by audited annual reports and accounts of the sampled firms for the study period. A detailed analysis of the generated data is presented in the following sections.

Descriptive Statistics

Descriptive statistical analysis provide a more-detailed data description from the selected variables in the study. The descriptive statistics for this study include the mean, median, maximum, minimum and standard deviation. The results of the analysis are presented in Table 1 below

Table 1 – Results of Descriptive Analysis

Variables	Mean	SD	Min	Max
CH	8.18	11.83	0.71	34.81
NWC	8.13	15.47	-4.29	40.71
Profit	14.73	8.61	2.88	25.78
Lev	30.79	12.93	17.95	45.29
FS	8.18	0.79	7.23	9.2

Based on the data presented in Table 1, it can be concluded that the average value of the corporate cash holding variable is 8.18. The standard deviation of the corporate cash holding variable is 11.83, the maximum and minimum value of the cash-holding variable are 34.81 and 0.71, respectively. The average value of the Net Working Capital variable is 8.13, the standard deviation is 15.47, and the maximum and minimum values are 40.71 and -4.29. The average value of the profit variable is 14.73, the standard deviation is 8.61 and the maximum and minimum values are 25.78 and 2.88 respectively. The value of Leverage scored a mean value of 30.79, the standard deviation 12.93 and the maximum and minimum values are 45.29 and 17.95 respectively, and the average value of Firm size is 8.18, its standard deviation is 0.79 and maximum and minimum values are 9.2 and 7.23.

Table 2 - Results of Correlation Analysis

	CH	NWC	Profit	Lev	FS
CH	1				
NWC	0.93	1			
Profit	0.60	0.52	1		
Lev	-0.32	-0.31	0.37	1	
FS	-0.55	-.026	-0.64	-0.13	1

As per the results indicated by Table 2, leverage and firm size are negatively correlated with cash holdings and the other two variables net working capital and profit are positively correlated with cash. It is understood that cash holdings shows the strongest correlation with net working capital and the firm size is having higher magnitude.

Regression Analysis

The present study considered Net Working Capital, Profit and Leverage with Firm size as control variable on cash holdings of corporate hospitals in India used a OLS technique and depends on fixed effect, and random effect to determine the impact of working capital management on cash holdings. The following table 3 shows the results of OLS regression with interpretations.

Table 3 Output for Pooled Regression Statistics

Items	Multiple R	R Square	Adjusted R Square	Standard Error
Value	0.8459	0.7155	0.6997	6.7858

Table 3a – Output for ANOVA

	df	SS	MS	F	Significance F
Regression	4	8341.8091	2085.452	45.2885	5.88E-19
Residual	72	3315.4678	46.04816		
Total	76	11657.277			

Table 3b – Results of Panel Least Square Analysis

	Coefficients	Standard Error	t Stat	P-value
Intercept	28.3047	8.3384	3.3944	0.0011
NWC	0.4837	0.0529	9.1396	1.15E-13
Profit	0.1312	0.0709	1.8495	0.0684
Leverage	0.0596	0.0523	1.1404	0.2578
FS	-3.3980	0.9276	-3.6630	0.0004

Comprehensive Analysis of Results of Pooled Regression

The empirical findings from the pooled OLS regression model demonstrate excellent overall model fit and extreme statistical validity. The R-squared value of 0.7156 indicates that the independent variables—Net Working Capital (NWC), Profitability, Leverage, and Firm Size (FS)—collectively account for 71.56% of the total variance in the dependent variable viz., cash holdings. This leaves only 28.44% of the variation to unexplained residual factors. It is noted that the model's overall significance is confirmed by an F-statistic significance value of 5.88E-19, it signifies '0' value. This value indicated that the independent variables simultaneously exercise a highly reliable and statistically robust predictive influence on the dependent variable.

Table 3b presents the results of the Panel Least Squares regression analysis, which examines the relationship between working capital, profitability and leverage as independent variable, firm size as control variable and cash holdings as dependent variable. The analysis provides estimates for coefficients, standard errors, t statistics, and probability values (Prob.) for each variable. The constant (C) has a coefficient of 28.3047, representing the estimated cash holding when the selected variables are zero. The standard error is 8.3384, indicating the variability in this estimate. The t-statistic is 3.3944, a high value suggesting strong statistical significance, while the probability value (0.0011) confirms its significance well below the 0.05 threshold. For net working capital, the coefficient is 0.4837, meaning that for every one-unit increase in net working capital cash holdings increases by 0.4837. However, the t-statistic of 9.1396 is relatively high, indicating a strong relationship. The probability value (1.15E-13) is below 0.05, suggesting that the relationship is statistically significant.

Conversely, firm size, the coefficient is -3.3980, meaning that for every one-unit increase in net working capital cash holdings decreases by -3.3980. However, the t-statistic of -3.6630 is relatively high, indicating a negative relationship. The probability value (0.0004) is slightly below 0.05, suggesting that the relationship is statistically significant. This sharp adverse effect suggests that larger firms in this pooled sample indicated that there may be structural friction, bureaucratic inefficiencies, or diminishing returns to scale that suppress the dependent metric.

In contrast to liquidity and size, traditional bottom-line performance indicators show weaker predictive value. Profitability displays only a marginal, weak positive significance level ((beta = 0.1312), (t = 1.8495) and (p = 0.0684)) and fails to meet the standard 5% significance threshold. Furthermore, capital structure choices, represented by Leverage, are completely insignificant ((beta = 0.0596), (t = 1.1404) and (p = 0.2578)), indicating that debt-to-equity ratios have no statistical relevance within this dataset. In summary, the highly significant overall model establishes that managing operational scale and maximizing working capital efficiency are vastly more critical to driving the dependent variable than traditional debt choices and short-term profit margins."

Analysis using Panel regression

In this phase, the approach of the research has transitioned from a fundamental OLS regression to panel data modeling employing Fixed-Effects (FE) and Random-Effects (RE) estimations, where both models comprise 77 observations in total, distributed across 7 corporate hospitals across India, resulting in a perfectly balanced panel of 11 years for each company.

Table 4 Output for Fixed Effect Model

Items	Multiple R	R Square	Adjusted R Square	Standard Error
Value	0.9371	0.8780	0.8595	4.6407

Table 4a Output For ANOVA

	df	SS	MS	F	Significance F
Regression	4	10235.867	1023.586	47.527	2.77E-26
Residual	72	1421.409	21.536		
Total	76	11657.277			

Table 4b Coefficient

	Coefficients	Standard Error	t Stat	P-value
Intercept	-19.6448	13.2756	-1.4797	0.1463
NWC	0.3585	0.0588	6.0918	6.42E-08
Profit	0.1312	0.0709	1.8495	0.0684
Leverage	0.1986	0.0523	3.5925	0.0006
FS	0.8473	1.4094	0.6012	0.5497

"The able shows the empirical findings from the Fixed regression model demonstrate excellent overall model fit and extreme statistical validity. The R-squared value of 0.8780 indicates that the independent variables—Net Working Capital (NWC), Profitability, Leverage, and Firm Size (FS)—collectively account for 87.80% of the total variance in the dependent variable viz., cash holdings. This leaves only 12.20% of the variation to unexplained residual factors. It is noted that the model's overall significance is confirmed by an F-statistic significance value of (2.77E-26), which is equivalent to zero. This value indicated that the independent variables simultaneously exercise a highly reliable and statistically significant and robust predictive influence on the dependent variable.

At the individual variable level, Net Working Capital (NWC) exhibits the most powerful positive effect on the dependent variable ((beta = 0.3585), (t = 6.0918) and (p < 6.42E-08)). With a p-value equivalent to zero, this relationship is highly significant, proving that efficient short-term liquidity management and operational funding strongly optimize the target outcome.

Likewise, in case of Leverage, Firm Size (FS) exerts a substantial and statistically significant negative impact (beta = -3.3980), (t = -3.6630) and (p < 0.0006)). This relationship is highly significant.

Conversely, Profit (Not Significant): It is having a P-value of 0.1545 which is higher than 0.05, indicating no statistically significant linear relationship. Firm size with p-value of 0.5497 which is higher than 0.05, indicating no statistically significant linear relationship.

Table 5 Output for Random Effect Model

Items	Multiple R	R Square	Adjusted R Square	Standard Error
Value	0.7552	0.5659	0.5418	5.7143

Table 5a Output for ANOVA

	df	SS	MS	F	Significance F
Regression	4	3065.4400	766.3600	23.4695	1.91E-12
Residual	72	2351.0426	32.6534		
Total	76	5416.4826			

Coefficient

	Coefficients	Standard Error	t Stat	P-value
Intercept	8.7531	5.5202	1.5851	0.1173
NWC	0.4208	0.0579	7.2652	3.57E1-0
Profit	0.1661	0.0704	2.3583	0.0210
Leverage	0.1393	0.0555	2.5089	0.0143
FS	-2.1133	1.1061	-1.9105	0.0600

The empirical findings from the Random regression model revealed that the overall model is excellent and fit with extreme statistical validity. The R-squared value of 0.7522 indicates that the independent variables—Net Working Capital (NWC), Profitability, Leverage, and Firm Size (FS)—collectively account for 75.22% of the total variance in the dependent variable viz., cash holdings. This leaves only 24.78% of the variation to unexplained residual factors. This is generally considered a good fit

The ANOVA table explained whether the model holds statistical power. It showed a Significance F Value of 1.91E-12. This value is extremely close to zero and well below the standard threshold of 0.05. It proves that the overall regression model is highly statistically significant. The independent variables reliably predict the dependent variable

At the individual variable level, Net Working Capital (NWC) exhibits the most powerful positive effect on the dependent variable (beta = 0.42), (t = 7.26) and (p < 0.0)). With a p-value of 0.00, this relationship is highly significant, proving that efficient short-term liquidity management and operational funding strongly optimize the target outcome. Conversely, Firm Size (FS) exerts a substantial and statistically significant negative impact (beta = -2.1133), (t = -1.9105) and (p < 0.06)). This sharp adverse effect suggests that larger firms in this random analysis have a marginally significant negative impact that suppresses the dependent metric.

In Profitability and capital structure choices, represented by Leverage, showed significant positive impact with values ((beta = 0.16), (t = 2.35), (p = 0.02)) and ((beta = 0.13), (t = 2.51) and (p = 0.01)) respectively. Another variable Firm size with values of beta=-2.11, t=-1.91 and p-value 0.06 showed marginally significant negative impact. In summary, the highly significant overall model establishes that managing operational scale and maximizing working capital efficiency, operating profit and leverage are vastly more critical to driving the dependent variable."

Panel Data Regression Model Analysis

Both the models provide same explanatory power and co-efficient values yield identical parameters. But potential unobserved time-invariant individual heterogeneity which ensures robust inference against omitted variable bias. Hence, the **Fixed Effects (FE) model** can be safely preferred as the baseline estimator. Alternatively, a standard Pooled OLS model can be rejected based on the substantial shift in coefficients (e.g., the sign reversal of the (FS) variable from (-3.3980) in Pooled to (0.8473) in FE/RE)."

Discussion

The Effect of Profitability on Cash Holding Based on the research result, as per Fixed effects model, above, Net Working Capital (NWC) exhibits the most powerful positive effect on the dependent variable indicating highly significant relationship, proving that efficient short-term liquidity management and operational funding strongly optimize the target outcome. Likewise, in case of Leverage, Firm Size (FS) exerts a substantial and statistically significant negative impact ((beta = 0.1986), (t = -3.5925) and (p < 0.0006)). This relationship is highly significant.

Conversely, in case of Profit is having a P-value of 0.1545 which is higher than 0.05, indicating no statistically significant linear relationship and Firm size is having a P-value is 0.5497) which is higher than 0.05, indicating no statistically significant linear relationship.

It can be concluded that when the company uses external funding, it is proportional to the costs incurred by the company. If the company's leverage increases or decreases, it affects the cash holding of corporate hospitals. The Effect of Firm Size on Cash Holding Based on the research result above, the significance value of the firm size variable in influencing cash holding shows a sig value. $0.0684 > 0.05$. This means that the firm size variable does not affect cash holding.

The present study is significant as it elucidates the cash holdings of corporate hospitals in India which are playing a dominant role in transforming the healthcare delivery in the country supporting and supplementing the public healthcare providers with multi-speciality facilities growing steadily and fastly, with an estimated market value of INR6,300 billion in 2024, projected to reach INR9,800 Bn in 2028 with a CAGR of around 12 per cent. This expansion underscores the sector's vital role in India's healthcare framework and its capacity to address comprehensive medical demands. Consequently, the findings of this study on cash holdings carry significant academic and practical importance.

Conclusion

The present study is significant as it elucidates the cash holding position of corporate hospitals in India concerning working capital practices, profitability and capital structure decisions. As the healthcare industry in the form of corporate hospitals in India grows rapidly to accommodate best healthcare using technology based on its development and they are in a position to focus its attention in providing patient care using such technology. Thus, it is important to manage cash reserves efficiently and it becomes critical by determining whether investment be funded by internal cash holdings or from outside. The study findings may help top management to enhance their ability to navigate latent industry developments while addressing their obligations.

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