



WORKING CAPITAL MANAGEMENT AND OPERATIONAL RESILIENCE IN THE AUTOMOTIVE AFTERMARKET: A LONGITUDINAL ANALYSIS ACROSS PRE-COVID, COVID, AND POST-COVID PHASES

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ABSTRACT

The COVID-19 pandemic dealt severe blows to service-oriented industries, upending the conventional logic of working capital management in ways that persist even today. This study examines how one firm in India's organised automotive aftermarket sector managed liquidity, efficiency, and profitability across four economic phases – Pre-COVID (FY2017–FY2019), COVID (FY2020–FY2021), Recovery (FY2022–FY2023), and Post-COVID (FY2024).

Eight years of standalone statutory financial data underpin the analysis. Eight metrics are tracked: Current Ratio, Net Working Capital, Days Sales Outstanding (DSO), Days Inventory Outstanding (DIO), Days Payable Outstanding (DPO), Cash Conversion Cycle (CCC), Asset Turnover Ratio, and Net Profit Margin. Phase averages and percentage change measures form the analytical framework.

The results are mixed. Liquidity strengthened steadily – Current Ratio and Net Working Capital peaked in the post-COVID phase. Inventory management not only recovered but surpassed pre-pandemic levels by FY2024. Asset utilisation came close to full recovery. Yet receivables collection remained sluggish, and the Cash Conversion Cycle, though improving, has not regained pre-COVID efficiency. Most critically, Net Profit Margin stayed deeply negative throughout all four phases – the one challenge that recovery, so far, has failed to resolve.

These findings add to the emerging literature on pandemic-era financial management and carry practical implications for firms still navigating post-pandemic recovery.

KEYWORDS: Working Capital Management, Automotive Aftermarket, Cash Conversion Cycle, Operational Efficiency, COVID-19 Financial Impact, Liquidity Analysis, Post-Pandemic Recovery

1. INTRODUCTION

The COVID-19 pandemic ranks among the most severe economic disruptions in recent decades, simultaneously collapsing demand and fracturing supply chains across manufacturing and service industries worldwide. In India, the automotive sector absorbed disproportionate damage — dealerships shuttered, service volumes collapsed, and procurement chains broke down across multiple tiers.

Working capital management is especially consequential in the automotive aftermarket. Unlike pure manufacturers, aftermarket firms must simultaneously manage receivables from retail and fleet customers, inventory across multi-brand parts portfolios, and payables to a fragmented supplier base. When any one of these breaks down, the others follow quickly. The pandemic exposed exactly this interdependence.

Despite substantial research on COVID-19's impact on automotive firms, most studies examine short windows — comparing pre-pandemic and pandemic periods without tracking the full arc through recovery and post-pandemic normalisation. This study addresses that gap. Using eight financial years of standalone statutory filings from a firm in India's organised aftermarket, it applies a four-phase analytical framework to trace the complete trajectory of working capital management from FY2017 to FY2024. Three contributions distinguish it: a longitudinal phase-wise design covering disruption through recovery; an integrated set of eight metrics spanning liquidity, efficiency, and profitability; and inclusion of FY2024 data, capturing post-amalgamation performance unavailable in earlier studies.



2. LITERATURE REVIEW

2.1 Working Capital Management and Firm Performance

Garg and Meentu Singh (2022, 2024) consistently found that the cash conversion cycle, DSO, and DIO negatively impact profitability — across both listed automobile companies and a broader two-decade panel of 419 Indian manufacturers. These studies anchor the present study's choice of CCC, DSO, and DIO as core efficiency metrics. Sawarni, Narayanasamy, and Padhi (2020) add an important caveat: working capital dynamics differ meaningfully for service-distribution hybrid firms, where manufacturing-derived benchmarks may not apply directly.

2.2 COVID-19 and Supply Chain Disruption in the Automotive Sector

Belhadi et al. (2020) identified simultaneous supply and demand shocks as the mechanism through which the pandemic intensified working capital pressures in automotive supply chains — directly contextualising the DSO, DIO, and CCC deterioration observed here in FY2020–FY2021. Sudan, Dogra, and Jain (2021) showed that India's second wave compounded this disruption further. Aman, Rajesh, and Vyas (2022) linked pre-pandemic working capital discipline to faster post-pandemic recovery.

2.3 Liquidity, Asset Efficiency, and Profitability in Crisis Periods

Ali (2021) framed profitability as a function of revenue, operational efficiency, and financial soundness working together — a view that supports this study's simultaneous tracking of liquidity, efficiency, and margin across four phases. Demiraj, Dsouza, and Abiad (2022) confirmed in European automotive data that receivables, inventory, and CCC all hurt return on assets, warning that credit policy discipline is especially critical during economic stress. Desai (2023) noted wide asset turnover variation post-pandemic, consistent with the sharp fluctuations observed across this study's four phases.

3. METHODOLOGY

3.1 Research Design

The study adopts a descriptive-comparative design. Financial ratios are computed systematically from published statements and interpreted across eight financial years. All data is secondary — drawn entirely from statutory standalone filings — making the analysis structured and replicable.

3.2 Data Source and Unit Standardisation

Data comes from standalone annual filings with the Ministry of Corporate Affairs covering FY2017–FY2024, specifically the Balance Sheet and Statement of Profit and Loss for each year. Reporting units varied across filings — raw Rupees, Lakhs, and Crores — so all figures were converted to Lakhs before ratio computation.

One structural change warrants attention. In FY2024, an NCLT-approved amalgamation absorbed a subsidiary into the subject firm, lifting revenue from ₹116.97 Lakhs in FY2023 to ₹837.65 Lakhs in FY2024. This spike is not organic growth. All FY2024 ratios are interpreted accordingly.

3.3 Phase Classification

Eight years are grouped into four phases:

- **Pre-COVID (FY2017–FY2019):** Financial baseline
- **COVID (FY2020–FY2021):** Peak disruption, covering both pandemic waves
- **Recovery (FY2022–FY2023):** Post-lockdown normalisation
- **Post-COVID (FY2024):** Post-amalgamation year

3.4 Financial Metrics

Eight metrics are used: Current Ratio, Net Working Capital, DSO, DIO, DPO, Cash Conversion Cycle, Asset Turnover Ratio, and Net Profit Margin. Standard formulas apply throughout.

3.5 Analytical Framework

Phase averages are computed for each metric. Two derived measures — COVID Impact (Pre-COVID to COVID percentage change) and Recovery Progress (COVID to Recovery percentage change) — anchor the comparative analysis. Year-on-year changes provide supplementary granular detail.

4. FINDINGS AND ANALYSIS

4.1 Liquidity Indicators: Current Ratio and Net Working Capital

The firm entered the pandemic in reasonable shape. The Current Ratio averaged 1.238 Pre-COVID and held almost flat at 1.243 through FY2020–FY2021 — short-term solvency was preserved despite the disruption. Recovery brought a sharp swing upward, with the average climbing to 2.964, driven by current asset accumulation

and reduced relative liabilities. By FY2024, the ratio settled at 1.467 — above the pre-pandemic baseline, but well below the recovery peak — suggesting the post-amalgamation entity deployed its current assets more efficiently than the cautious recovery phase allowed. Net Working Capital told an even cleaner story. Starting from a Pre-COVID average of ₹37.49 Lakhs — which included a negative reading in FY2017 — it rose through every subsequent phase without interruption: ₹81.03 Lakhs during COVID, ₹174.65 Lakhs through Recovery, and ₹216.93 Lakhs in FY2024. No phase reversal, no pandemic dip. This unbroken upward trend points to a genuine structural improvement in short-term financial stability, not merely a cyclical rebound.

Table 1: Current Ratio and Net Working Capital — Phase-wise Summary

Phase	Current Ratio (Avg)	Net Working Capital (Avg, Lakhs)
Pre-COVID (FY2017–FY2019)	1.238	37.49
COVID (FY2020–FY2021)	1.243	81.03
Recovery (FY2022–FY2023)	2.964	174.65
Post-COVID (FY2024)	1.467	216.93

4.2 Receivables Efficiency: Days Sales Outstanding

Days Sales Outstanding remains the study's most stubborn recovery story. Pre-COVID, collections averaged 100.94 days. COVID stretched that to 139.42 days — a 38.1% deterioration as lockdowns slowed customer payments. Recovery brought only marginal relief: 136.23 days, then 131.90 days in FY2024. The direction is right, but the gap is not closed. At roughly 31 days above the pre-pandemic baseline, receivables collection has yet to return to where it was — and that lag continues to weigh directly on the Cash Conversion Cycle.

4.3 Inventory Management: Days Inventory Outstanding

Days Inventory Outstanding delivered the study's most complete turnaround. Pre-COVID inventory sat at 85.29 days on average. COVID pushed it to 113.02 days as demand collapsed and supply chains fractured. Recovery trimmed it only modestly to 110.83 days — but FY2024 changed the picture entirely, dropping to 81.73 days, below the pre-pandemic baseline and the best reading across all eight years. Inventory management didn't just recover; it improved. This likely reflects tighter demand forecasting and a deliberate move away from speculative stockholding — structural shifts, not a temporary correction.

Table 2: Working Capital Efficiency Metrics — Phase-wise Summary

Metric	Pre-COVID Avg	COVID Avg	Recovery Avg	Post-COVID (FY2024)
DSO (Days)	100.94	139.42	136.23	131.90
DIO (Days)	85.29	113.02	110.83	81.73
DPO (Days)	86.07	116.88	108.80	95.51
CCC (Days)	100.16	135.56	138.26	118.13

4.4 Days Payable Outstanding

DPO rose from 86.07 days Pre-COVID to 116.88 days during COVID — a deliberate extension of supplier payment cycles to conserve cash, consistent with Demiraj et al. (2022). It eased to 108.80 days through Recovery and 95.51 days in FY2024. The firm hasn't fully returned to pre-pandemic payment norms, but the gap is narrow. At 95.51 days, it still uses supplier credit as a working capital lever — just with considerably more restraint than at the crisis peak.

4.5 Cash Conversion Cycle

Pre-COVID CCC averaged 100.16 days. It climbed to 135.56 days during COVID and edged higher still to 138.26 days through Recovery — DPO improvements weren't enough to offset elevated DSO and DIO. FY2024 brought the cycle down to 118.13 days, its lowest since FY2019, pulled largely by DIO's strong recovery. But at 18 days above the pre-pandemic baseline, full efficiency hasn't returned. The bottleneck is DSO — until receivables collection normalises, the CCC will remain above benchmark.

4.6 Asset Turnover Ratio

From a Pre-COVID average of 0.656, the ratio fell to 0.307 during COVID and bottomed at 0.208 through Recovery — with FY2021's 0.15 marking the study's lowest operational reading. FY2024 reversed most of that damage, recovering to 0.605. The caveat bears repeating: part of this rebound reflects the amalgamation's revenue consolidation, not purely organic growth.



4.7 Net Profit Margin

This is where recovery stalls. The Pre-COVID average was -0.099% — near breakeven, with FY2018's 7.97% the only positive margin in eight years. COVID drove it to -19.56% ; Recovery pushed it further to -24.81% . FY2024 pulled back to -16.09% , helped by the enlarged revenue base. Yet the absolute net loss in FY2024 was the largest in the entire study period. A bigger top line has not translated into a better bottom line — the expanded entity carries an expanded cost structure to match.

Table 3: Asset Turnover and Net Profit Margin — Phase-wise Summary

Phase	Asset Turnover Ratio (Avg)	Net Profit Margin % (Avg)
Pre-COVID (FY2017–FY2019)	0.656	-0.099
COVID (FY2020–FY2021)	0.307	-19.555
Recovery (FY2022–FY2023)	0.208	-24.811
Post-COVID (FY2024)	0.605	-16.089

4.8 Comparative Phase Summary

COVID hit every metric. The sharpest damage fell on Asset Turnover (-53.3%), Net Profit Margin (near breakeven to -19.56%), and the cycle metrics — DSO $+38.1\%$, DIO $+32.5\%$, CCC $+35.3\%$. Recovery improved liquidity solidly but barely moved efficiency, and profitability worsened further. FY2024 looks better — DIO, Asset Turnover, and NWC all rebounded meaningfully — but receivables and profitability remain below pre-pandemic levels.

5. DISCUSSION AND MANAGEMENT IMPLICATIONS

The results don't tell a simple recovery story — different metrics recovered at different speeds, and one hasn't recovered at all.

NWC's unbroken rise, even through the pandemic, is the standout finding. The firm expanded its liquidity buffer under stress rather than depleting it, consistent with the defensive posture Aman et al. (2022) linked to stronger recovery outcomes and Ali's (2021) view that working capital adequacy underpins operational continuity during disruption.

DIO's post-pandemic outperformance suggests the pandemic forced better operational habits. Holding excess stock through a demand collapse appears to have produced lasting improvements in forecasting and procurement discipline — what Belhadi et al. (2020) describe as learning-driven resilience.

DSO is the most actionable concern. Receivables are still 31 days slower than Pre-COVID, suggesting credit terms extended during the crisis have become entrenched. Reducing DSO to the pre-pandemic benchmark of ~ 100 days would shorten the CCC by roughly 32 days — a substantial cash efficiency gain requiring no capital investment. On profitability, revenue growth alone is not working. The pre-COVID margin was already near breakeven; the pandemic widened the gap, and FY2024's largest-ever absolute loss confirms the enlarged entity carries an enlarged cost structure. Sustainable financial health will require either fundamental cost restructuring or meaningful upward repricing of services.

6. CONCLUSION AND FUTURE RESEARCH

The firm's post-pandemic recovery is real but uneven. Liquidity stands at its strongest; inventory management has surpassed pre-pandemic efficiency; asset utilisation has nearly closed the gap. These are genuine improvements. But DSO remains ~ 31 days above baseline, keeping the CCC elevated, and Net Profit Margin — deeply negative throughout all four phases — represents a structural challenge the study period has not resolved.

Limitations include single-firm scope, secondary data only, no peer benchmarking, and the FY2024 amalgamation's effect on data comparability. Future research should pursue multi-firm comparisons across organised and unorganised aftermarket operators, examine digital transformation's impact on working capital efficiency, incorporate consolidated group financials, and extend the study through FY2025–FY2026 to assess whether the profitability challenge persists.



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