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Article

# Does Working Capital Management Policies Affect Firm's Performances? An Insight from Indian Cement Companies

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**Abstract:** Numerous studies have been conducted in past so as to understand whether the working capital management policies of an organisation affect its performance or not. Some studies have found a positive relationship between WCM and firm performance. However, other studies have found a negative impact of WCM on firm performance. Present research work is an endeavour in this direction to find out the working capital management policies and strategies of Indian cement companies and their performances. The study employs a quantitative approach to examine whether the Indian cement companies optimally use their working capital, which is analysed by establishing the relationship between the working capital management and profitability using 11-year (2010-2021) financial data of 31 cement companies listed in Bombay Stock Exchange (BSE). The findings of the random-effects model say that only ITP is significantly negatively related to the ROA of the cement companies at a 0.01 level of significance. Similarly, APP also negatively yet poorly predicts ROA at a 0.10 level of significance the firm's profitability is not significantly affected by ARP and CCC. Also, it has been observed that the liquidity measures CR and QR have a significant positive association with ROA. Further, the size of the industries and leverage are inversely related to ROA but the age of the firm is not significantly predicting their financial performance.

**Keywords:** working capital management; profitability; Indian cement industry; Bombay stock exchange; panel data

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## 1. Introduction

The primary aim of working capital management is to prevent either overinvesting or underinvesting in the current assets of a company since both have negative effects. Due to the cost of financing, excess investment in current assets may result in lower profitability due to unproductive use of funds. Working capital management is regarded as one of the most critical tasks for finance managers, as a significant portion of the money is tied up in current assets in actual practice. Working capital management can lead to business catastrophe if not done effectively. Working Capital Management is essential for any organization whether it is manufacturing, service, or retail for maintaining good financial health since it ensures a balance between the company's liquidity and profitability (Azam, 2016). Managing working capital requires maintaining liquidity on a daily basis in business operations to ensure that regular financial commitments are met. Financial Managers face complex challenges in ensuring that the company operates in a well-organized manner by maintaining desired profit as well. The disparity in current assets and current liabilities has a negative impact on a company's growth and competitive advantage especially in the case of industries where many big players exist in the market. Therefore, the importance of WCM in corporate finance cannot be underestimated due to its potential impact on the liquidity and profitability of the company (Prempeh and Peprah-Amankonah, 2019; Aktas et al., 2018).

Due to poor working capital management, a company may require more financial resources to carry out the same level of regular business operations compared to its competitors, resulting in adverse financial concerns. It has been observed that many organisations divert their long-term

capital to meet the working capital needs, thus impacting their financial performance. Furthermore, owing to a liquidity shortage, a company may forego potential investment opportunities or be unable to fully pay its investors. As a result, it may be claimed that if a company is successful in handling its working capital, it can ensure a better financial performance. Interestingly, managers usually strive for greater efficiency which comes at the cost of increased liquidity risk. Higher liquidity risk results in increased cost of short-term financing and increased operational risks such as stock-outs reduced consumer stimulation, etc. Thus, apart from the financial aspects, operational attributes like; the nature of the business, and its size affect the management of working capital.

Filbeck and Krueger (2005) examined the WCM in a variety of businesses and discovered that it is not homogeneous across industries. WCM in a company is influenced by factors including technology, operating cycle, and competitiveness. The industry or kind of business has a considerable impact on the degree of WC investment (Hawawini et al., 1986). As a result, in addition to analysing the link between WCM and firm performance, we also looked at how the kind of company influences the direction or magnitude of the relationship.

Working capital is typically managed in three ways: conservative, aggressive, and moderate. A conservative strategy is one in which a company prefers to employ long-term sources of money for its operations and only uses short-term sources in extreme situations. The aggressive strategy, on the other hand, usually involves fewer current assets – such as cash, inventory, and accounts receivable in comparison to its total assets which leads to the emergence of a liquidity crunch (Van Horne and Wachowicz, 2004). A moderate working capital strategy straddles a balance between aggressive and conservative strategies where the fluctuating current assets are financed using short-term funds whereas the fixed part of the working capital is financed using long-term capital.

## 2. Theoretical Background and Research Problem

Working capital management (WCM) is a set of crucial financial decisions made by a finance manager to facilitate a company to manage its operational requirements and satisfy short-term financial commitments as and when they emerge (Ukaegbu, 2014). If working capital is not handled properly, a company's ability to operate as a continuing concern is compromised. Inadequate working capital has been recognised by Lazaridis and Tryfonidis (2006) as one of the major factors of business failure. WCM is an essential area that may be enhanced via managerial efficiency (Prasad et al., 2019a, 2019b). Poor managerial efficiency in managing operational working capital essentially leads to an increased level of funds tied up with working capital which could be otherwise productive. Working capital, according to Appuhami (2008), is a hidden treasure that should be freed up in order to effectively manage cash flows relating to inventories and receivables. After reviewing many studies conducted on working capital management of Indian industries and a lot of interactions and deliberations with many finance managers managing working capital on a day-to-day basis, the researcher found that working capital management is one of the least used concepts for practical managerial decision-making. When we tried to find out these working capital issues in Indian industries, it was observed that the problem is more acute in the Cement industry as, except a few, many small-sized companies are struggling with working capital problems. It was the basic reason that motivated the researcher to conduct a study on the Indian cement industry. The preliminary studies showed that many of the firms had inappropriate working capital management policies. This resulted in several problems, both internal and external that this research study uses as the main research background. Internally: (a) the firms hold inappropriate levels of working capital – resulting in uncontrolled costs of holding the working capital items or deficient working capital levels. (b) The firms inappropriately manage their purchases and sales activities and have a defective credit policy. Externally, the firms lack proper policies and practices of cooperation with their suppliers and customers. To sum up, it was evident that the problems that the Indian cement industry is facing with respect to working capital management may create one or more of the following challenges:

1. It is difficult for an organization to operate its day-to-day activities without sufficient working capital.

2. The company may have to give up many market opportunities such as cash discounts and bulk lower prices on products, because of lack of availability of ready working capital.
3. There are chances that the company could lose out on its creditworthiness, as it will be unable to pay off its obligations when they are matured.
4. Chances are that the company may lose excellent investment and expansion opportunities due to insufficient working capital.
5. Organizations often struggle to focus on improving working capital because other priorities are competing for attention and each stakeholder is likely to have a different perspective on how to enhance working capital and their priorities.

Based on the above backdrop, there are three major research problems in the Indian cement industry. First of it is a fast-growing industry and a lot of small players are there who are not listed on the stock exchange creating intense competition. In such a situation, efficient management of working capital, and the adoption of effective working capital policy become more important to maintain profitability and market share. Secondly, the trend or practices of working capital policy in the small- and large-scale cement industries in the Bombay Stock Exchange were not clear because of the lack of research on this particular issue. Thus, it is high time to identify whether an aggressive or conservative working capital policy is suitable for small-size cement industries. Thirdly, working capital management ratios, cash conversion cycle, etc. have been studied by many researchers while establishing a relationship between working capital management and profitability. However, in the case of the cement industries, the use of the determinants of working capital management is discrete by not providing any concrete outcome for the role of each proxy variable of working capital management in influencing firms' performance.

### **3. Importance of the Study**

The importance of working capital management policies cannot be denied. When Padachi (2006) observed that the development of an effective working capital policy can ensure an increase in firms' value, several researchers turned their focus to investigating the nexus between working capital and profitability. Although several textbooks, such as Ross et al. (2009), indicate that a reduction in working capital enhances profitability, however, some observations confirm a positive relationship. Efficient Working capital leads to increased economic value added (Havoutis, 2003), better profitability with minimal capital (Hall, 2002), and higher after-tax return on capital employed (Siefert & Siefert, 2008). Similarly, working capital management, according to Muhammad et al. (2016), is one of the most important determinants of a firm's profitability. As such, several studies indicated the relationship between the components of working capital and profitability, some studies argued in favour of a positive relationship and some highlighted the adverse impacts. These two contrasting viewpoints show that the link between working capital and profitability is more complicated than most textbooks suggest. The same may be said for the determinants of working capital. Thus, it's critical to throw more light on these issues. Working capital management is a crucial part of the overall operational strategy of maximising the value of shareholders. The composition and amount of current assets, as well as the current liabilities, are all important in maximising shareholder value (Nwankwo and Osho, 2010). Furthermore, according to Alshubiri (2011), businesses that efficiently manage their working capital are more likely to respond promptly to unanticipated economic changes. This necessitates regular monitoring of inventories, accounts receivable, and payable in a business. Therefore, it is essential to examine the working capital management practices in the Indian cement industries limited extensive research in this particular sector. The prime objective of this paper is to study whether an optimum and efficient utilisation of working capital has a positive impact on the financial performance of the cement companies listed on the Bombay Stock Exchange. The study also used firm size, age, leverage and location of the firm as control variables.

### **4. Literature Review and Hypothesis Development**

Earlier studies on this aspect have looked at the relevance of working capital from a range of various viewpoints. For example, some studies have looked into the influence of optimum inventory

management while others have looked into the best approach to manage accounts receivable in order to maximise profits. Many studies were conducted on the relationship between working capital management and the financial performance of manufacturing industries in different countries. Research on the impact of working capital management on firms' profitability in the Indian context is very limited and hardly any study has extensively been carried out to analyse the importance of optimum utilization of working capital and its impact on a firm's profitability particularly with respect to Indian cement companies. If we look at the findings of earlier studies in this area, there are conflicting outcomes concerning the relationship between CR and QR where Pandey and Sabamaithiy (2016) indicated a positive association whereas, Rehman and Anjum (2013) found a negative relation with ROA. Again, the other variables like APP, ARP, ITP and CCC are insignificant in predicting ROA. As such, the majority of studies are claiming an insignificant impact of CCC on profitability, yet some studies have also observed a negative relationship. The data collected from the previous studies on this area by various researchers are presented in the form of a Table 1 as given below which provides a concise view of the prior studies exclusively dealing with the relationship between the determinants of working capital and financial profitability in the cement industries. Considering all these variables and their impact and relationship with profitability, the following set of hypotheses have been developed for our study purpose:

1. There is no significant relationship between ITP and ROA.
2. There is no significant relationship between ARP and ROA.
3. There is no significant relationship between APP and ROA.
4. There is no significant relationship between CCC and ROA.
5. There is no significant relationship between CR and ROA.

**Table 1.** Summary of Prior studies on the Relationship between Working Capital and Profitability in the Cement industry.

Author	Country	No of Companies	Financial year	CR	QR	ARP	APP	ITP	CCC	DV
Almazari (2014)	Saudi Arab	8	2008-2012					+		ROA
Angahar and Alematu (2014)	Nigeria	4	2002-2009	-			-	-	+	ROA
Dhar (2018), Hoque et al. (2015)	Bangladesh	7	2007-2015	-	+	-	-	-		GPR, NPR, ROA
Kawakibi & Hadiwidjojo (2019)	Indonesia	6	2010-2012	-						
Nwude et al. (2020)	Nigeria	3	2012-2017	-	-	-	+			ROA
Pandey and Sabamaithiy (2016)	India	24	2007-2018	+	+					ROI
Panigrahy, (2020)	India	30	2003-2013	-	-	-	-	-		ROA
Quayyum, (2011)	Bangladesh	6	2006-2015	+	-	-	-	-		NPR, ROA
Rehman and Anjum (2013)	India	10	2005-2009	+	+	+	-	-		
Sarwat et al. (2017)	Pakistan	18	2003-2008	-	-	-	+			ROA
			2007-2011	+						ROA

Shahzad et al., (2015)	Pakistan	7	2007-2013	+	-		ROA
Wanguu and Kipkirui (2015)	Kenya	3	2000-2014		-	+	ROA
Yasir et al., (2014)	Pakistan	16	2007-2012		-	-	ROA

Source: Author's preparation.

## 5. Materials and Methods

The study adopted an exploratory method with a deductive approach which tries to establish a nexus between working capital management and profitability of the selected firms and also presents a comparative analysis of the selected companies. Therefore, we used different quantitative methods like descriptive statistics, correlation, and regression to analyse the data collected as financial ratios.

### *Data and Sample*

The target population for this research is made up of all the Bombay Stock Exchange (BSE) listed cement manufacturing companies located in the Indian sub-continent. The sample cement companies were selected based on a few criteria. First of all, it has been ensured that the selected company should be a legal entity, filing their annual return to the register of companies, Govt. of India and should be listed in BSE. It has since been confirmed that the selected company should have 11 years of financial data starting from 2010 to 2020. Those companies not having the last 11 years of data were purposefully excluded from the sample. Thus, the sampling technique adopted in this research is purposive sampling. As the population is limited and countable, the study tried to include as many industries as possible provided they are satisfying the selection criteria. The final sample contains 31 cement companies with 11 years of financial data resulting in 341 Company-year panel data.

### *Variables and Estimation*

The selection and measurement of the dependent and independent variables were done according to some prior studies on this particular subject (Deloof, 2003; Lazaridis & Tryfonidis, 2006; Sawarni 2020). While investigating the nexus between the determinants of working capital and profitability, some industry-specific parameters were used as control variables such as firms' size, age, leverage and location that can influence the relationship. The firm's size and age were taken as the natural logarithm of the real values in the analysis (Samiloglu and Demirgunes, 2008). Variables used in the study and the methods of estimations have been provided in Table 2. The majority of the prior studies used ROA as the measure of profitability, however, some researchers also used NP, GP, ROE, ROCE and Tobin Q. In this particular study, we have used only ROA as the measure of profitability.

**Table 2.** List of Variables and Estimation Formulae.

Variables	Definition	Estimation
<i>Dependent Variables</i>		
ROA	Return on Asset	EBIT/Average Assets
<i>Independent Variables</i>		
ITP	Inventory Turnover Period	(Inventory/COGS) x 365 Days
ARP	Accounts Receivables Period	(Accounts Receivable/Sales) x 365 Days
APP	Accounts Payable Period	(Accounts Payable/Purchases) x 365 Days
CCC	Cash Conversion Cycle	ITP+ ARP-APP
CR	Current Ratio or WCR	Current Asset/Current Liability
QR	Quick Ratio	Liquid Asset/Current Liability

Control Variables														
LCS	Firms Size													Log (Total Assets)
LCA	Firms Age													Log (Age in Years)
LEV	Leverage													Total Financial Debt/ Total Assets
LOC	Location of the firm													1=East, 2= North, 3=West, 4=South

Source: Authors own creation.

## 6. Results and Discussion

### Correlation Coefficients

Pearson correlation coefficient among the test variables has been estimated and presented in Table 3. The correlation coefficient provides important information regarding the relationship between the dependent and independent variables. ROA was found to be significantly negatively related to ITP, ARP and APP, however, CCC is not significantly related to ROA. Similarly, leverage is also negatively related to ROA. On the other hand, CR, QR, LCS, LCA and LOC are significantly positively related to ROA. Besides, multicollinearity issues have been observed between the measures of working capital like CCC and ACP with a high correlation coefficient of 0.736. Hence, it was imperative to conduct the Hausman's test and the results of correlated random effects of Hausman's test are significant for all the random-effect models indicating the appropriateness of the random-effect model for interpretation.

**Table 3.** Correlation Matrix of the variables under study and Multicollinearity identification.

ROA	ROE	ITP	ACP	APP	CCC	CR	QR	CAR	CLR	WTR	SG	LCS	LCA	LEV
<b>ROA</b> 1														
<b>ROE</b> 0.554** 1														
<b>ITP</b> -0.248** -0.168** 1														
<b>ACP</b> -0.153** -0.099 0.027 1														
<b>APP</b> -0.183** 0.024 0.052 0.352** 1														
<b>CCC</b> -0.141** -0.178** 0.423** <b>0.736**</b> -.232** 1														
<b>CR</b> 0.205** 0.072 0.078 0.289** -0.098 .359** 1														
<b>QR</b> 0.281** 0.093 0.434** -0.138* -.147** .143** .633** 1														
<b>CAR</b> 0.167** 0.102 -0.029 0.374** .163** .240** .601** .262** 1														
<b>CLR</b> -0.269** -0.038 0.088 0.007 .363** -.166** -.421** -.364** .195** 1														
<b>WTR</b> 0.058 0.014 -0.012 -0.022 -0.019 -0.014 0.013 0.032 0.019 -0.012 1														
<b>SG</b> 0.111* 0.145** -0.131* -0.085 .248** -.279** -0.058 -0.036 0.020 0.051 0.013 1														
<b>LCS</b> 0.093 0.012 -0.101 -0.337** -.203** -.239** -.162** -0.003 -.434** -.354** 0.064 -0.072 1														
<b>LCA</b> 0.062 0.007 0.064 -0.146** -0.054 -0.077 -0.094 .128* -.207** -.186** 0.075 -0.099 .448** 1														
<b>LEV</b> -0.204** -0.075 -0.001 -0.071 -0.077 -0.021 -.235** -.218** -.443** -.199** -0.047 0.089 .157** 0.018 1														

\*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

### Random Regression Model

The regression models given in Table 4 explain the relationship between working capital management and financial performance ROA of all the selected industries using random and fixed-effect models. The value of the regression coefficient ( $\beta$ ) for ITP, ARP and APP is -0.0004, -0.0004 and -0.0001 are statistically significant as per the random-effects model. Contrarily, CR is significantly positively predicting the ROA of the selected industries.

**Table 4.** Random Effects Regression Model .

Variable	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t
C	0.0001	0.0025	-0.0150	-0.3700	-0.0170	-0.3480	-0.0040	-0.0710
ITP		-0.0004 (-4.7348)**						
ARP			-0.0004 (-5.0064)**					
APP				-0.0001 (-3.4174)**				
CCC						2.53E-05	1.4134	
CR	0.0195	(3.0441)**	0.0419	(5.8525)**	0.0259	(3.9548)**	0.0263	(3.9510)**
QR	0.0308	(2.9433)**	-0.0082	-0.7396	0.0125	1.1826	0.0158	1.4778
LCS	0.0077	1.1430	0.0056	0.8664	0.0076	0.9989	0.0051	0.6552
LCA	-0.0101	-0.4205	-0.0053	-0.2328	-0.0077	-0.2826	-0.0192	-0.6880
LEV	-0.1232	(-5.2709)**	-0.1233	(-5.2844)**	-0.1238	(-5.1493)**	-0.1195	(-4.9397)**
LOC	0.0172	(3.4839)**	0.0169	(3.6408)**	0.0180	(3.2336)**	0.0183	(3.1688)**
R <sup>2</sup>	0.1926		0.1974		0.1776		0.1626	
Adj. R <sup>2</sup>	0.1803		0.1852		0.1650		0.1498	
F-statistic	15.6789		16.1634		14.1877		12.7558	
Prob(F-statistic)	0.0000		0.0000		0.0000		0.0000	
Durbin-Watson stat	1.3585		1.3712		1.3540		1.3543	
Correlated Random Effects - Hausman Test								
Chi-Sq. Statistic	71.4360		65.1916		58.7544		61.6432	
Chi-Sq. d.f.	6.0000		6.0000		6.0000		6.0000	
Prob.	0.0000		0.0000		0.0000		0.0000	

**Note(s):** Dependent Variable: ROA, Total panel (balanced) observations: 341; \*\*. significant at 0.01, \*. significant at 0.05, #. Significant at 0.10.

The random-effects model says that only ITP is significantly negatively related to ROA of the cement and allied industries at a 0.01 level of significance thus rejecting the null hypothesis **H1**. Similarly, APP also negatively yet poorly predicting ROA at 0.10 level of significance which rejects the hypothesis **H3**. Alternatively, we fail to reject the hypotheses **H2**, and **H4** as the firm's profitability is not significantly affected by ARP and CCC. Also, it has been observed that the liquidity measures CR and QR have a significant positive association with ROA by rejecting hypothesis **H5**. Further, the size of the industries and leverage are inversely related to ROA but the age of the firm is not significantly predicting their financial performance.

The observations claim that ITP and APP negatively predict ROA confirming many prior studies (e.g. Yasir et al., 2014; Nwude et al., 2020; Panigrahy, 2020). ITP in days is the time taken to convert raw materials into finished goods and an increase in ITP adversely affects the ROA of the selected industries. Similar observations for the cement industry have also been reported by a few prior studies (Angahar and Alematu 2014; Yasir et al., 2014). In the Indian context, Dhar (2018) and Panigrahy, (2020) have also reported similar observations by negating the findings of Almazari (2014), Kawakibi & Hadiwidjojo (2019) and Wanguu and Kipkirui (2015) that claimed a positive association between ITP and profitability. Similarly, APP is time a company takes to make payment for its credit purchases. However, delayed payment is beneficial at times but excessive delay in payment evinces the inability to pay its trade creditors and questions its credibility. Here, the negative relationship between APP and ROA indicates poor management of payables which adversely affects profitability. Many prior studies on cement industries also claimed a positive relationship between APP and profitability (Quayyum, 2011; Rehman and Anjum 2013; Dhar 2018) but in the Indian context, the present study observed that excess in APP reduces profitability reinforcing few prior studies conducted on cement industries (Wanguu and Kipkirui 2015; Kawakibi & Hadiwidjojo 2019; Nwude et al., 2020). Furthermore, the present study supports the findings of Shahzad et al., (2015), Sarwat et al., (2017), and Pandey and Sabamaithiy (2016), where CCC and ARP are observed to be insignificant in predicting ROA which is confronting many earlier studies claiming a negative relationship (Dhar 2018; Yasir et al., 2014).

Several researchers observed that the Liquidity position measured using the current ratio, is positively related to profitability and the present study is also in agreement with the earlier studies (Shahzad et al., 2015; Pandey and Sabamaithiy 2016; Sarwat et al., 2017). CR also termed the working capital ratio needs to be kept at an optimum level to ensure higher profitability which also applies to the Indian cement industries. The leverage coefficients (LEV) are negatively related to ROA therefore, it can be suggested that the cement industries need to keep their leverage at a minimum level in order to improve profitability. The location of the industries classified as per the east, west, north and south regions was found to be significantly affecting the profitability in the random-effects model. This means if we assume the appropriateness of the random-effects model, firms located in the areas where a larger number of cement industries are located (Southern and Western India) are generating more profit in spite of higher competition compared to those firms located in the eastern and northern regions where very few cement industries are found. This observation may be due to the availability of raw materials in the southern and western regions which reduces the cost of production by lowering transportation and other related costs.

## 7. Findings and Implications of the Study

Finally, the results of the research on working capital management and its impact on the financial performance of the BSE-listed cement companies reveal three important findings. First of all, working capital management, especially inventory management, and cash conversion cycle, negatively affects profitability whereas quick ratio and current ratio have a favourable impact on ROA. As such, the working capital turnover ratio was also found to be insignificant in explaining the financial performance of the selected companies. Moreover, the accounts collection period and accounts payable period exhibit a negative relationship with ROA but are not significant. Thus, instead of concentrating more on receivables and payables, cement companies should concentrate on reducing their inventory turnover period and cash conversion cycle on a priority basis. The outcomes of this study of the Indian cement manufacturing sector have been able to substantiate the existing theories and literature on the impact of working capital management on financial performance. These research findings highlight the importance of the inventory turnover period, cash conversion cycle theory, pecking order theory, and agency theory in evaluating the link between WCM and firm performance. The research also built a foundation for future research, allowing academicians to comprehend the connection between working capital management practices and financial performance. To some extent, the findings of the research help governments in their development strategies for enhancing the performance of this particular sector by infusing more liquidity and more infrastructural projects. Since the development of this particular industry is linked with infrastructure development and economic development, effective and favourable investment and developmental strategies need to be framed based on the dependency of profitability on WCM. Further, the data show that effective and efficient WCM especially, the inventory turnover period needs to be looked after for better financial results. Quicker inventory turnover will in turn reduce the cash conversion cycle, which in turn improves liquidity position and financial profitability.

This particular research is based on samples from the Indian cement manufacturing sector. Since business operations and management styles differ greatly across companies, firms as well and countries, the present study provides ample scope for extended research on firms in different economies after taking into account the degree of similarity among these businesses and the sample companies. Further studies might be conducted by categorizing businesses into different group-based company-specific characteristics and examining how these variables impact the relationship between WCM and firm performance. Further, working capital policies are influenced by internal management and control, competition, and technological advancements. Therefore, future studies may investigate the link between WCM and company performance by assessing market competitiveness, internal management control, and the degree of adoption of relevant technologies in the firm in consideration.

## 8. Conclusions

The study is intended to analyze working capital management practices in the Indian cement industry. In this process, the research analyzed various ratios pertaining to the working capital policy and practices in the selected companies and their impact on the performance to provide useful suggestions to improve the components of working capital for better performance. Its significance includes providing empirically-based guidance to businesses, especially cement industries, to improve their financial performance, including increased profitability only through adopting suitable working capital management strategies, relating to the maintenance of optimal levels of inventories, cash, and receivables.

The study's findings will assist the management of the selected industry by providing better insight into how they may successfully manage their working capital to improve their financial performance. The findings will also contribute to the existing body of knowledge by validating different theories of working capital management for the cement industry. The findings of this study may be beneficial to financial managers and investors in the Indian stock markets while making investment decisions. The study's findings will also aid policymakers and regulators in enacting new working capital management rules and regulations in the industrial sector. The study will also assist the investing community, including security analysts, investment managers, stockbrokers, and other institutional and retail investors, whose understanding of the link between working capital management and financial success is critical for investment analysis.

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**Conflicts of Interest:** The authors declare no conflict of interest.

## List of Selected Indian Cement Companies

Company code	Company Name	Establishment Year	State	Sector	Type
1. ACC	ACC Ltd.	1936	Maharashtra	Cement	Major
2. AMBUJA	Ambuja Cements	1981	Gujarat	Cement	Major
3. APCL	Anjani Portland Cement Ltd.	1983	Maharashtra	Cement	Mini
4. BIRLA	BIRLA CORPORATION LTD.	1910	West Bengal	Cement	Major
5. BURNPUR	Burnpur Cement	1986	West Bengal	Cement	Major
6. BVCL	Barak Valley Cement Ltd.	1999	Assam	Cement	Major
7. DECCANE	Deccan Cements	1979	Telengana	Cement	Mini
8. GSCLCEMENT	Gujarat Sidhee Cement Ltd.	1973	Gujarat	Cement	Major
9. HEIDELBERG	Heidelberg Cement	1954	Haryana	Cement	Major
10. INDIACEM	India Cements	1946	Tamil Nadu	Cement	Major
11. JKCEMEN	J. K. Cement	1975	Uttar Pradesh	Cement	Major
12. JKLAKSHMI	JK Lakshmi Cement	1938	Rajasthan	Cement	Major
13. KAKATCEM	Kakatiya Cement	1979	Andhra Pradesh	Cement	Mini
14. KCP	KCP Ltd.	1941	Tamil Nadu	Cement	Major
15. KEERTHI	Keerthi Ind	1982	Andhra Pradesh	Cement	Mini
16. KUL	Katwa Udyog Ltd	1993	Karnataka	Cement	Mini
17. MANGLAMCEM	Mangalam Cement	1976	Rajasthan	Cement	Major
18. NCLIND	NCL Industries	1980	Telengana	cement	Mini
19. NIRAJ	Niraj Cement	1972	Maharashtra	Cement	Mini
20. PRSMJOHNSN	Prism Johnson Ltd	1992	Telengana	cement	Major
21. RAININD	Rain Industries Ltd.	1974	Telengana	Cement	Mini
22. RAMCO	Ramco Cements	1961	Tamil Nadu	cement	Major
23. SAGAR	Sagar Cement	1981	Telengana	cement	Mini
24. SAINIK	Sainik Finance & Industries Ltd	1991	New Delhi	Cement	Mini
25. SAURASHCEM	Saurashtra Cement	1956	Gujarat	Cement	Major
26. SCANPRO	Scan Projects Ltd	1992	Haryana	Cement	Mini
27. SHIVACEM	Shiva Cement	1985	Orissa	Cement	Mini
28. SHREDIGCEM	Shree Digvijay	1944	Gujarat	Cement	Major
29. SHREECEM	Shree Cements	1979	Rajasthan	Cement	Major
30. STARCEM	Star Cement	2001	Meghalaya	Cement	Major
31. ULTRATEC	UltraTechCement	1983	Maharashtra	Cement	Major

Source: Moneycontrol.com and BSE, India.

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