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Corporate Governance and Working Capital Management in Manufacturing Firms: A Systematic Literature Review and Future Research Agenda

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Abstract **Review Article**

Working capital management is a crucial corporate management function and one of the most significant corporate financial decisions that businesses undertake. Working capital management refers to the administration of an organization's short-term assets and resources. It is imperative for the majority of organisations to maintain sufficient liquidity to pay their expenses and conduct their daily operations through the implementation of effective working capital management. This article provides a methodical assessment of “corporate governance and working capital management in manufacturing firms”. Corporate governance (CG) attributes, particularly "board independence, meeting frequency, and separation of CEO duality", significantly enhance working capital management (WCM) and overall performance of Indian manufacturing enterprises, according to this systematic investigation. Through improved management of receivables, inventories, and cash—effective WCM improves operational efficiency, company stability, and profitability. The results highlight the need of including effective governance policies to enhance WCM, which influences financial stability and development by itself. For corporate managers, investors, and legislators in formulating policies and strategies to guarantee long-term commercial success, this assessment offers insightful analysis.

Keywords: Corporate Governance, Working Capital Management (WCM), Manufacturing Firms (Industry), India, Systematic Review.

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1. INTRODUCTION

In The Contemporary landscape of corporate finance and governance, the integration of strategic control mechanisms and efficient operational management has never been more critical. As the global business environment becomes increasingly interconnected and competitive, both developed and developing economies are under pressure to adopt governance frameworks that enhance transparency, accountability, and performance sustainability. One area where this convergence becomes especially salient is in the **Manufacturing Sector**, where **“Corporate Governance (CG)** and **Working Capital Management (WCM)”** directly intersect to shape financial health and organizational resilience (Gill &Biger, 2013; Mohan Singh, 2021).

The structure that directs and controls businesses is known as corporate governance, and it is a key factor in determining both financial and strategic results (Achchuthan&Kajananthan, 2013). In the context of manufacturing firms—often capital-intensive and highly sensitive to operational inefficiencies—the structure and effectiveness of governance mechanisms can critically influence liquidity, risk exposure, and long-term value creation. This is particularly relevant in developing countries like India, where institutional voids and evolving regulatory frameworks make the adoption of effective governance practices both challenging and necessary (Younas, 2022; Narwal& Jindal, 2017a).

At the same time, working capital management—which controls how a company handles its short-term assets and liabilities, such as cash holdings, receivables, payables, and inventory—has been identified as a critical factor in determining a company's profitability and solvency(Zaman,

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2022; Gupta &Agrawal, 2024). Efficient WCM ensures optimal liquidity without compromising growth potential, making it indispensable for manufacturing firms that face fluctuating demand, supply chain complexities, and high operating leverage (Aldubhani et al., 2022). However, while the individual importance of CG and WCM is well documented in financial literature, their **interrelationship remains underexplored**, especially within emerging economies and sector-specific contexts (Naz et al., 2022; Gulza r&Haque, 2023).

Existing studies have often treated WCM as a purely financial management function, with limited acknowledgment of how governance attributes—such as **board independence, audit committee effectiveness, CEO duality, and board meeting frequency**—impact its performance (Rahim et al., 2024; Thanh &Khuong, 2024). Moreover, the findings across empirical literature remain mixed. For instance, some studies suggest that greater board independence correlates with better WCM efficiency (Gill et al., 2014; Narwal& Jindal, 2017b), while others argue that such relationships are context-specific and mediated by firm size, industry dynamics, or institutional maturity (Sarpong-Danquah et al., 2022; LIN & LIN, 2023). The **lack of a comprehensive synthesis** of these findings has left a fragmented understanding of the CG-WCM nexus—one that this review aims to address.

With a focus on Indian companies and comparative worldwide settings, this study does "a Systematic Literature Review (SLR) of empirical and peer-reviewed research" on how corporate governance shapes working capital management practices in the manufacturing industry. By critically analyzing over a decade's worth of research (2013–2025), the paper seeks to integrate scattered findings, clarify theoretical inconsistencies, and provide a consolidated framework that explains how specific governance mechanisms impact WCM efficiency. This involves assessing governance factors including CEO tenure, board size, diversity, and audit structures in light of WCM measures like "inventory turnover, cash conversion cycle, current ratio, and cash holdings"(Kamran et al., 2022; Hu et al., 2024).

The significance of this review is manifold. First, it fills a **crucial academic gap** by offering the first known sector-specific SLR focusing on the intersection of WCM and CG in Indian and global manufacturing firms. Second, it provides valuable insights into **methodological trends,** theoretical frameworks, and empirical patterns that have shaped the discourse over the past decade. Third, the paper highlights **regional nuances**—especially in India—where traditional governance models are being restructured to meet international best practices, but empirical evidence remains limited and inconclusive (Jena & Mishra, 2025; Goel et al., 2015).

Additionally, the review responds to growing calls for **evidence-based policy formulation**. The findings of this paper are expected to inform corporate boards, financial managers, investors, and policymakers about how to design governance systems that not only meet compliance standards but also optimize financial operations such as WCM. In particular, the paper underscores the need for integrated governance reforms that enhance liquidity management, reduce agency costs, and support sustainable growth in manufacturing enterprises—especially in volatile post-pandemic markets (Burney et al., 2021; Coleman et al., 2020).

In conclusion, as the corporate world increasingly recognizes the strategic value of governance in driving financial performance, this paper offers a **timely and relevant scholarly contribution.** By systematically reviewing and synthesizing the literature on CG and WCM, it provides a robust platform for future research, while also offering **practical implications** for stakeholders committed to improving operational efficiency and organizational accountability in the manufacturing sector.

2. REVIEW METHODOLOGY

With a focus on listed manufacturing companies both inside and outside of India, this paper uses a systematic literature review (SLR) approach to gather, examine, and synthesize academic and empirical research on "the influence of corporate governance attributes on working capital management (WCM)".

2.1 Review Objectives

- To identify key corporate governance attributes influencing WCM.
- To evaluate the metrics, methods, and theoretical frameworks used in past studies.
- To examine empirical findings from Indian and global manufacturing sectors.
- To highlight research gaps and propose future research directions.

2.2 Research Questions

- What corporate governance attributes have been studied in relation to working capital management?
- What is the nature and direction of the relationship between CG variables (e.g., board size, independence, CEO duality) and WCM performance?
- What are the trends, gaps, and contradictions in the literature specific to Indian manufacturing firms?

2.3 Data Sources and Search Strategy

Relevant literature was sourced from the following databases like **Scopus, Web of Science, EBSCOhost, JSTOR, Google Scholar, ScienceDirect (Elsevier), Emerald Insight, SpringerLink SSRN (Social Science Research Network) etc.**

The search was conducted using a combination of Boolean operators and key phrases such as:

- *"Corporate governance" AND "working capital management"*

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- *"Board characteristics" AND "cash conversion cycle"*
- *"CEO duality" AND "inventory management"*
- *"Audit committee" AND "working capital"*
- *"India manufacturing firms" AND "governance"*

2.4 Inclusion and Exclusion Criteria

Table-1: Inclusion and Exclusion Criteria for Literature Review

Criteria	Inclusion	Exclusion
Time Period	2013- 2025	Pre-2013 studies
Language	English	Non-English publications
Sectoral Focus	Manufacturing firms (India and Global)	Non-manufacturing sectors (e.g., banks, IT)
Study Type	Empirical studies, peer-reviewed journals, conference papers, doctoral theses Scopus/SCI/SSCI-indexed papers.	Conference abstracts, working papers, editorials
Content Relevance	Studies with corporate governance and WCM variables	Studies focused on unrelated financial performance metrics

2.5 Conceptual Model

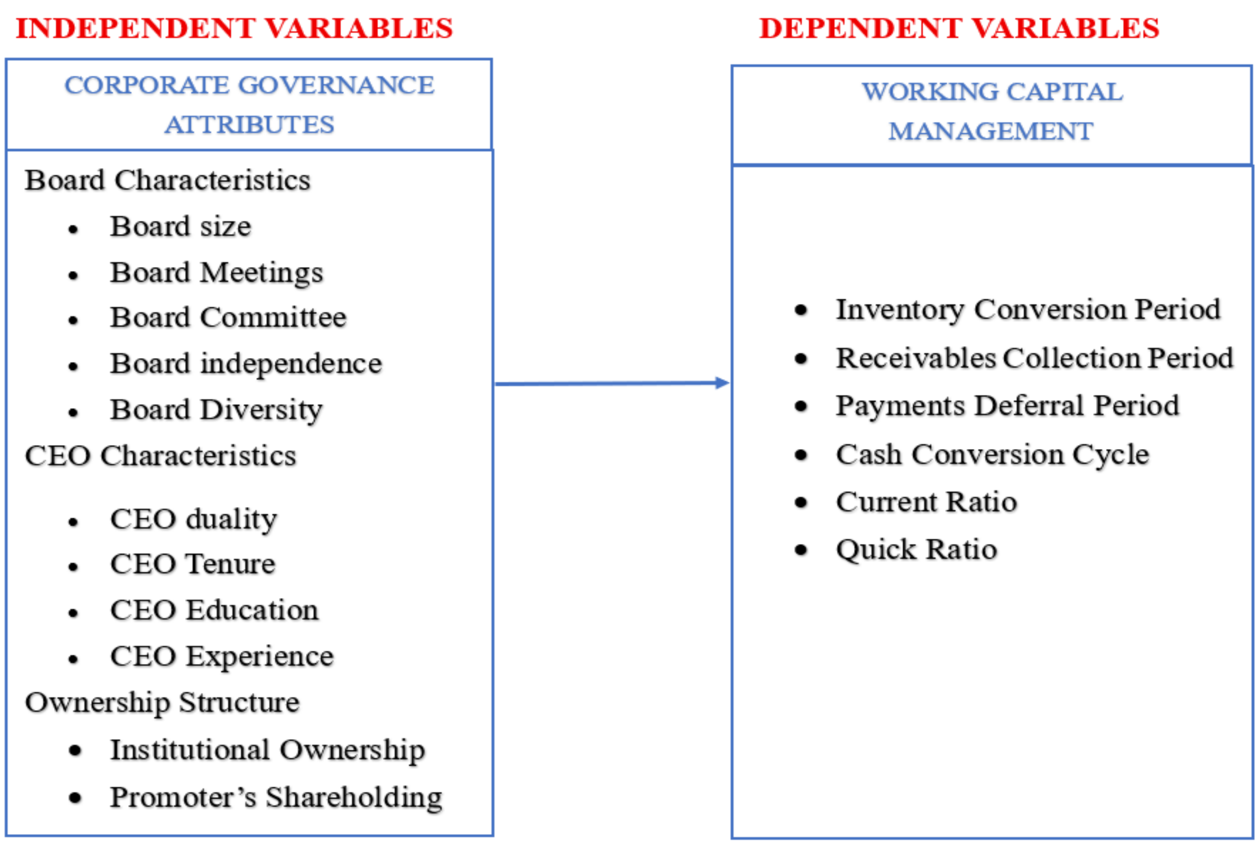

Figure-1: Conceptual Model

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2.6 Limitations of the Review Methodology

While the SLR approach ensures comprehensiveness and transparency, certain limitations remain:

- The scope is restricted to published and accessible studies; unpublished or proprietary industry reports may have been missed.
- The review emphasizes quantitative studies; qualitative insights from board interviews or case studies are underrepresented.
- Time and database constraints may have led to the exclusion of some regionally significant work.

3. SYNTHESIS OF PRIOR STUDIES IN THE MANUFACTURING SECTOR

Table-2: Findings from Indian and Global Manufacturing Sectors

Sl. No	Author (s) &Year	Country	Sample Size, Data Period & Methodology Used	Variables Used	Findings & Conclusion
1	(Jena & Mishra, 2025)	India	**Sample size –** 15 FMCG Companies **Period -** 2020-2024 **Methodology:** Descriptive statistics, Test of multicollinearity, Pooled Regression Model.	**CG Attributes**: Board Size, Board Committee, Board Meetings, Board Diversity and Board Independence **WCM Metrics:** Cash Conversion Cycle **Control variable -** Firm Size and Firm Age	The cash conversion cycle and board independence have a high negative correlation, suggesting that more reliance on the board might result in less effective "working capital management". However, factors like size and board meetings have little effect on working capital management.
2	(Hu et al., 2024)	China	**Sample size -** 25,815 firm-year observations **Period-** 2000–2021 **Methodology:** OLS Regression with industry & year fixed effects; Heckman 2-stage correction	**CG Attributes**: CFO age, Gender, Education, Tenure **WCM Metrics:** Working Capital = (Receivables + Inventory + Cash – Payables – Accrued Expenses)/Total Assets	Older CFOs adopt more aggressive WCM (lower WRKCAP). Female CFOs and higher-educated CFOs prefer conservative WCM. Non-SOEs show stronger effects.
3	(Jamal et al., 2024)	Pakistan	**Sample size-** 13 cement companies; **Period-**2019–2023 **Methodology:** Panel regression (OLS)	**CG Attributes**: CEO duality, Board size, Audit quality, internal audit team size. **WCM Metrics:** Accounts Receivable Days, Inventory Turnover Days, Accounts Payable Days **Control variables:** Return on Equity, Current Ratio	Receivables and inventory turnover durations were greatly shortened by the number and caliber of the internal audit team. Audit quality also reduced payables period. WCM efficiency was not significantly impacted by board size or CEO duality. Emphasis placed on audit structures for efficient WCM.
4	(Rahim et al., 2024)	Malaysia	**Sample Size**-35 publicly listed companies **Period-** 2017-2020 **Methodology:** OLS Regression Analysis	**CG Attributes**: Board Size, Audit Committee, CEO Duality, and CEO Tenure. **WCM Metrics:** Current Ratio	While CEO duality and board size have a big beneficial effect on the current ratio, the audit committee has a significant negative impact. However, there is no discernible effect of CEO tenure on the present ratio.
5	(Thanh & Khuong, 2024)	Vietnam	**Sample size**-552 non-financial listed firms; **Period-** 2015–2022 **Methodology:** System GMM with fixed effects and lag	**CG Attributes**: Board Independence, Board Size, Ownership Concentration, CEO Duality, Audit Committee Independence, and Audit Committee Size, **WCM Metrics:**	The CG Index has a **significantly positive impact** on both WCM1 and WCM2; suggesting effective corporate governance mechanisms enhance working capital efficiency. Results back up the agency hypothesis and highlight how crucial governance changes are in

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			variables	WCM1: Cash Flow from Operations / Net Revenue; WCM2: Current Ratio **Control Variables**: Firm Size, Leverage, Firm Growth, Net Profit Margin, Firm Age, COVID-19 Dummy	post-COVID developing countries. The model passes Hansen and AR2 tests, indicating robustness.
6.	(Ahmed et al., 2023)	Europe	**Sample Size-**50 non-financial firms listed on the Frankfort and Oslo stock exchange **Period-** 2017-2021 **Methodology:** Correlation analysis and Ordinary Least Square regression model	**CG Attributes**: Board Remuneration, Board Meetings, CEO Tenure, CEO Remuneration, and Board Size, **WCM Metrics:** Cash Holdings **Control Variables-**Financial Leverage and Firm Size	"Board compensation, Board meetings, CEO tenure and CEO compensation" all have significant and beneficial associations with working capital management, while board size and cash holdings have a negative correlation, indicating that the supervisory board's size has no effect on working capital improvement.
7	(Gulzar & Haque, 2023)	India	**Sample size -** 83 manufacturing companies **Period –**2014-2019 **Methodology:** GLS approach and Ordinary least square (OLS)	**CG Attributes**: Audit Meetings, Board size; CEO Duality, and Board Independence, **WCM Metrics:** Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Average Payment Period, Cash Conversion Efficiency, Cash Holdings, Quick Ratio and Current Ratio. **Control variables** -Sales Growth, Firm Age, and Firm Size.	In order to successfully and efficiently oversee a company's WCM, corporate governance is crucial. To lessen the detrimental effects of the audit meetings on ICP and CCE, they should be shortened.
8	(LIN & LIN, 2023)	Canada	**Sample Size-**111 companies in S&P/TSX Composite Index **Period-** 2010-2012 **Methodology:** Pearson Correlation, Multivariate Analysis and Regression Analysis	**CG Attributes**: Board Composition, Shareholder Rights, Disclosure, Compensation and Shareholding, **WCM Metrics:** Cash Holdings Cash Conversion Efficiency **Control Variable-** Firm Size, Financial Leverage, Firm Growth	Shareholding and compensation have a substantial negative impact on cash conversion efficiency, while disclosure has a positive impact. However, there is no significant correlation between corporate governance and cash holdings.
9	(Farhan et al., 2022)	India	**Sample size -** 82 pharmaceutical sector, **Period –** 2008- 2017 **Methodology:** Descriptive statistics, Correlation analysis,	**CG Attributes**: Board of directors size, Board of directors composition, **WCM Metrics:** Cash, inventory, receivables, and payables **Control variable -**Leverage, Firm Size, and Age	The size of the board of directors has an adverse and significant effect on AR, as shown by the number of dayscollection period, and accounts payable, as indicated by the number of days deferral period, whereas the CCC's measurements of cash management and inventory holding period show an insignificant impact on IM.
10	(Kamran et al., 2022)	Pakistan	**Sample Size-** 116 manufacturing companies listed in PSE	**CG Attributes**: Board Leadership Structure, Board Audit Committee Members and Chief executive tenure	Cash holdings are generally positively associated with governance variables, except for board leadership structure, which negatively influences them. The

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			Period- 2009-2020 **Methodology:** Unit Root, Correlation, Granger, Test, Actual Fitted Graphs, Normality Test, and Redundant Fixed Effects & Hasuman Test	**WCM Metrics:** Cash holdings, Cash Conversion Cycle and Current ratio	findings validate the secondary hypothesis, indicating a robust correlation between the cash conversion cycle and the governing board. Additionally, firms with CEOs who prioritize maintaining liquid assets to meet obligations tend to achieve higher profitability. Executives' credit policies aimed at boosting sales also contribute to increased profits in manufacturing organizations.
11	(Naz et al., 2022)	Pakistan	**Sample Size-** 179 non-financial listed firms on PSX; **Period**–2009–2018 **Methodology:** - Panel regression (fixed effects) - Sobel test for mediation - Composite CG index used	**CG Attributes**: CEOduality,Board meetings, Board independence, **WCM Metrics:** Cash Conversion Cycle (CCC), Current Ratio (CR), Cash Conversion Efficiency (CCE)**,** **Control Variables:** Firm age, Leverage, and Sales growth,	Corporate Governance (CG) positively influences firm performance (ROA, ROE). CG significantly improves WCM (lower CCC, higher CCE). WCM partially mediates the CG–performance relationship. Recommends stronger CG practices to enhance WCM efficiency and firm performance
12	(Tanui et al., 2021)	Kenya	**Sample Size-** 14 listed construction and manufacturing firms **Period-** 2008-2017 **Methodology:** Panel Regression Analysis	**CG Attributes**: Board committees**,** Board Size Board's gender, Board independence**,** **WCM Metrics:** Average payment period, Average collection period, Cash conversion cycle (CCC) and Inventory turnover period **Control Variables:** Firm size (FS)	According to the investigation, the scale and gender diversity of the board have a substantial and positive impact on working capital management (WCM), suggesting that they play a supportive role in improving efficiency. While board composition showed a significant negative impact on WCM, board independence had a negative but statistically insignificant relationship. Overall, the findings suggest that larger boards and greater gender diversity contribute positively to effective working capital management.
13	(Burney et al., 2021)	USA	**Sample Size-** 28,243 firm-year observations ; **Period-** 1993–2018 **Methodology:** OLS, Fixed Effects, Propensity Score Matching (PSM), Instrumental Variables (IV), Firm & Year FE	**CG Attributes**: CEO age **WCM Metrics:** Net Operating Working Capital (WCR), Inventory, Accounts Receivable, Accounts Payable **Control Variables:** CEO Tenure, Gender, Firm Size, Tobin's Q, Sales Growth, Gross Profit Margin, Sales Volatility, Distress, Market Share, OCF	CEO age positively affects WCM. Younger CEOs adopt more aggressive WCM strategies (lower WCR), while older CEOs hold more inventory and extend less trade credit. Evidence supports the Aggressive Strategy Hypothesis that younger CEOs reduce working capital to signal ability and preserve flexibility. Results are robust across PSM and IV approaches, showing causality from CEO age to WCM.
14	(Daqar & Abu Daqar,	Palestine	**Sample Size -** 15 manufacturing firms **Period-** 2016-2018	**CG Attributes**: Board Size, CEO Duality, Audit Committee,	Sales growth and firm size have a substantial impact on the currency conversion cycle, accounting for 42% of

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	2020)		**Methodology:** Regression analysis.	**WCM Metrics:** Current Ratio (CR), Cash Conversion Cycle (CCC) **Control Variables:** Firm Size , Firm Performance, Sales Growth	its total variation. The current ratio, another crucial measure of working capital management, is very closely connected with the CEO duality, firm size, and business performance. The business's financial health and working capital efficiency are significantly impacted by CEO duality and firm performance, which together account for 25.9% of the current ratio's variance.
15	(Coleman et al., 2020)	Nigeria & Ghana	**Sample Size -** 103 listed non-financial firms; **Period-** 2012–2016 **Methodology:** OLS, Fixed Effects, Random Effects, GMM	**CG Attributes:** Independent, Board Size, Audit Committee Size, Directors, Audit Reputation, CEO Duality, **WCM Metrics:** ARR, INV, APP, CCC, Working Capital (WC) **Control variables:** Firm Size, Firm Age, Leverage, Firm Growth	CG significantly affects WCM policies. WCM is adversely affected by board size, CEO duality, business size, and leverage. Audit committee positively influences WC efficiency. CEO duality and independent directors are strongly significant under aggressive policies. Under conservative policies, most CG attributes show limited influence. Audit reputation significant in APP for conservative firms. Results support targeted governance reform.
16	(Kengatharan & Tissera, 2019)	Srilanka	**Sample Size -** 30 listed manufacturing companies in Colombo Stock Exchange **Period-** 2013-17 **Methodology:** Correlation and regression	**CG Attributes**: Board Size, Board Meetings, Size of Audit Committee, CEO Tenure **WCM Metrics:** Cash Conversion Cycle, Sales of Inventory, Accounts Payable, Accounts Receivable, **Control Variables** Firm Size, Sales Growth	The regression analysis reveals that the model significantly explains a portion of the variation in the cash conversion cycle. Board meetings and CEO tenure have a significant positive impact, indicating they may lead to longer cash conversion periods. However, the cash conversion cycle is not significantly influenced by the size of the board, the size of the audit committee, the growth of sales, or the size of the firm. This implies that these variables do not make a substantive contribution to the variation in "the cash conversion cycle" within the studied firms.
17	(Prasad et al., 2019)	India	**Sample size -** 323 firms, **Period –** 2007- 2017 **Methodology:** Random effects model, Breusch-Pagan/Cook-Weisberg test, Variance inflation factor (VIF), Multivariate normality test, statistic test.	**CG Attributes**: board meetings, Legal indicator, Board indicator, CEO duality, Proactive indicator, **WCM Metrics:** Current ratio, Quick ratio. **Control variable -** Sales Growth, Firm Size, Leverage, Age Of Incorporation	Based on the empirical findings, the CEO duality is the only one of the 9 board variables that significantly and negatively affects the sample businesses' WCM as determined by the quick and current ratios.
18	(Ahmad et al., 2018)	Pakistan	**Sample Size-** 40 firms listed at Pakistan stock exchange **Period-** 2008-2012	**CG Attributes**: Audit committee, CEO Dual Responsibility (CED), CEO tenure (CET), and Size of Board Members (BDS),	CEO tenure has a substantial negative influence on the cash conversion cycle and current ratio, indicating that longer leadership increases working capital efficiency.

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			Methodology: Correlation And Regression	**WCM Metrics:** Current Ratio (CR), Cash Conversion Cycle (CCC), cash conversion efficiency (CACE), Cash holdings (CAH)	There is no discernible effect of CEO duality on either metric. The cash conversion cycle and current ratio, on the other hand, are significantly improved by board size and the existence of an audit committee, indicating that stronger audit monitoring and bigger boards lead to improved liquidity and more efficient working capital management.
19	(C. R. et al., 2018)	Botswana	**Sample Size-** 6 companies listed companies in the Consumer Services Sector in Botswana. **Period-** 2012-2017. **Methodology:** Pearson correlation and regression analysis.	**CG Attributes:** Executive Non-executive Male directors, Board size, Board Gender Diversity, Female directors, Board meeting frequency, No. of sub- committee, **WCM Metrics:** Inventory Conversion Period, Average Collection Period, Cash Conversion Cycle, Average Payment Period, Quick Ratio, Current Ratio, and Debt Ratio,	The correlation analysis revealed that various corporate governance variables have moderate associations with working capital components. EXC has a positive correlation with ICP, CR, and QR, while BSE and MDS have a negative correlation with CCC and a positive correlation with APP. NEX, FDS, NSC, and BMF show negative associations with several working capital indicators. Regression analysis showed that corporate governance mechanisms strongly impact ICP, moderately affect DR, CCC, QR, CR, and APP, and have a weak positive influence on ACP, highlighting their varied impact on working capital efficiency.
20	(Mishra & Mukherjee, 2018)	India	**Sample Size-** 20 BSE pharmaceutical companies **Period-** 2012-13 to 2016-17 **Methodology:** The random effects model (REM), The fixed effects least squares dummy variable (LSDV) model, and Pooled OLS method,	**CG Attributes:** Proportion of Outside Director on the Board, Board Size, CEO Duality, Proportion of non-executive independent director in Audit Committee, Board Efficiency, **WCM Metrics:** Firm's efficacy in WCM (EWCM) **Control Variable:** Firm's Size	The efficiency of working capital (EWCM) is negatively correlated with the scale of the board, the duality of the CEO, and the proportion of "non-executive independent members on the audit committee". Conversely, it is positively correlated with board efficiency and the percentage of outside directors. All of these associations are not statistically significant, however. Overall, the findings show no discernible relationship between corporate governance procedures and the effectiveness of working capital management in the pharmaceutical industry.
21	(Ali & Shah, 2017)	Pakistan	**Sample Size-** 62 companies listed on PSX **Period-**2014-2016 **Methodology:** Correlation analysis and Regression analysis	**CG Attributes:** Board Meeting, Audit Committee, CEO duality, Gender Effect and Board Size, **WCM Metrics:** Cash Holding and Cash Conversion Cycle **Control Variables:** Firm Performance and Firm Internationalization	The positive correlation between working capital management and the corporate governance score indicates better utilization. Audit committee presence significantly improves the cash conversion cycle, enhancing efficiency. However, better working capital utilization is not a result of board meetings or CEO duality. Board size negatively impacts efficiency, suggesting larger boards may hinder decision-making. Notably, gender diversity has a significant positive effect, highlighting its role in enhancing working capital utilization through inclusive governance.

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22	(Narwal &Jindal, 2017a)	India	**Sample size -** 50 Indian manufacturing firms. **Period –**2005-06 to 2014-15 **Methodology:** Descriptive Statistics, Correlation Matrix, Regression Analysis,	**CG Attributes:** Board committee, CEO duality, non-executive directors, board size, Audit committee members, director's remuneration, and board meeting. **WCM Metrics:** Cash Conversion Cycle. **Control variable -** Firm performance, Firm Size	In minimizing of the capital conversion cycle, the extent of the board and the presence of non-executive directors are significant factors. It was shown that adhering to good corporate governance principles shortens the cash conversion cycle.
23	(Narwal & Jindal, 2017b)	India	**Sample size -** 96 Indian manufacturing companies**.** **Period –** 2005-2014 **Methodology:** OLS Regression Analysis, Correlation Analysis, Descriptive Statistics,	**CG Attributes:** directors remuneration, Non-executive directors, Board size, audit committee members, and board meeting, **WCM Metrics:** Cash holding **Control variable –** Firm Size	The cash holding is favourably but not dramatically impacted by board size. According to this data, there is a significant positive relationship among cash holdings and the directors' and audit committee's remuneration.
24	(Khan et al., 2016)	Pakistan	**Sample Size**-80 non-financial listed firms **Period**-2010- 2014 **Methodology:** correlation, OLS regression	**CG Attributes:** Directors Ownership, Institutional ownership, Board size, Board independence, and Ownership concentration, **WCM Metrics:** Cash holdings **Control variables** Dividend, Size, Growth, Capital Expenditures, Leverage, Cash Flows and Net-Working Capital	According to the research, growth has a favourable impact on cash holdings in manufacturing enterprises, but net working capital, company size, and leverage have negative relationships. In service firms, board independence and dividends positively affect cash holdings, whereas leverage and net working capital show negative relationships. However, most variables examined are statistically insignificant, indicating that corporate governance in Pakistan plays a limited role in determining firms' cash holding decisions, reflecting overall governance weakness in influencing financial policies.
25	(Sadegh, n.d., 2016)	Iran	**Sample Size**-15 machinery & equipment firms listed on Tehran Stock Exchange; **Period**-2006–2014 **Methodology:** - Panel data regression - Generalized Least Squares (GLS) - White, Hausman, and F-Limer tests	**CG Attributes:** CEO tenure Board size Proportion of outside (independent) board members **WCM Metrics:** Cash Conversion Cycle (CCC) **Control Variables:** Sales growth, Firm size (log of avg. assets), Firm performance (net profit/sales)	Positive significant relationship between CG attributes (CEO tenure, board size, board independence) and CCC efficiency. Firm size also positively influences CCC efficiency. No significant relationship found between sales growth, firm performance and CCC. Strong CG practices improve cash management efficiency in machinery sector.
26	(Chaudhry &	Pakistan	**Sample Size**-168 manufacturing	**CG Attributes:** Audit Committee,	The average collecting time is shortened by committees, audit committees, and

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	Ahmad, 2015)		companies listed at KSE **Period-**2010-2013 **Methodology:** Pooled OLS regression analysis Independent one-way ANOVA test and t-test	Board Size, Board committees, Board meetings and Board independence **WCM Metrics:** Average Payment Period, Average Collection Period, Cash Conversion Cycle, Inventory Turnover Period, **Control Variables :** Firm size, Sales growth, Leverage and Profitability	board size, but it is prolonged by board meetings and independence. Committees, audit committees, board size, and independence enhance efficiency in accounts payable; conversely, board meetings have a detrimental impact. In inventory management, committees and meetings lengthen the conversion time, while board size, independence, and audit committee shorten it. Overall, larger boards, active committees, and independent directors enhance working capital efficiency.
27	(Goel et al., 2015)	India	**Sample size -** 127 firms **Period –**2004-2013 **Methodology:** Comparative fit index (CFI), Standardized Rootmean Square Residual (SRMR), and Root mean square of error approximation (RMSEA),	**CG Attributes:** number of independent directors in board, Board size, percentage of independent members, and CEO duality, **WCM Metrics** Net trade cycle (NTC)and **:** Cash conversion cycle (CCC) for measuring WCM efficiency **Control variable -** Firm size, and firm age	Efficiency has decreased as a result of the management's inability to take on excessive risk, as well as the independent directors and audit committee members. The effectiveness of working capital management, however, was shown to be favourably impacted by board size.
28	(A. Gill et al., 2014)	USA	**Sample size -**189 manufacturing firms listed on NYSE; **Period –**2009–2013 **Methodology:** - Correlational non-experimental design - Panel regression with WLS - Robustness checks included	**CG Attributes:** Board size (with & without independent directors),Independent directors, CEO tenure, Audit committee size**,** and CEO duality, **WCM Metrics:** Inventory Holding Period, Accounts Receivable Period, Cash Conversion Cycle (CCC), Accounts Payable Period, **Control Variables:** Firm size (log of avg. assets), Sales growth, Firm performance (net income/revenue)	Independent directors significantly shorten inventory holding period and CCC. CCC negatively associated with board size including independent directors. CCC positively associated with CEO tenure. Recommends inclusion of independent directors to enhance WCM efficiency and financial health
29	(Gill & Biger, 2013)	Ameri ca	**Sample Size-** 180 American manufacturing firms listed on the New York Stock Exchange (NYSE) **Period-**2009-2011 **Methodology:** Bivariate correlation, regression analysis	**CG Attributes:** CEO duality CEO tenure, Audit committee Board size **WCM Metrics:** Inventory Accounts payables Accounts receivables Cash conversion efficiency Cash holdings Current ratio Cash conversion cycle **Control variables** Firm performance	CEO duality and internationalization enhance accounts receivable efficiency, while internationalization also improves inventory management. A larger firm size, internationalization, and the dual role of the CEO all contribute to the efficacy of accounts payable. Internationalization has a favourable impact on the cash conversion cycle. Cash management efficiency is improved by CEO tenure, firm size, and financial performance, which also positively affect

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				Sales growth Internationalization of the firm Firm size	current ratio efficiency—though board size shows no effect. Better management of cash conversion efficiency is also influenced by excellent financial performance and CEO duality.
30	(Achchuthan & Kajananthan, 2013)	Srilanka	**Sample size** -25 listed manufacturing firms in Colombo Stock Exchange **Period**-2007-2011 **Methodology:** Independent sample one – way Anova (f-test) and Independent sample t-test	**CG Attributes:** Board composition (Proportionate of non-executive directors in the board),Board Leadership structure, Board meeting, and Board committees **WCM Metrics:** Accounts receivable period, Cash conversion cycle, current ratio, Accounts inventory period, and Accounts Payable period,	According to the study, corporate governance practices including board meetings, board committees, and the proportion of non-executive directors have no discernible impact on the effectiveness of working capital management (accounts payable, inventory, and cash conversion cycle). However, a significant difference exists in the current ratio based on board leadership structure. Combined leadership follows a conservative approach, while separate leadership aligns better with the standard ratio. Overall, corporate governance practices in Sri Lanka warrant further review and improvement.

Table-3: Country-Wise Distribution of Literatures Reviewed

Country	**No. of Studies**	**Authors (Examples)**
India	8	Jena & Mishra (2025), Gulzar&Haque (2023), Farhan et al. (2022), Narwal& Jindal (2017a, b), Prasad et al. (2019), Goel et al. (2015), Mishra & Mukherjee (2018)
Pakistan	7	Jamal et al. (2024), Kamran et al. (2022), Naz et al. (2022), Ahmad et al. (2018), Khan et al. (2016), Ali & Shah (2017), Chaudhry & Ahmad (2015)
USA	3	Burney et al. (2021), A. Gill et al. (2014), Gill &Biger (2013)
Sri Lanka	2	Kengatharan&Tissera (2019), Achchuthan&Kajananthan (2013)
China	1	Hu et al. (2024)
Malaysia	1	Rahim et al. (2024)
Vietnam	1	Thanh &Khuong (2024)
Europe (Germany & Norway)	1	Ahmed et al. (2023)
Canada	1	LIN & LIN (2023)
Kenya	1	Tanui et al. (2021)
Palestine	1	Daqar& Abu Daqar (2020)
Nigeria & Ghana	1	Coleman et al. (2020)
Botswana	1	C. R. et al. (2018)
Iran	1	Sadegh (2016)
Total	30	

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Figure-1: Country-Wise Distribution of Literatures Reviewed

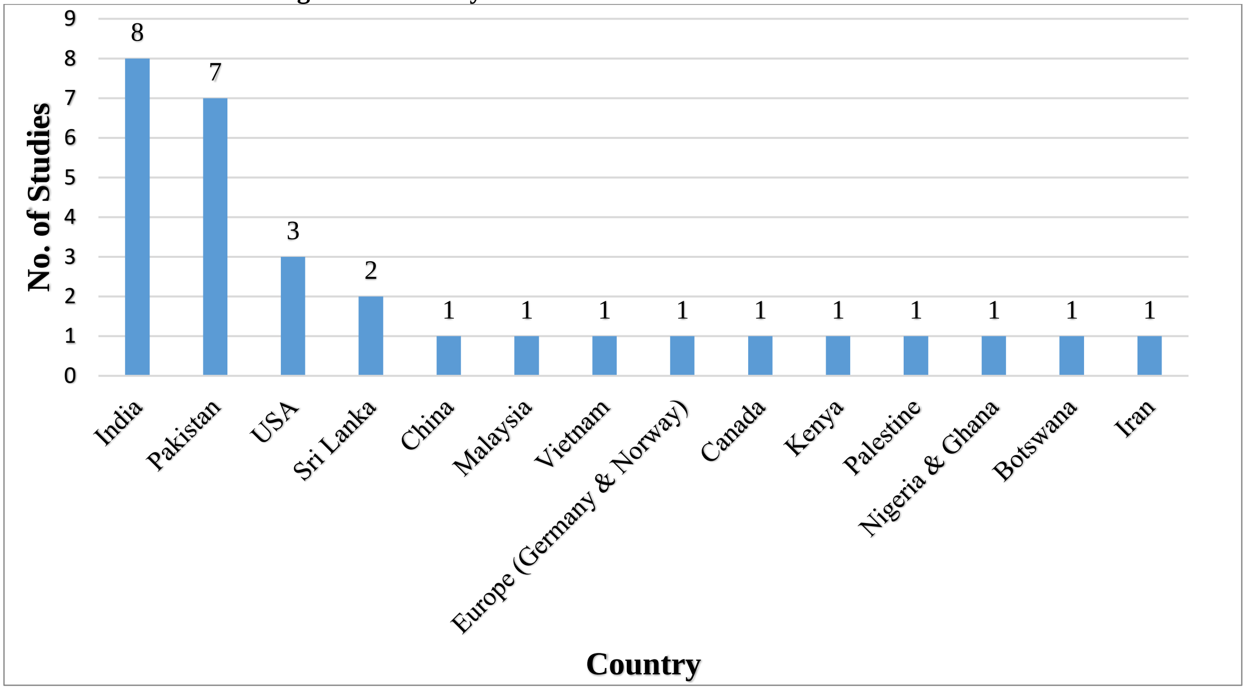

Table-4: Most Common Methodologies Used

Methodology	Frequency
OLS / Panel Regression	14
Correlation & Regression Analysis	9
Descriptive Statistics	5
Fixed Effects / Random Effects Models	6
GLS / GMM / System GMM	4
Sobel Test / ANOVA / t-Test	3
Propensity Score Matching (PSM) / IV	2

Table-5: Frequently studied Corporate Governance Variables

CG Variable	No. of Studies Mentioned
Board Size	21
CEO Duality	16
Audit Committee/Meetings	14
Board Independence	13
CEO Tenure	10
Board Meetings	9
Gender Diversity	4
Director Remuneration	3
Ownership Concentration	3
Board Committees	4

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Table-6: Most common working Capital Management (WCM) Metrics Used

WCM Metric	No. of Studies Mentioned
Cash Conversion Cycle (CCC)	18
Current Ratio / Quick Ratio	14
Inventory, Receivables, Payables Days	11
Cash Holdings	7
Cash Conversion Efficiency (CCE)	6
Net Operating Working Capital / NTC	4

4. DISCUSSION

This systematic review aimed to investigate how various corporate governance (CG) mechanisms affect the efficiency of working capital management (WCM) within manufacturing firms, with a particular emphasis on the Indian context. The findings from the reviewed literature reveal a range of perspectives, reflecting both consistent trends and divergent outcomes across different countries and governance variables.

A key observation across the studies is the influence of board-related attributes on WCM practices. Board size, independence, and meeting frequency frequently appear as critical variables. While some studies argue that larger boards contribute positively by offering diverse skills and broader oversight (Farhan et al., 2022; Prasad et al., 2019), others caution that excessively large boards may hinder decision-making and reduce responsiveness in working capital decisions (Goel et al., 2015). Independent directors are commonly associated with improved monitoring and reduced agency conflicts, especially in emerging markets like India and Pakistan (Gill et al., 2014; Chaudhry & Ahmad, 2015). Frequent board meetings are often positively linked to more effective control over receivables, inventory, and payables, reinforcing the value of active governance engagement in short-term financial management (Narwal& Jindal, 2017a).

Another important area explored in the literature involves CEO characteristics such as age, tenure, gender, and education. These personal and professional traits are increasingly seen as influential in shaping a firm's financial strategy. Younger, professionally qualified, and non-dual-role CEOs are generally associated with more aggressive and efficient WCM strategies (Burney et al., 2021; Hu et al., 2024), while older or long-tenured CEOs may adopt more conservative approaches. The issue of CEO duality—where the same person serves as both CEO and board chair—produces mixed findings, with some studies highlighting weakened oversight (Ali & Shah, 2017) and others suggesting quicker decision-making benefits (Naz et al., 2022).

Ownership structure also plays a vital role in WCM efficiency. Family-owned firms and those with concentrated ownership often display better control over internal cash flows, which may enhance liquidity management (Sarpong-Danquah et al., 2022). However, such concentration can sometimes reduce external scrutiny, resulting in suboptimal working capital decisions (Gulzar&Haque, 2023). These findings underscore the context-dependent nature of ownership influence, particularly in the manufacturing sectors of developing economies.

Geographically, the studies included in this review show a concentration in India and Pakistan, accounting for more than half the total studies examined (Ahmad et al., 2018; Mishra & Mukherjee, 2018). The remaining studies span a variety of countries, including the United States, Sri Lanka, China, Vietnam, Malaysia, Iran, and some African and European nations (Ahmed et al., 2023; C.R. et al., 2018; LIN & LIN, 2023). This distribution highlights a regional skew and suggests that while South Asian economies are the focal point of research in this area, other emerging and frontier markets remain underrepresented. A visual summary presented earlier in this study illustrated this imbalance through a country-wise chart, emphasizing the need for broader cross-country investigations.

nother notable trend is the theoretical framing of the CG–WCM relationship. While agency theory underpins most of the reviewed studies (Naz et al., 2022; Younas, 2022), recent contributions are increasingly incorporating stewardship theory, resource dependence theory, and institutional theory to explain more nuanced governance effects (Coleman et al., 2020; Mohan Singh, 2021). The diverse methodological approaches—ranging from panel data analysis to regression models and structural equation modeling—also contribute to variations in findings (Goel et al., 2015; Thanh &Khuong, 2024).

Despite the differences, a general consensus emerges that sound corporate governance enhances working capital efficiency, though the strength and direction of the relationship depend on several firm-level and contextual variables. In the Indian manufacturing context in particular, board activeness, CEO education, and governance committee effectiveness are recurrent themes tied to better working capital outcomes (Jena & Mishra, 2025; Narwal& Jindal, 2017a). These findings are especially relevant given the sector's capital-intensive nature and the operational challenges it faces.

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This discussion integrates the insights gained from the empirical literature and highlights their implications for theory, practice, and future research.

5. PRACTICAL IMPLICATIONS

The findings of this review offer valuable and actionable insights for key stakeholders—particularly corporate boards, shareholders, investors, and policymakers—on the crucial role of corporate governance in ensuring effective working capital management (WCM) within manufacturing firms. The research emphasizes that specific governance mechanisms, such as board independence, active audit committees, and separation of leadership roles, have a direct and measurable impact on WCM efficiency. These insights can guide shareholders in electing more qualified and autonomous board members, thereby enhancing financial oversight and minimizing managerial opportunism. Importantly, the study highlights that appointing competent financial managers alone is insufficient without a robust governance framework to monitor managerial decisions and safeguard shareholder value. For executives and directors, the results underscore the need to prioritize internal controls over liquidity, receivables, payables, and inventory as part of strategic decision-making. Furthermore, regulatory bodies in emerging economies should advocate for mandatory governance disclosures and standardized benchmarking to improve transparency and align governance structures with financial efficiency. By linking corporate governance to improved WCM, this review equips stakeholders with the knowledge to strengthen financial discipline, promote sustainable business performance, and mitigate the risks of operational inefficiencies and business failure through informed governance reforms.

6. LIMITATIONS AND FUTURE RESEARCH AGENDA

Although this systematic review contributes significantly to understanding the interplay between corporate governance (CG) and working capital management (WCM) in manufacturing firms, several limitations present opportunities for further exploration. The review is bounded by a publication window from 2013 to 2025, potentially excluding earlier influential studies that could offer foundational insights. It primarily emphasizes peer-reviewed and empirical literature, omitting grey literature and industry reports that might provide practical or sector-specific perspectives. Additionally, the dominance of quantitative methodologies across the reviewed studies limits the richness of contextual understanding that qualitative approaches—such as interviews, case studies, and boardroom ethnographies—could offer. The focus on India and other emerging economies, while valuable, restricts the generalizability of findings to mature markets with more established governance infrastructures. Moreover, inconsistencies in governance and WCM measurement frameworks across studies complicate cross-comparative synthesis and highlight the need for methodological standardization.

Looking ahead, future research should delve deeper into how the CG–WCM relationship varies across sectors, firm sizes, and geographic regions. Governance attributes such as CEO duality, board independence, and board size have shown critical influence, but their effects may differ depending on industry dynamics and institutional maturity. Researchers are encouraged to explore how macroeconomic conditions, regulatory regimes, and cultural dimensions mediate these relationships. Employing longitudinal designs and advanced econometric techniques would enhance causal inference and temporal validity. Additionally, incorporating environmental, social, and governance (ESG) considerations into CG–WCM models would offer a more holistic view, especially in the context of sustainable financial practices. Comparative studies between developed and developing economies could yield important insights for policymakers, helping tailor governance reforms that strengthen financial discipline, enhance liquidity efficiency, and promote accountability. Ultimately, such research can inform more resilient governance frameworks aligned with both performance goals and long-term sustainability in the global manufacturing sector.

7. CONCLUSIONS

In Indian manufacturing companies, this systematic analysis underscores the intricate relationship between corporate governance (CG) characteristics and "working capital management (WCM)" practices. The findings reveal that board size does not significantly impact business efficiency, aligning with certain studies but contrasting with others, reflecting the contextual nature of governance impacts. Board independence, however, consistently shows a strong negative relationship with earnings management, reinforcing its role in enhancing financial transparency. The review emphasizes the increasing focus of manufacturing firms on managerial strategies and operational control to improve performance. Effective WCM—through efficient handling of inventory, receivables, cash, and payables—plays a vital role in sustaining operations, boosting profitability, and maintaining business continuity. By encouraging better WCM choices, the research emphasises how strong governance practices—like board independence, regular meetings, and CEO-chair separation—have a favourable impact on business performance. This connection between financial management and governance lowers the risk of company failure while simultaneously improving operational results. The results serve as a valuable resource for managers, investors, policymakers, and financial consultants, highlighting the importance of integrated CG-WCM policies. In the competitive manufacturing sector, improved governance often results in more effective WCM, which in turn improves "business growth, financial stability, and long-term success".

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