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Working Capital Management Efficiency and Firm Performance: Evidence from High-Growth and Low-Growth Listed FMCG Companies in India.

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Abstract

Working Capital Management (WCM) is a critical component of financial management as it influences liquidity, operational efficiency, and firm performance. This study examines the relationship between WCM efficiency and financial performance among High-Growth and Low-Growth listed FMCG companies in India during March 2015– March 2026, covering Pre-COVID, COVID, and Post-COVID phases. The study focuses on the Cash Conversion Cycle (CCC) and its components, Days Inventory Outstanding (DIO), Days Sales Outstanding (DSO), and Days Payable Outstanding (DPO) and compares them with traditional liquidity measures, namely the Current Ratio and Quick Ratio. Secondary financial data from 114 listed FMCG companies, comprising 55 High-Growth and 59 Low-Growth companies, are analysed. Firms are classified based on average sales growth, while Return on Assets (ROA) is used as the primary measure of firm performance and Net Profit Margin (NPM) as a robustness measure. Panel fixed-effects regression, independent-samples t-test, Mann–Whitney U test, component-level fixed-effects regression, and nested model comparison are employed. The findings indicate a negative relationship between CCC and ROA, with sales growth significantly moderating this relationship. Significant distributional differences are observed in CCC, DIO, DSO, and DPO between the two growth groups. Component-level results indicate that DPO is significantly associated with ROA among High-Growth companies, whereas DSO is significant among Low-Growth companies. Overall, the findings highlight the importance of growth-specific working capital strategies and provide data-driven insights for financial decision-making in the Indian FMCG sector.

Keywords: Working Capital Management; Cash Conversion Cycle; Firm Performance; FMCG Sector; Financial Analytics.

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Introduction

Working Capital Management (WCM) is all about the management of short-term assets and liabilities necessary for the day-to-day functioning of a business. It comprises decisions pertaining to inventory management, receivable management, payable management and cash management. Due to their close relation with the operational process, the effectiveness of their management may have a bearing on the liquidity position and profitability.

Indian FMCG sector represents an appropriate example in which the concept of WCM may be studied. The FMCG companies always have continuing inventories, many transactions, and also considerable dealings with customers and suppliers. As a result, effective management of the duration for which inventories, receivables, and payables are held may affect the amount of resources invested in operations.

Cash Conversion Cycle (CCC) is an effective indicator of efficiency in working capital management. It incorporates the duration for which inventories and receivables are held and also the period for which credit is received from suppliers. A lower CCC suggests that the resources are invested in the operations for a shorter period**.**

The study thus aims at analysing differences among high-growth and low-growth listed FMCG firms of India. The study will look into pre-COVID, COVID, and post-COVID periods to analyze whether the link between working capital management and firm performance differs in varying business environments.

Motivation of the Study

Motivation behind the research stems from the necessity to comprehend if effective working capital management is related to financial performance and if this link depends on the company’s growth. The paper analyses CCC itself, its components, and the usual liquidity indicators depending on growth and pandemic situations.

Literature examined in the dissertation suggests that the link between WCM and profitability is inconsistent. The research conducted by others has revealed various results depending on firms, industries and time frames. Thus, there is an opportunity to check if High-Growth and Low-Growth FMCG have different working capital structure and their relationships with performance.

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Literature Review

The issue of Working Capital Management (WCM) and how it affects firm performance has been investigated by numerous previous researchers; yet, the results have been inconclusive and vary significantly for various firms, sectors, and periods. In their research into the impact of working capital management on profitability in India FMCG sector, Bagchi et al. (2012) employed panel regression analysis to conclude on a significant inverse relationship between working capital and profitability of firms. The authors also suggested that firm-specific characteristics played an important role in explaining the relationship under investigation. Yet, the study involved just ten FMCG firms for the period of 2000-2010.

Gaur and Kaur (2015) conducted research on the trade-off between working capital and profitability among FMCG companies using techniques like correlation, regression, and ANOVA. Their study found that there is a negative correlation between the working capital cycle and ROA in case of companies like HUL, Dabur, and Colgate; however, this relationship is not significant in case of companies like ITC and Marico. This means that there might be different relationships between working capital and profitability for different firms. Gaur and Kaur (2017) again conducted a study to examine the influence of working capital management on profitability by conducting panel regression among FMCG companies. In their study, a positive relationship between working capital ratios and ROA was found along with the importance of firm-specific factors such as size and leverage.

In another study conducted by Jana (2018), efficiency of working capital management and profitability were analyzed using fixed effects and random effects panel model in FMCG firms. It is indicated that there was a relation between some parameters of working capital and profitability and other factors had an effect on performance as well. In another study conducted by Bavaliya and Mehta (2019), the relationship between working capital and profit and liquidity was studied in different industries. It gave a conceptual insight about working capital but did not focus only on FMCG firms.

Further studies provide more evidence on the components of the working capital. Mahalwala (2022) used panel regression to study inventory management in FMCG firms and reported that a longer holding period of finished goods resulted in poor ROA, but there was no correlation between inventory management and liquidity. Keerthi and Narasaiah (2023) studied WCM and profitability in Nifty FMCG firms and observed that the effect was specific to firms, being significant in several firms but not in all the firms in the sample. In another study, Sharma et

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al. (2024) used panel data from ITC Ltd. to find that there is a negative relationship between the cash conversion cycle and profitability. The comparison of WCM and digitalization between HUL and ITC by Kumar (2025) identified the possible importance of digital trade practices and credit from suppliers in WCM. In their study on CCC and its components among manufacturing firms, Aleeswari et al. (2026) used fixed-effects panel data and reported negative correlations between CCC and selected WCM components and ROA, whereas FMCG firms had relatively good WCM compared to manufacturing firms in general.

From the literature review, it is clear that there is no consistent pattern of association between WCM practices and firm performance. The literature generally shows that the importance of CCR, inventories, receivables, and payables cannot be understated for firm profitability; however, due to differences in sample size, time period of the study, industries involved and methodology used, inconsistent outcomes emerge. Moreover, the literature review shows that there is little or no direct comparison between the two categories of FMCG companies (High-Growth and Low-Growth). Similarly, there is less discussion about the evaluation of WCM efficiency during Pre-COVID, COVID, and Post-COVID periods.

Research Gap

1. Growth-Segment Gap:

Limited research compares WCM efficiency and firm performance between high-growth and low-growth FMCG companies. This study examines whether growth profile influences this relationship.

2. COVID-Period Gap:

Few studies examine how the role of WCM changed across pre-COVID, COVID, and post-COVID periods. This study evaluates these changes over different periods.

3. Measurement Gap:

Limited evidence compares dynamic WCM measures (CCC, DIO, DSO, DPO) with traditional liquidity measures (CR, QR) in explaining firm performance.

4. Component-Level Gap:

Previous studies often focus on overall WCM or CCC, with less attention to inventory, receivables, and payables individually. This study examines DIO, DSO, and DPO separately.

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Aim and Objectives

Aim: To understand whether efficient management of working capital improves the performance of FMCG companies, and whether this effect differs between High-Growth and Low-Growth companies, particularly across the Pre-COVID, COVID and Post-COVID periods.

Objectives:

1. To evaluate the impact of working capital management efficiency on the firm performance of selected High-Growth and Low-Growth listed FMCG companies in India during the pre-COVID, COVID, and post-COVID periods.
2. To compare the working capital management efficiency of High-Growth and Low-Growth listed FMCG companies using the Cash Conversion Cyczle (CCC) and its components—Days Inventory Outstanding (DIO), Days Sales Outstanding (DSO), and Days Payable Outstanding (DPO).
3. To compare the relationship between working capital management efficiency and firm performance in High-Growth and Low-Growth listed FMCG companies in India.
4. To identify whether working capital efficiency measures (CCC, DIO, DSO, and DPO) or traditional liquidity measures (Current Ratio and Quick Ratio) better explain the firm performance of High-Growth and Low-Growth listed FMCG companies in India.

Research Methodology

Research design and data

The study follows a quantitative research design and uses secondary financial data of listed FMCG companies. The financial information used in the analysis was obtained from CMIE Prowess, as specified in the dissertation.

Sample and Growth Classification

The study covers 114 companies. The median average sales growth of 10.48039% was used as the classification cutoff. Companies with average sales growth equal to or above the cutoff were classified as High-Growth companies, while firms below the cutoff were classified as Low-Growth companies. The resulting sample contains 55 High-Growth and 59 Low-Growth companies. Study period and panel structure: The observations are annual financial-year-end data from March-2015 to March-2026**.** The panel contains 1,368 firm-year observations (114

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firms × 12 years). The period analysis defines pre-COVID as Mar-15 to Mar-19, COVID as Mar-20 to Mar-21, and post-COVID as Mar-22 to Mar-26.

Group	Number of firms	Classification
High-Growth	55	Average sales growth ≥ 10.48039%
Low-Growth	59	Average sales growth < 10.48039%
Total	114	Listed FMCG companies

Variable and Measurement

Category	**Variables**	**Measurement**	**Dependent/Independent**
Firm performance	ROA	PAT / Total Assets × 100	Dependent
Robustness measure	NPM	PAT / Sales × 100	Dependent
WCM efficiency	DIO	Inventory / COGS × 365	Independent
WCM efficiency	DSO	Receivables / Sales × 365	Independent
WCM efficiency	DPO	Payables / COGS × 365	Independent
WCM efficiency	CCC	DIO + DSO − DPO	Independent
Liquidity	CR	Current Assets / Current Liabilities	Independent
Liquidity	QR	(Current Assets − Inventory) / Current Liabilities	Independent
Control	Firm Size	ln(Total Assets)	Independent
Control	Sales Growth	(Current Sales − Previous Sales) / Previous Sales × 100	Independent

Statistical Techniques

Objective No.	**Statement of the Objective**	**Method/ Methodology**
1	Impact of WCM efficiency (CCC) on firm performance of High- vs Low-Growth FMCG firms, across	Panel FE regression on ROA; CCC×COVID and CCC×Growth interactions.

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	pre-COVID, COVID and post-COVID periods.	
2	Compare WCM efficiency (CCC, DIO, DSO, DPO) of High-Growth vs Low-Growth listed FMCG companies.	Independent-samples t-test , Mann-Whitney U test between groups; VIF check for multicollinearity.
3	Compare the WCM efficiency-firm performance relationship between High-Growth and Low-Growth firms.	Component-level (DIO/DSO/DPO) FE regressions on ROA, by group; NPM robustness check.
4	Identify whether WCM measures (CCC, DIO, DSO, DPO) or liquidity measures (CR, QR) better explain firm performance.	Nested model comparison (Liquidity / WCM / Encompassing); within-R^2 and nested F-tests, by group.

Results and Discussion

Objective 1 : CCC and Firm Performance Across Periods

The first fixed effects regression provides a CCC coefficient of −0.023029 (p-value = 0.2838). In other words, CCC is negatively associated with ROA, but the association is not statistically significant. The COVID interaction with CCC equals −0.016570, and the estimated effect of CCC during COVID is −0.039599, although the difference is not statistically significant (p = 0.1021). The Post-COVID interaction equals +0.012027, the estimated effect of CCC during Post-COVID period is −0.011002, and it is also not statistically significant (p = 0.4371). R^2 equals 0.374182 in this model.

With the addition of the growth interaction, the results become statistically significant for the CCC variable. The coefficient of CCC is −0.073579 (p = 0.0027), while the coefficient of Sales

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Growth is −0.000115 ($p < 0.001$). The coefficient of the CCC × Growth interaction equals +0.075307 ($p = 0.0023$). It means that sales growth moderates the effect of CCC on ROA.

Variable	Coefficient	p-value	Interpretation
CCC	−0.073579	0.0027	Negative and statistically significant
Sales Growth	−0.000115	<0.001	Statistically significant
CCC × Growth	+0.075307	0.0023	Positive and statistically significant

As such, the findings show that the association between the CCC and ROA is not the same across all firms. While growth characteristics offer statistical significance as moderators, changes for the interaction of the COVID/Post-COVID period do not present statistical significance.

$$\mathbf{ROA_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 Growth_{it} + \beta_3 (CCC_{it} \times Growth_{it}) + \mu_i + \varepsilon_{it}}$$

- ROA = firm performance
- CCC = working capital efficiency
- Growth = sales growth
- CCC × Growth = interaction effect
- β_3 = whether the CCC–ROA relationship changes with growth

Objective 2 : Comparison of WCM Efficiency

In achieving this objective, the sample is stratified into 55 High-Growth companies and 59 Low-Growth companies. The comparison is done using four efficiency measures of working capital, namely Cash Conversion Cycle (CCC), Days Inventory Outstanding (DIO), Days Sales Outstanding (DSO) and Days Payable Outstanding (DPO). This will show whether the working capital management approach is significantly different between High-Growth and Low-Growth FMCG companies.

WCM Measure	t-test Statistic	t-test p-value	t-test Conclusion	Mann–Whitney p-value	Mann–Whitney Conclusion
CCC	−0.328821	0.7423	Not significant	< 0.001	Significant
DIO	8.275731	0.0000	Significant	< 0.001	Significant
DSO	−0.528248	0.5974	Not significant	< 0.001	Significant

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DPO	−0.502041	0.6157	Not significant	< 0.001	Significant

The independent-samples t-test indicates that only DIO differs significantly in mean between High-Growth and Low-Growth Companies ($t = 8.275731$, $p < 0.001$). The differences in mean CCC, DSO and DPO are not statistically significant. In contrast, the Mann–Whitney U test identifies statistically significant differences in the distributions of all four WCM measures ($p < 0.001$). The difference between the two tests is not contradictory: the t-test evaluates differences in means, whereas the Mann–Whitney test evaluates differences in rank distributions. The divergence is consistent with the substantial skewness and extreme observations in several WCM variables.

Objective 3 : Component -Level WCM and Firm Performance

This objective analyzes whether the associations between each working capital ratio such as DIO, DSO, and DPO and firm performance vary between High Growth and Low Growth FMCG companies. Cross-sectional fixed effects regression model was applied where ROA was the dependent variable. NPM was later applied as a robustness test.

Variable	High-Growth	High Growth p-value	Low-Growth	Low Growth p-value
DIO	−0.014474	0.1588	−0.030591	0.0539
DSO	+0.000425	0.8960	−0.085195	0.0000
DPO	−0.054304	0.0000	+0.048690	0.0537
Sales Growth	−0.000101	0.3841	+0.036237	0.1809

DPO has shown a significant negative relationship with ROA ($\beta = -0.054304$, $p < 0.001$) for High-Growth companies. However, there is no significance of DIO and DSO in High-Growth companies. On the other hand, for Low-Growth companies, there is a significant negative relationship between DSO and ROA ($\beta = -0.085195$ $p < 0.001$), whereas there is no significance of DIO and DPO. In total, both models have been statistically significant with R^2 being 0.4158 for High-Growth companies and 0.4061 for companies.

On analysing the NPM robustness results, we find growth group differences. For High-Growth companies, there is a significant positive relationship of DSO with NPM, but there is no significance of DIO and DPO. For Low-Growth companies, there is a negative and significant relationship of DIO and DSO with NPM, and there is a positive and significant relationship of DPO with NPM.

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Objective 4 : WCM Measures VS Liquidity Measures

The fourth objective compares dynamic working capital measures with traditional liquidity measures. Three fixed-effects models were examined: Liquidity Model: CR + QR , WCM Model: CCC and Encompassing Model: CCC + CR + QR

Model	High-Growth R^2	High-Growth Adj. R^2	Low-Growth R^2	Low-Growth Adj. R^2
Liquidity: CR + QR	0.385723	0.318689	0.346252	0.279078
WCM: CCC	0.372110	0.304969	0.395182	0.334257
Encompassing: CCC + CR + QR	0.388470	0.320387	0.401496	0.338786

In the case of High-Growth, the Encompassing Model has the largest R^2 (0.388470). The nested F-test for significance is ($F = 6.728530$, $p = 0.0013$), which implies that both CR and QR add information to the CCC model, even though the coefficients are not significant in the encompassing model. For Low-Growth, the WCM model has a statistically significant negative relationship between CCC and ROA ($\beta = -0.068541$, $p < 0.001$). Both CCC and ROA are statistically significant in the encompassing model ($\beta = -0.069349$, $p < 0.001$), but both CR and QR are insignificant. Even though the Encompassing Model has the largest R^2 (0.401496), the nested F-test is insignificant at 5% ($p = 0.0576$).

Key Findings

- There is a significant negative correlation between CCC and ROA in the growth-interaction specification.
- The interaction between the sales Growth and CCC positively affects the CCC–ROA relationship.
- The interaction between the period and the CCC–ROA relationship is not statistically significant during the COVID and Post-COVID periods.
- The Mann–Whitney U test shows statistically significant differences in the distributions of CCC, DIO, DSO and DPO, but the parametric t-test reveals only one statistically significant difference in means, which is DIO.
- Low-Growth companies have a substantially higher average DIO than High-Growth firms.
- While DPO is statistically significant in the ROA model for High-Growth companies, DSO is statistically significant for Low-Growth companies.
- The robustness analysis for NPM shows different results for the significance and the direction of the WCM components across growth categories.

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- For High-Growth companies, both CR and QR are jointly important variables that explain the variations in the CCC regression, according to the significant nested F-test.
- For Low-Growth companies, there is a significant negative relationship between CCC and ROA, but both CR and QR are individually insignificant.

Managerial Implication

Inventory Management : The substantial discrepancy between Days of inventory outstanding (DIO) of the two groups under study suggests that the firm's inventories need careful management. Inventories should be consistent with projected demand, sales speed, and supply conditions.

Receivables Management: The substantial negative impact of Days of sales outstanding (DSO) on ROA in the Low-Growth group is a clear indication of the importance of collecting periods for financial monitoring.

Payables Management: The substantial importance of Days of payable outstanding (DPO) in the High-Growth group is an indication that supplier payment behaviour is an aspect worth managing along with other supplier and liquidity issues.

Growth-specific policies: It is necessary to tailor working capital policies to the firm's growth characteristics since the effect of a particular policy cannot be uniform throughout the population.

Liquidity Management: Management can take into account operating cycle metrics such as Cash conversion cycle (CCC) and classical liquidity metrics such as Current Ratio(CR) and Quick Ratio(QR) since the latter play different roles at various levels of growth.

Conclusion

This study was aimed at analysing the working capital management efficiency and firm performance for High-Growth and Low-Growth listed FMCG firms in India. This analysis covered the overall Cash Conversion Cycle, its components, traditional liquidity measures and the periods before, during and after the pandemic.

The findings show that the correlation between the studied variables depends on firm growth features. The negative correlation between the Cash Conversion Cycle and Return on Assets(ROA), as well as the growth-interaction model reveal the statistically significant

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moderating effect of sales growth on their relationship. However, the changes in the studied correlation in the period of COVID and Post-COVID periods were not revealed as significant by the period-interaction model.

The analysis of the studied variables for High-Growth and Low-Growth companies showed statistically significant differences in Cash conversion cycle, Days of inventory outstanding , Days of sales outstanding , Days of payable outstanding. Descriptive difference in inventory holding was very high for Low-Growth companies in terms of average DIO. At the same time, the component-level analysis revealed that the statistically significant WCM driver differed for High-Growth and Low-Growth companies it is DPO for High-Growth companies and DSO for Low-Growth companies in the ROA model.

Moreover, it becomes clear from the comparison between Working capital management model and Liquidity models that there are certain patterns specific to groups. Thus, for High-Growth companies, the Current Ratio and Quick Ratio variables provide additional explanatory power when used together in the Cash conversion model. For Low-Growth companies, the Cash conversion Cycle variable proves to be statistically significant for explaining Return On Asset, while the Current Ratio and Quick Ratio variables are individually insignificant.

Limitations of the Study

1. The study is restricted to listed FMCG companies in India and therefore its findings may not automatically generalize to unlisted companies or other industries.
2. The analysis relies on secondary financial data, primarily from CMIE Prowess.
3. High-Growth and Low-Growth classification is based on the median average sales-growth cutoff of 10.48039%.
4. The study considers selected variables and does not capture every possible firm-specific or macroeconomic determinant of profitability.
5. ROA is the primary firm-performance measure, with NPM used as a robustness measure.
6. The study focuses on selected WCM and liquidity indicators; other measures of financial performance and working capital risk may produce additional insights.

Scope for Future Research

Considering unlisted FMCG firms together with the listed firms. Comparison between FMCG and other industries like automobile, pharmaceutical, retail, or manufacturing. Study for a prolonged period apart from Pre-COVID, COVID, and Post-COVID periods.

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Consideration of more macroeconomic variables. Considering other indicators of firm performance like ROE, EBITDA margin, or market-based metrics. Individual analysis of the sub-sectors of the FMCG industry. Investigation on how digitalization and logistics technology impact working capital management.

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