Impact of Working Capital Management on the Financial Performance of Select Listed Sectoral Indices: An Evidence from India

By Dr. Khurshid Ali & Numaira Showkat

Higher Colleges of Technology

Abstract- This paper is an attempt to investigate whether working capital management influences the financial performance of the sample companies or not. In order to achieve this objective, the researchers have taken into consideration seven sectorial indices and each sectorial index is represented by ten companies. The research is based on a reference period of fifteen years ranging from 2006 to 2020. The researchers have taken Return on Capital Employed (ROCE) and Return on Net Worth (RONW) as proxy to financial performance. After the thorough analysis, the overall findings put forth by the study confirm that working capital management has statistically significant impact on the financial performance of the sample companies. The findings presented by the study affirm that Average Receivable Period (ARP) and Average Payable Period (APP) positively impact the financial performance of the sample firms statistically in a significant manner. However, on the other hand, the results also affirm that Inventory Conversion Period (ICP) and Cash Conversion Cycle (CCC) negatively impact the financial performance of the sample firms statistically in a significant manner.

IMPACTOFWORKINGCAPITALMANAGEMENTONTHEFINANCIALPERFORMANCEOFSELECTLISTEDSECTORALINDICESANEVIDENCEFROMINDIA

Strictly as per the compliance and regulations of:

Impact of Working Capital Management on the Financial Performance of Select Listed Sectoral Indices: An Evidence from India

Dr. Khurshid Ali [α] & Numaira Showkat [σ]

Abstract- This paper is an attempt to investigate whether working capital management influences the financial performance of the sample companies or not. In order to achieve this objective, the researchers have taken into consideration seven sectorial indices and each sectorial index is represented by ten companies. The research is based on a reference period of fifteen years ranging from 2006 to 2020. The researchers have taken Return on Capital Employed (ROCE) and Return on Net Worth (RONW) as proxy to financial performance. After the thorough analysis, the overall findings put forth by the study confirm that working capital management has statistically significant impact on the financial performance of the sample companies. The findings presented by the study affirm that Average Receivable Period (ARP) and Average Payable Period (APP) positively impact the financial performance of the sample firms statistically in a significant manner. However, on the other hand, the results also affirm that Inventory Conversion Period (ICP) and Cash Conversion Cycle (CCC) negatively impact the financial performance of the sample firms statistically in a significant manner. These findings collaborate with the results of many major studies which are discussed in the empirical review of literature.

Keywords: working capital, financial performance, sectoral indices, ROCE, RONW, ARP.

I. Introduction

The success of a firm in the present cut throat competitive corporate world depends upon how well management ensures efficiency and effectiveness in each and every area of business operation. In this regard, management of working capital has assumed a pivotal role which in part determines the success of a business firm, besides, it has been seen that inadequacy or mismanagement of working capital is the leading cause of business failures in the long run. Proper working capital management ensures adequate liquidity, solvency, profitability, besides, aids in the attainment of shareholders wealth maximisation objective. According to (Bierman and Smidt, 1988; Paulo, 1992) Working capital management is closely connected to a business's success as it is significantly associated with every form of inventory, moreover, the goal of working capital management is to guarantee the effective and efficient employment of resources. As per (Brigham and Houston, 2007) the goal of Working capital management is to ensure that the firm is able to continue its operations and it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses. Numaira et. al. (2020)every business entity not only strives for the continuity of existing customers but also makes efforts to attract potential customers which demands availability of optimal inventory so that orders can be met as and when received. Thus, in the existing competitive environment, better inventory management has become key to the success of every business entity throughout the globe. Therefore, significance of inventory management cannot be overlooked as it is the key to the operational efficiency of every firm.

There are various factors like nature of business, production policy, credit policy, inventory policy, market conditions, conditions of supply, business cycle, size of the firm, age of the firm, taxation policy, dividend policy, operating efficiency, price level changes, depreciation policy and availability of raw material that affect working capital requirements. Hence, firms are to be quite proactive while taking decisions regarding working capital requirements as it has a major effect on a company's balance sheet. It entails striking the appropriate combination between accounts receivables, accounts payables and inventories. (Nazir and Afza, 2007) Working capital management happens to be significant for firms and its essentiality is more seen in case of manufacturing concerns due to its direct influence on their performance. As per Deloof (2003), Working capital management is an effective way of handling current assets and current liabilities that assures optimal shareholder wealth and it demands adequate amount of liquidity to guarantee that short-term maturing commitments are met as and when they mature.

Firms with an effective working capital management strategy experience optimal levels of liquidity which results into adequate profits in the long run. There are various theories to the management of working capital which include the agency/stakeholder theory, risk and return theory, the operation and cash

Author α: Assistant Professor, Business Division, Higher Colleges of Technology, Abu Dhabi, United Arab Emirates.
e-mail: kganai@hct.ac.ae
Author σ: Research Scholar, Department of Management Studies, University of Kashmir, Srinagar, India. e-mail: qazinumaira@gmail.com

conversion theory and the operating cycle theory. In order to get profitability and attain liquidity at maximum, it is compulsory to track the silent goals of working capital management. For a long time, there has been a debate on which theory should be followed to efficiently manage working capital. Some academicians advocated for prescriptive (normative) approaches while as others advocated positive (descriptive) approaches to working capital management. It is the proper application of these theories which ensures how well the firm can achieve its primary goals. Therefore, firms should take each and every factor into consideration which directly or indirectly influences the working capital requirements while framing an effective working capital management strategy.

II. Relationship between Working Capital Efficiency and Financial Performance

Working capital management do have a significant impact on both profitability and liquidity of firms (Shin and Soenen, 1998). Regarding liquidity, working capital management seeks to ensure that the investment in working capital components should be neither too little nor too much. The former could give rise to illiquidity, stock outs, and lost sales, whereas, the latter amounts to underutilization of financial resources and higher costs, therefore, management of working capital requires careful planning so that both the excess and the scarcity of working capital in relation to the operational requirement of an undertaking can be avoided. Better practices related to Working capital management improve money flows in the firm, thereby, makes the firm less reliant on external funds resulting in reduced possibility of default. A major element in working capital management efficiency is cash conversion cycle. If there is larger time period of conversion cycle, there will be higher amount invested in working capital, therefore, higher amount of funds will be required which will result in higher Interest expenses, higher default risk and reduced profitability. Efficient working capital management allows firms to redeploy underutilized corporate resources to higher-valued use, such as the funding of cash acquisitions. Firms that converge to the optimal level, either by increasing or decreasing their investment in working capital, improve their stock and operating performance over the subsequent period. The conclusion of this discussion puts forth that working capital efficiency and financial performance are closely related to each other.

III. Empirical Review of Literature

A comprehensive review of empirical literature has been undertaken so as to develop a better understanding of the working capital management and its impact on the financial performance of firms. As Turner et al., (2012) rightly said that review of literature is the foundation for useful research. Thus, in this paper, the researchers have reviewed various studies that have helped in illuminating the various aspects of Working Capital Management i.e. inventory, receivables, payables and cash. These research pieces would not only help in grasping the idea as to what extend the knowledge of the subject is being implemented globally but would also help us to bring up the different areas of Working capital management and analyze various concepts. Allwood (2012) rightly asserted that an extensive examination of the literature enables researchers to develop appropriate research questions and strategies. Hence, a detailed review is undertaken on working capital, its components, financial performance, measures of financial performance and the allied areas so as to develop a proper understanding of the subject area.

a) Inventory Management

The management of inventory has a significant bearing on the performance of every firm. There should neither be excess or short inventory as both are having negative impact on the financial performance of the firm. Kilonzo et.al (2016), undertook a study on inventory management and financial performance and the results confirmed that there is a positive and significant relationship between inventory management and financial performance of firms funded by government venture capital in Kenya. Roumaintsev and Netessine (2005) studied in their paper the relationship between inventory management policies and financial performance of a firm and they could not find any significant evidence that could confirm statistically significant association between the variables under study. Onikoyi et.al. (2017) undertook an investigation, regarding cement sector and the results affirmed that there is a positive relationship between inventory management and organizational growth and profitability. That is, profitability of cement firms increases when effective inventory management is carried out, as inventory consists of major current assets of the cement sector. Agus and Noor (2006) examined the relationship between inventory management practices and financial performance. The study measured manager's perceptions of inventory and supply chain management practices and the level of performance in the industry. The findings suggest that inventory management practices have significant correlations with profitability and return on sales. Koumanakos (2008) studied the effect of inventory management on firm performance. The researcher took 135 manufacturing firms operating in three industrial sectors (food, textiles and chemicals) in Greece with a reference period from 2000 – 2002. The findings suggest that the higher the level of inventories preserved by a firm, the lower the rate of return. Vipulesh Shardeo (2015) investigated the effect of inventory

management on the financial performance and the findings put forth by the study affirmed that there exists a positive relationship between inventory management and financial performance of the sample companies. Khurshid and Numaira (2022) undertook a study to assess the impact of inventory management on the financial performance of sample companies and the findings affirmed that Inventory Turnover Ratio does not have any statistically significant impact on the operating profits of the sample companies, thereby, accepting the null hypothesis which states that there exists statistically no significant impact of inventory management on the financial performance of sample companies.

b) Cash Management

Cash Management is one of the most important components of working capital management. It was Gitman (1974) who introduced the concept of Cash Cycle and later Richards and Laughlin (1980) developed the Cash Conversion Cycle into a comprehensive model. A dynamic measure of working capital is Cash Conversion Cycle which establishes the time to convert a dollar of cash outflow back into a dollar of cash inflow. The Cash Conversion Cycle shows the relationships among Working Capital Management, Working Capital Policy, and firm profitability. Odoand Udodi (2022) investigated the Influence of Cash Management on Financial Performance of select firms and the analyses showed that there is a strong negative influence of cash and cash equivalent on return on assets. Soet et.al. (2018) examined the effect of operating cash flow management on financial performance of mutual funds in Kenya. The study found out that operating cash flow management has had a significant and positive effect on return on assets and insignificant and positive effect on return on equity. Thevaruban (2016) in his study confirmed that Cash ratio and financial performance do have statistically significant negative relationship with each other. Thus, management needs to ensure an adequate cash management control. Dhruba (2019) examined the impact of cash management on financial performance and the Study found that Cash management has an insignificant but positive effect on profitability. It clarifies that conversion cycle, cash flow and inventory management positively effect the profitability but the effect is nominal. Nuzulia et. al. (2021) investigated the impact of cash management practices towards financial performance and the analysis shows a significant relationship between cash management practices and return on assets but a non-significant relationship between cash management practices and Gross Profit Margin. Thangjam Ravichandra (2015) undertook a research to examine the link between free cash flow and profitability of firms. The findings of the research demonstrated that earnings and free cash flows are positively related. The analysis indicates, however, that the gains do not ensure

unfettered cash flow to companies. Hafiza Faiza Muhammad (2015) made a study to assess the effects of the capital structure on a corporation's profitability. The research focuses on the automotive sector and includes five businesses. The researchers used the examination of numerous ratios to fulfil the aims of the study and the results of the research show that the capital structure has statistically significant consequences on the profitability of companies.

c) Receivable Management

One of the significant components of working capital is account receivable which is a direct result of credit sales. If the receivables are managed effectively, monitored efficiently, planned properly and reviewed periodically by the management, it can not only enable the firm to better its financial performance but it can also enhance its inventory turnover. Deloof, M. (2003) made a study and found a significant negative relation between gross operating income and the number of days accounts receivables, inventories and accounts payables of sample firms. The findings of the study suggested that managers can create value for their shareholders by reducing the number of days of accounts receivables and inventories to a reasonable minimum. Francis and Charles (2018) studied the impact of Receivable management and the study concluded that there is a strong positive and statistically significant correlation between cash conversion period and financial performance of sample firms. George et.al. (2021) examined the effect of receivable management on the financial performance of sample entity and the findings puts forth affirmed that the accounts receivable management had an inverse correlation with the financial performance. This negative correlation meant that an increase in the Average Collection Period of chartered public universities in Kenya resulted in a decline in the financial performance of these institutions. Munene and Tibbs (2018) investigated whether receivable management effects financial performance or not. The study found that the average collection period and current ratio have a significant positive effect on equities, indicating that a positive change in the debtor's payment period resulted in the company's improved financial performance. Adam and Caroline (2018) studied the relationship between accounts receivable management and financial performance of Small Medium Enterprises in Mogadishu, Somalia. The study revealed an underlying positive effect of accounts receivable on SMEs' financial performance in Mogadishu.

d) Payable Management

The amount of money that a recipient of goods promises to pay to the supplier is referred to as accounts payable. It is one of the major sources of unsecured short-term external finance for a firm, therefore, researchers all over the world has undertaken

numerous studied to investigate the impact of accounts payable on financial performance of firms. Duru and Okpe (2016) examined the impact of accounts payable management on financial performance and the results arising after analysis confirmed that the relationship between accounts payable ratio and profitability is statistically positive and significant. The study also revealed that both Debt ratio and Sales growth rate had positive and significant effect on profitability of the Companies under study. Rotich and Achode (2016) studied the relationship between accounts payable and financial performance of sample firms. After the thorough analysis, the results showed positive relationship between accounts payable and financial performance of sample firms. Hence, recommended that firms should established a long-term relationship with suppliers in order to access trade credit in a more easy and fast way which will reflect in their financial performance. Nwakaego and Ikechukwu (2016) undertook a study to find out the effect of management of accounts payable on the financial performance of industrial and domestic manufacturing companies in Nigeria. The results put forth by the study confirmed a positive and significant effect of proper accounts payable management on profitability ratio. Mutai and Kimani (2019), investigated accounts payable manage-ment policies and its effect on liquidity. The findings revealed statistically significant positive relationship between Accounts Payables Management practices and liquidity. Moodley et.al. (2014) undertook a study on accounts payable and its impact of return to investors. The findings clearly indicate that firms with low levels of accounts payable underperform. It is possible that this could be a result of companies taking advantage of settlement discounts and reducing payable days with the resulting negative impact on long-term return as a consequence of lower cash resources to otherwise invest. Elias and Nwankwo (2018) examined the impact of average payments period on the return on assets and the results indicated that average payments period has a significant negative impact on profitability. Based on the findings, the study recommends that Nigerian insurance companies should endeavour to reduce their number of days accounts payables optimally and concentrate on reducing the high variability in the average payables period to enhance their corporate profits.

e) Working Capital Management and Firm Performance

As per the research finding, there exists statistically significant correlation between working capital management and firm performance. (Nyamao, et al., 2012) observed in their study that the financial performance is positively related to efficiency of cash management, receivables management, inventory management and Payable management. The study further puts forth that working capital management practices have an influence on the financial performance of Small-Scale Enterprises. Konak and Guner (2016) confirmed in their study that effective management of working capital, such as decrease in short term debt turnover days positively affect the performance of firms. Le, et al. (2018) undertook a study and affirmed that Working Capital Management positively impacts the financial performance of firms. The cash conversion cycle has a significant positive relationship with firm performance as cash conversion cycle had statistically significant relationships with two out of three firm performance measurements. Niresh (2012) working capital management is a crucial element in determining the financial performance of a firm, particularly, manufacturing firms. Therefore, such firms should manage their working capital efficiently to achieve optimal profitability which can be achieved by improving the inventory control process, collecting receivables in line with the agreed credit terms and by delaying payments to suppliers. All these will lead to shorten the cash conversion cycle resulting to an increase in profitability. Charitou, et.al. (2010) undertook an empirical investigation that shows the effect of working capital management on firm's financial performance in an emerging market. The results indicate that the cash conversion cycle and all its major components; namely, days in inventory, days sales outstanding and creditors' payment period are associated with the firm's profitability. Waithaka (2010) in order to revamp the companies and to improve profitability the focus on the area of efficient working capital management is impeccable. The efficiency in working capital manage-ment practices as measured by efficiency in cash management, efficiency in receivables management and efficiency in inventory management has an influence on the growth rate of businesses sales, market share, profits and total assets and consequently plays a huge role in the financial performance of a company.

Objectives

The study's broader objective is to investigate the impact of working capital efficiency on the financial performance of the sample industries in Indian context. More specifically, the study aims at achieving the following set of objectives:

1. To assess the impact of Average Revenue Period (ARP) on the financial Performance of the sample Industries.

2. To assess the impact of Average Payable Period (APP) on the financial Performance of the sample Industries.

3. To assess the impact of Inventory Conversion Period (ICP) on the financial Performance of the sample Industries.

Hypotheses

The following set of hypotheses have been developed to meet the specified goals of the study.

Provide the Investigation a Correct Direction:

H1: Account Receivable does not have statistically any significant impact on the financial performance of sample industries.

H2: Accounts Payable does not have statistically any significant impact on the financial performance of sample industries.

H3: Inventory Conversion period does not have statistically any significant impact on the financial performance of sample industries.

H4: Cash Conversion cycle does not have statistically any significant impact on the financial performance of sample industries.

IV. Data Base and Research Methodology

In order to achieve the objectives of the study, the researchers have drawn the sample of the study from seven sectoral indices, namely, Automobile, Pharmaceutical, Fast Moving Consumer Goods, Consumer Durables, Metal, Oil and Gas and Real Estate. Each sample industry is represented by 10 companies and the weight age of these ten companies in each sectorial index is around 80 per cent to 85 per cent which stands as a fair representative of each sectorial index.

The study has used panel data set of 70 Indian listed companies which represent seven different sectors. The researchers have taken a reference period of 15 years ranging from 2006 to 2020 which is reasonable enough to provide dependable results. The data has been collected through Capitaline Electronic database, which is a digital database for giving financial information of listed as well as other companies.

V. Variable Specifications

The first group of variables undertaken in the study are concerned with the efficiency of working capital which is represented by cash conversion cycle (CCC), accounts receivable period (ARP), accounts payable period (APP) and inventory conversion period (ICP) to quantify working capital efficiency.

The Profitability variables make up the second set of variables. Several measures of profitability have been employed in previous empirical research on working capital management; for example, Vishnani and Shah (2007), Bhunia and Das (2015), joshi Lalit Kumar (2017)took Return on Capital Employed (ROCE) as a proxy for assessing firms' financial performance, while Niresh (2012) used Return on Equity (ROE) as a representative variable for measuring firms' financial performance. Riyaz Ahmad (2012) has used RONW as a variable to study profitability. In this study, the researchers have employed Return on Capital Employed (ROCE) and Return on Net Worth (RONW) to determine the financial performance of sample firms.

VI. Baseline Specifications and Estimation Approach

a) Baseline Specifications

It must be noted that all the specifications used in this study have been largely borrowed from some previous studies, namely, Altaf and Shah (2017), Banos et. al. (2012), Bhatia and Srivastava (2016), Singhania et.al. (2014) among others. These studies helped in the identification of appropriate controls to be used along with the main variables.

b) Baseline Specifications for Investigating the Impact of Working Capital Efficiency on Financial Performance

The following are the baseline specifications for testing the relationship between working capital efficiency and financial performance:

Variable ARP:

$$\text{ROCE}_{i,t} = \beta_0 + \beta_1 \text{ARP}_{i,t} + \beta_2 \text{Growth}_{i,t} + \beta_3 \text{Size}_{i,t} + \beta_4 \text{CR}_{i,t} + \beta_5 \text{CF}_{i,t} + \beta_6 \text{LEV}_{i,t} + \beta_7 \text{AGE}_{i,t} + \epsilon_{i,t} \qquad (1)$$

$$\text{RONW}_{i,t} = \beta_0 + \beta_1 \text{ARP}_{i,t} + \beta_2 \text{Growth}_{i,t} + \beta_3 \text{Size}_{i,t} + \beta_4 \text{CR}_{i,t} + \beta_5 \text{CF}_{i,t} + \beta_6 \text{LEV}_{i,t} + \beta_7 \text{AGE}_{i,t} + \epsilon_{i,t} \qquad (2)$$

Variable APP:

$$\text{ROCE}_{i,t} = \beta_0 + \beta_1 \text{APP}_{i,t} + \beta_2 \text{Growth}_{i,t} + \beta_3 \text{Size}_{i,t} + \beta_4 \text{CR}_{i,t} + \beta_5 \text{CF}_{i,t} + \beta_6 \text{LEV}_{i,t} + \beta_7 \text{AGE}_{i,t} + \epsilon_{i,t} \qquad (3)$$

$$\text{RONW}_{i,t} = \beta_0 + \beta_1 \text{APP}_{i,t} + \beta_2 \text{Growth}_{i,t} + \beta_3 \text{Size}_{i,t} + \beta_4 \text{CR}_{i,t} + \beta_5 \text{CF}_{i,t} + \beta_6 \text{LEV}_{i,t} + \beta_7 \text{AGE}_{i,t} + \epsilon_{i,t} \qquad (4)$$

Variable ICP:

$$ROCE_{i,t} = \beta_0 + \beta_1 ICP_{i,t} + \beta_2 Growth_{i,t} + \beta_3 Size_{i,t} + \beta_4 CR_{i,t} + \beta_5 CF_{i,t} + \beta_6 LEV_{i,t} + \beta_7 AGE_{i,t} + \epsilon_{i,t} \quad (5)$$

$$RONW_{i,t} = \beta_0 + \beta_1 ICP_{i,t} + \beta_2 Growth_{i,t} + \beta_3 Size_{i,t} + \beta_4 CR_{i,t} + \beta_5 CF_{i,t} + \beta_6 LEV_{i,t} + \beta_7 AGE_{i,t} + \epsilon_{i,t} \quad (6)$$

Variable CCC:

$$ROCE_{i,t} = \beta_0 + \beta_1 CCC_{i,t} + \beta_2 Growth_{i,t} + \beta_3 Size_{i,t} + \beta_4 CR_{i,t} + \beta_5 CF_{i,t} + \beta_6 LEV_{i,t} + \beta_7 AGE_{i,t} + \epsilon_{i,t} \quad (7)$$

$$RONW_{i,t} = \beta_0 + \beta_1 CCC_{i,t} + \beta_2 Growth_{i,t} + \beta_3 Size_{i,t} + \beta_4 CR_{i,t} + \beta_5 CF_{i,t} + \beta_6 LEV_{i,t} + \beta_7 AGE_{i,t} + \epsilon_{i,t} \quad (8)$$

VII. Estimation Approach

The econometric panel data methodology has been employed to estimate the relationships defined by the models presented above. The following are the specifics of such an estimate:

a) Efficiency of Panel Data

Because of the benefits it provides, panel data approach was used to estimate the models mentioned above. First, panel data is based on the assumption that individuals are heterogeneous, which aids in controlling for unobservable heterogeneity (Hsiao, 2003; Klevmarken, 1989; Moulton, 1986, 1987). Time-series and cross-section studies, in particular, do not account for individual variation and hence run the danger of producing skewed results (Moulton, 1986, 1987).

Second, panel data gives more information, increases variability, improves efficiency, and minimises collinearity between variables (Hsiao, 2003). Third, panel data can be used to investigate the dynamics of adjustment. According to Baltagi (2008) cross-sectional distributions appear steady but conceal a great number of shifts. Finally, it makes it easier to model technological efficiency by allowing complex models to be built (Koop and Steel, 2001).

b) Account Receivable Efficiency and Financial Performance

The table 1.1 presents the results of the relationship between Accounts Receivable management and firm profitability on full-sample.

Table 1.1: **Impact of ARP on Financial Performance**

Variables	Dependent Variable: ROCE		Dependent Variable: RONW	
(1)	(2)	(3)	(4)	(5)
ARP	.02584[***] (2.34)	1.15	.01213[***] (2.52)	1.15
GROWTH	.13873[**] (2.22)	1.01	.127009[***] (2.65)	1.01
SIZE	5.6796[**] (2.30)	1.25	6.0756[**] (2.00)	1.25
CR	-.80726[***] (-2.85)	1.14	-.99163[***] (-3.02)	1.14
CF	7.80685[***] (4.68)	1.46	9.102[***] (3.43)	1.46
LEV	-6.4077[*] (-1.92)	1.29	-8.0797[**] (-2.15)	1.29
AGE	-.69440[**] (-2.03)	1.12	-.17192[*] (-1.81)	1.12
IM Test	471.49[***]		581.76[***]	
Wooldridge test	11.394[***]		13.165[***]	
Adj R^2	0.51		0.52	
F-test	10.09*		10.08*	
Hausman	21.17*		27.04*	
B–P LM test	5171.10*		5213.74*	
Year FE	Yes		Yes	
Firm FE	Yes		Yes	
Cluster SE	Yes		Yes	
Notes: This table reports empirical results of Eqs. (1) and (2). Asterisks indicate significance at 1% (***) 5% (**) and 10% (*). T-Statistics are based on robust standard errors.				

In the table 1.1 Column (2) presents the results with Return on Capital Employed (ROCE) as dependent variable while as Columns (4) of the table takes Return on Net Worth (RONW) as the dependent variable. Further, in both Columns (2) and (4) the results presented include Average Revenue Period (ARP) as independent variable along with the other control variables. It must be noted that columns (3) and (5) of the table report the variance inflation factors (VIFs) of the models with ROCE and RONW as dependent variables respectively. The Adjusted R^2 for both models is estimated to be around 50% based on the results reported in table. Furthermore, the F-test and Breusch-Pagan Lagrange Multiplier (B-P LM) test statistics in columns (2) and (4) of the table are significant, indicating that both the FE and RE models give superior estimates than the OLS model. We use the traditional Hausman test to determine the best fit model among FE and RE, knowing that alternative panel data models will yield better results than OLS. The test statistics of the Hausman test in both column (2) and (4) are significant, showing that the FE model is best suited to capture the results of the link between ARP and financial performance, as shown in table. Besides, both the IM and Wooldridge tests have significant test statistics at the 1% level of significance, demonstrating presence of heteroscedasticity and autocorrelation in both columns. In addition, the VIFs in the table are not greater than 10, indicating that multicollinearity is not an issue. The model's primary flaw is the occurrence of heteroscedasticity and autocorrelation, both of which have been addressed by producing cluster-robust standard errors, as recommended by Petersen (2009).

Thus, the findings of the table 1.1 puts forth that the coefficient on ARP is positive and statistically significant at 1% level of significance with both metrics of business profitability (ROCE and RONW). Therefore, alternative hypothesis is supported by these findings. These findings suggest that if companies increase their daily receivables or give their consumers more time to pay, their profitability may improve. Several researchers have found a similar link between ARP and corporate profitability (Altaf and Shah, 2018; Bhunia and Das, 2015; Chaklader and Shrivastava, 2013).

These findings are consistent with the developing market economic phenomena, which is characterised by a strong knowledge asymmetry between buyer and seller, as well as limited financial development leaving enterprises reliant on trade credit from their suppliers. Furthermore, the observed link supports the concept that extending trade credit to customers minimises information asymmetry between the buyer and seller because the extended receivable period allows customers to assess the product's quality before paying. This viewpoint is consistent with the quality guarantee theory and trade-credit financing theory, which state that suppliers who offer trade credit have more control over their clients since they can cut off supplies if they do not pay on time. This increased control over clients minimises the amount of bad debt and so boosts the company's profitability. Furthermore, granting trade credit can be utilised as a promotional technique, avoiding price competition. This viewpoint is consistent with the product differentiation theory, which states that investing in receivables tends to develop a group of loyal customers who provide future advantages in the form of increased profitability due to guaranteed future sales. Moreover, according to market power theory, trade credit can be used as a push marketing tactic because it encourages customers to work toward the promotion of the product. This, in turn, tends to improve sales while simultaneously lowering promotional costs and increasing company profitability.

Table 1.2: Impact of APP on Financial Performance

Variables	Dependent Variable: ROCE		Dependent Variable: RONW	
(1)	(2)	(3)	(4)	(5)
APP	.01454** (2.21)	1.06	.02179*** (3.00)	1.06
GROWTH	.13753* (1.81)	1.01	.07085*** (2.56)	1.01
SIZE	5.394** (2.18)	1.24	6.1837** (2.03)	1.24
CR	-.89635*** (-3.15)	1.11	-1.115*** (-3.39)	1.11
CF	7.8848*** (4.67)	1.44	9.043*** (3.34)	1.44
LEV	-6.723** (-2.00)	1.28	-7.112* (-1.87)	1.28
AGE	-.61584* (-1.79)	1.13	-.2497* (-1.72)	1.13
IM Test	462.43***		577.57***	
Wooldridge test	11.491***		13.316***	

Adj R^2	0.48		0.47	
F-test	11.12*		12.18*	
Hausman	31.07*		32.93*	
B–P LM test	4211.09*		4231.47*	
Year FE	Yes		Yes	
Firm FE	Yes		Yes	
Cluster SE	Yes		Yes	
Notes: This table reports empirical results of Eqs. (3) and (4). Asterisks indicate significance at 1% (***) 5% (**) and 10% (*). T-Statistics are based on robust standard errors.				

In the table 1.2 Columns (2) presents the results of Eq (3)that takes ROCE as dependent variable while as Columns (4) of the table presents results of Eq (4) that takes RONW as the dependent variable. Further, both Columns (2) and (4) include APP as independent variable along with the other control variables. It must be noted that columns (3) and (5) of the table report the variance inflation factors (VIFs) of the models with ROCE and RONW as dependent variables respectively.

The Adjusted R2 for both models is estimated to be around 48% based on the results reported in table. Moreover, the F-test and Breusch-Pagan Lagrange Multiplier (B-P LM) test statistics in columns (2) and (4) of the table are significant, indicating that both the FE and RE models give superior estimates than the OLS model. We use the traditional Hausman test to determine the best fit model among FE and RE, knowing that alternative panel data models will yield better results than OLS. The test statistics of the Hausman test in both column (2) and (4) are significant, showing that the FE model is best suited to capture the results of the link between APP and firm profitability. The results confirm that there exists a positive relationship between APP and firm performance which implies that deferring payments to suppliers increases the financial performance of sample firms as it aids a firm in lowering transaction costs, overcoming financial limits and enhances financial performance.

Table 1.3: Impact of ICP on Financial Performance

Variables	Dependent Variable: ROCE		Dependent Variable: RONW	
(1)	(2)	(3)	(4)	(5)
ITR	-.422*** (-9.44)	1.04	-.3309*** (-6.41)	1.04
GROWTH	0.137** (1.99)	1.01	0.055** (1.95)	1.01
SIZE	3.414*** (2.48)	1.23	1.945*** (2.67)	1.23
CR	-0.762*** (-2.87)	1.10	-1.079*** (-3.43)	1.10
CF	6.917*** (2.56)	1.42	8.255*** (3.47)	1.42
LEV	-4.851* (-1.75)	1.28	-1.133*** (-3.09)	1.28
AGE	-1.001*** (-3.11)	1.14	-0.2985** (-2.16)	1.14
IM Test	532.49***		601.25***	
Wooldridge test	17.013***		21.190***	
Adj R^2	0.52		0.49	
F-test	11.09*		11.17*	
Hausman	30.13*		30.90*	
B–P LM test	4643.67*		4686.57*	
Year FE	Yes		Yes	
Firm FE	Yes		Yes	
Cluster SE	Yes		Yes	
Notes: This table reports empirical results of Eqs. (5) and (6). Asterisks indicate significance at 1% (***) 5% (**) and 10% (*). T-Statistics are based on robust standard errors.				

The result of Eq (5) and (6) are presented in table 1.3 where Columns (2) present the results of equation with ROCE as dependent variable while as Columns (4) of the table present the results of equation RONW as the dependent variable. Further, in both Columns (2) and (4) the results presented include ICP as independent variable along with the other control variables. It must be noted that columns (3) and (5) of the table report the variance inflation factors (VIFs) of the models with ROCE and RONW as dependent variables respectively.

The Adjusted R2 for both models is estimated to be around 50% based on the results reported in table. besides, the F-test and Breusch-Pagan Lagrange Multiplier (B-P LM)test statistics in columns (2) and (4) of the table are significant, indicating that both the FE and RE models give superior estimates than the OLS model. We use the traditional Hausman test to determine the best fit model among FE and RE, knowing that alternative panel data models will yield better results than OLS.

The test statistics of the Hausman test in both column (2) and (4) are significant, showing that the FE model is best suited to capture the results of the link between ICP and financial performance, as shown in table. In addition, both the IM and Wooldridge tests have significant test statistics at the 1% level of significance, demonstrating heteroscedasticity and autocorrelation in both columns. Furthermore, the VIFs in the table are not greater than 10, indicating that multicollinearity is not an issue. The model's primary flaw is the occurrence of heteroscedasticity and auto-correlation, both of which have been addressed by producing cluster-robust standard errors, as recommended by Petersen (2009).

The findings in the table 1.3 confirm that there is a negative association between ICP and financial performance, thereby, supporting the idea that due to imperfect market circumstances and the lack of a precise way to forecast demand, it is necessary for Indian enterprises to keep some inventory. The negative association between ICP and business profitability also suggests that the companies in the sample have more inventory than they require. Because of the transitive, preventive, and speculative incentives, these companies may be retaining higher inventories. However, the tested enterprises benefit lesser than the cost of maintaining inventories which is in alignment to Bullwhip effect. Hence, the findings affirm the acceptance of alternative hypothesis.

Table 1.4: Impact of CCC on Financial Performance

Variables	Dependent Variable: ROCE		Dependent Variable: RONW	
(1)	(2)	(3)	(4)	(5)
CCC	-.01031*** (-2.77)	1.06	-.01319** (-2.03)	1.06
GROWTH	.15195*** (2.33)	1.01	.0904585*** (2.71)	1.01
SIZE	5.455772*** (2.20)	1.22	5.914103* (1.94)	1.22
CR	-.8736135*** (-3.06)	1.10	-1.096541*** (-3.33)	1.10
CF	8.0435*** (4.81)	1.40	9.47666*** (3.62)	1.40
LEV	-6.7037** (-2.00)	1.28	-7.9349** (-2.01)	1.28
AGE	-.64613* (-1.88)	1.17	-.21422* (-1.68)	1.17
IM Test	464.05***		568.03***	
Wooldridge test	11.573***		13.414***	
Adj R^2	0.54		0.53	
F-test	13.41*		13.37*	
Hausman	30.01*		30.09*	
B–P LM test	4257.12*		4231.24*	
Year FE	Yes		Yes	
Firm FE	Yes		Yes	
Cluster SE	Yes		Yes	
Notes: This table reports empirical results of Eqs. (7) and (8). Asterisks indicate significance at 1% (***) 5% (**) and 10% (*). T-Statistics are based on robust standard errors.				

Lastly, the results of Eq (7) and (8) has been presented in table 1.4, specifically Columns (2) of the table present results of equation with ROCE as dependent variable while as Columns (4) of the table results of equation with RONW as the dependent variable. Further, in both Columns (2) and (4) the results presented include Cash Conversion Cycle (CCC) independent variable along with the other control variables. It must be noted that columns (3) and (5) of the table report the variance inflation factors (VIFs) of the models with ROCE and RONW as dependent variables respectively.

The Adjusted R2 for both models is estimated to be around 53% based on the results reported in table. besides, the F-test and Breusch-Pagan Lagrange Multiplier (B-P LM)test statistics in columns (2) and (4) of the table are significant, indicating that both the FE and RE models give superior estimates than the OLS model. We use the traditional Hausman test to determine the best fit model among FE and RE, knowing that alternative panel data models will yield better results than OLS.

The test statistics of the Hausman test in both column (2) and (4) are significant, showing that the FE model is best suited to capture the results of the link between CCC and financial performance, as shown in table. Furthermore, both the IM and Wooldridge tests have significant test statistics at the 1% level of significance, demonstrating heteroscedasticity and autocorrelation in both columns. In addition, the VIFs in the table are not greater than 10, indicating that multicollinearity is not an issue. The model's primary flaw is the occurrence of heteroscedasticity and autocorrelation, both of which have been addressed by producing cluster-robust standard errors, as recommended by Petersen (2009).

The findings in table 1.4 affirms a negative relation between CCC and financial performance of the sample firms. This phenomenon can be attributed to a variety of probable causes. For example, as previously stated, Indian companies underutilize short-term loans as a source of working capital financing. The CCC is lengthened by relying significantly on long-term funds, resulting in a lot of funds being blocked and inactive. Besides, raising interest costs, carrying costs and lowering profitability. When a company uses short-term credit to finance working capital, the duration of the CCC is reduced, financial costs are reduced and the company has more financial flexibility. Furthermore, lowering the CCC frees up cash flow which can be used to fund a company's day-to-day operations, lowering finance costs even more. In addition, the liberated cash can be used to make early payments to suppliers, allowing a company to benefit from discounts for timely payments. This event would result in further lower costs and higher profits for the company. Furthermore, the funds released can be used to fund buffer inventories, which will help to maintain consistent sales and boost financial performance.

VIII. Summary of Findings and Conclusions

This study contributes to the existing literature on working capital by investigating the impact of working capital management on the financial performance of the sample firms, which are from Automobile sector, Pharmaceutical, FMCG, Consumer Durables, Metal, Oil and Gas, and Real Estate. In order to achieve the objectives of the study, the researchers have taken Cash Conversion Cycle and its components such as ARP, APP and ICP as independent variable. The researchers used RONW and ROCE as proxy for financial performance, besides, the study also used Growth, Firm size, Firm age, cash flow, Current Ratio, Leverage and Cash flow.

The overall findings put forth by the study indicate that working capital management has a significant impact on the financial performance of the sample firms in terms of ARP, APP, ICP, and CCC. The findings presented by the study confirm that Average Receivable Period (ARP) and Average Payable Period (APP) positively impact the financial performance of the sample firms statistically in a significant manner. However, on the other hand, the results also affirm that Inventory Conversion Period (ICP) and Cash Conversion Cycle (CCC) negatively impact the financial performance of the sample firms statistically in a significant manner.

Thus, it can be concluded on the basis of above results that the independent variables of the study do influence the dependent variables such as Return on Capital Employed (ROCE) and Return on net worth (RONW). These findings explicitly confirm the relationship between the variables, therefore, management must make sure to manage the various aspects of working capital, thereby, enhancing the profitability of the firms.

References Références Referencias

1. Ahmed, Riyaz. (2012), "A Study on working capital Management and its impact on profitability and net worth of CNX FMCG index companies." Global Management Review.
2. Adam, O. D. & Caroline, A. (2018), "Effect of Accounts receivables Management on Financial Performance in Small and Medium Firms in Mogadishu-Somalia." International Journal of Management and Commerce Innovations, Vol. 6, pp: 378-383.
3. Agus, A & Noor, Z.M. (2006), "Supply chain management and performance. An Empirical Study." A working paper, university of Malaysia.

4. Allwood, C. M. (2012), "The distinction between qualitative and quantitative research methods is problematic." Quality and Quantity, 46 (5), 1417-1429.

5. Altaf, N., and Shah, F. (2017), "Working capital management, firm performance and financial constraints: Empirical evidence from India." Asia-Pacific Journal of Business Administration, 9 (3), 206-219.

6. Baltagi, B. (2008), "Econometric analysis of panel data." John Wiley and Sons.

7. Banos-Caballero, S., Garcia-Teruel, P. J., and Martínez-Solano, P. (2012), "How does working capital management affect the profitability of Spanish SMEs?"Small business economics, 39 (2), 517-529.

8. Bhatia, S., and Srivastava, A. (2016), "Working Capital Management and Firm Performance in Emerging Economies: Evidence from India." Management and Labour Studies, 41(2), 71-87.

9. Bhunia, A., and Das, A. (2015), "Underlying relationship between working capital management and profitability of pharmaceutical companies in India." American Journal of Theoretical and Applied Business, 1(1), 27-36.

10. Bierman, H. Jnr., Smidt, S. (1988), "The Capital Budgeting Decision. Economic Analysis of Investment Projects." (Eighth Edition). New York: MacMillan Publishing Company, 118 -119.

11. Brigham, E. C., and Houston, M. (2007), "Foundations of Financial Management. London: Dryden Press Publishers."

12. Charitou, M. S., Elfani, M., and Lois, P. (2010), "The effect of working capital management on firm's profitability: Empirical evidence from an emerging market." Journal of Business and Economics Research (JBER), 8 (12).

13. Deloof, M. (2003), "Does Working Capital Management Affect Profitability of Belgian Firms?" Journal of Business Finance & Accounting. Vol. 30, Issue 4, PP: 573-587.

14. Dhruba Lal Pandey (2019), "Impact of Cash Management on Profitability in Small Manufacturing Organization." Silver Jubilee Issue PRAVAHA, Vol. 25, Issue 1.

15. Duru Anastesia Nwakaego and Okpe Innocent Ikechukwu (2016), "Management of Accounts Payable on the Financial Performance of Industrial/ Domestic Manufacturing Companies in Nigeria. Vol. 21, Issue 7, Ver. V1, PP. 54-61.

16. Elias Agbo and S.N.P Nwankwo (2018), "Impact of Average Payments Period on the Return on Assets of Quoted Insurance Companies in Nigeria." European Journal of Business and Management. Vol. 10, No. 28.

17. Francis Munene and Charles Yugi Tibbs (2018), "Accounts Receivable Management and Financial Performance of Embu Water and Sanitation Company Limited, Embu County, Kenya." International Academic Journal of Economics and Finance. Volume 3, Issue 2, pp. 216-240.

18. George Okoth Owuor, Nickson Agusioma and Fredrick Wafula (2021), "Effect of Accounts Receivable Management on Financial Performance of Chartered Public Universities in Kenya." International Journal of Current aspects in Finance, Banking and Accounting. Vol. 3, Issue 1, PP. 73-83.

19. Gitman, L. J. (1974), "Estimating corporate liquidity requirements: a simplified approach." Financial Review, 9 (1), 79-88.

20. Hafiza Faiza Muhammad, (2015), "Impact of Capital Structure on Profitability: An Empirical Analysis of Automobile Sector of Pakistan."

21. Hsiao, C. (2003), "Analysis of panel data (Vol. 34). Econometric Society Monographs.

22. Kilonzo Jennifer Mbula, Dr. Memba F. S., Dr. Njeru A. (2016), "Effect of Inventory Management on Financial Performance of Firms Funded by Government Venture Capital in Kenya." European Journal of Business and Management. Vol. 8, Issue 5.

23. Khurshid Ali and Numaira Showkat (2022), "Impact of Inventory Management on Operating Profits: Evidence from India." Journal of Finance and Economics. Vol. 10, No. 2, PP 47-50.

24. Koop, G., & Steel, M. F. (2001), "Bayesian analysis of stochastic frontier models. A companion to theoretical econometrics." Blackwell, Oxford, 520-573.

25. Joshi, L. K (2017)' "Management of working capital and its impact on the financial performance: An empirical study of some selected steel companies in India." (2001-2012), Vidya sagar university, West Bengal, India. (Doctoral dissertation).

26. Klevmarken, N. A. (1989), "Introduction. European Economic Review." 33(2-3), 523-529.

27. Konak, F., and Guner, E. N. (2016), "The impact of working capital management on firm performance: An empirical evidence from the BIST SME industrial index." International Journal of Trade, Economics and Finance, 7 (2), 38-43.

28. Koumanakos, D.P (2008), "The effect of inventory management on firm performance International." Journal of productivity and performance Management. 57, 355-369.

29. Le, H. L., Vu, K. T., Du, N. K., and Tran, M. D. (2018), "Impact of working capital management on financial performance: The case of Vietnam." International Journal of Applied Economics, Finance and Accounting, 3(1), 15-20.

30. Moulton, B. R. (1987), "Diagnostics for group effects in regression analysis. Journal of Business & Economic Statistics." 5 (2), 275-282.

31. Moodley, T., Ward, M., and Muller, C. (2017), "The relationship between the management of payables

and the return to investors." South African Journal of Accounting Research, 31(1), 35-43.

32. Munene, F. & Tibbs C. Y. (2018), "Accounts receivable management and financial performance of Embu Water and Sanitation Company Limited, Embu County, Kenya." (Doctoral dissertation, Kenyatta University).

33. Mutai Amos Kipkemoi and Kimani E. Maina (2019), "Effect of Accounts Payable Management Practices on Liquidity of Public Technical Training Institutions in Rift Valley Region, Kenya." International Academic Journal of Economics and Finance. Vol. 3, Issue 3, pp. 174-186.

34. Showkat Numaira, Ali Khurshid (2020): "Conceptual Framework of Inventory Management: A Useful Guide towards the Major Aspects of the Subject." International Journal of Advanced Research. Vol.2, Issue 9, Page-395-411.

35. Nazir, M. S., and Afza, T. (2007), "Impact of aggressive working capital management policy on firms' profitability. IUP Journal of Applied Finance, 15 (8), 19.

36. Niresh, J. A. (2012), "Working capital management and financial performance of manufacturing sector in Sri Lanka." European journal of business and management, 4 (15), 23-30.

37. Nuzulia Aminia, Bambang Setionob, Christian Haposan Pangaribuanc, Elfindah Princesd (2021), "The Impact of Cash Management Practices toward Financial Performance of Small and Medium Enterprises in Indonesia." Journal of Business, Management, and Social Studies. Vol. 1, Issue 1, PP 35- 47.

38. Nwakaego, D. A. & Ikechukwu I. O. (2016), "Management of accounts payable on the financial performance." Journal of Humanities and Social Science. Vo. 21, Issue (6), PP. 54-61.

39. Nyamao, N. R., Patrick, O., Martin, L., Odondo, A. J., and Simeyo, O. (2012), "Effect of working capital management practices on financial performance: A study of small scale enterprises in Kisii South District, Kenya." African journal of business management, 6 (18), 5807-5817.

40. Odo, John Onyemaechi, and Udodi, Joy Nneka (2022), "Influence of Cash Management on Financial Performance of Selected Manufacturing Companies in Nigeria." Contemporary Journal of Banking and Finance. Vol. 3, Issue 6.

41. Onikoyi, Idris Adegboyega, Babafemi, Emmanuel Akinsanmi and Ojo, Solomon (2017), "Effect of Inventory Management Practices on Financial Performance of Larfage Wapco Plc. Nigeria." European Journal of Business and Management. Vol. 9, Issue 8.

42. Petersen, M. A. (2009), "Estimating standard errors in finance panel data sets: Comparing approaches." The Review of Financial Studies, 22 (1), 435-480.

43. Richards, V. D., and Laughlin, E. J. (1980). A cash conversion cycle approach to liquidity analysis. Financial management, 32-38.

44. Rotich, G. and Achode, B. (2016), "Effects of accounts payable as source of financing on performance of listed manufacturing firms at the Nairobi Security Exchange." International journal of Research studies in agricultural sciences. Vol. 2, Issue (4).

45. Roumianstev, S, and Netessine, S (2005), "Should inventory policy be lean or responsive? An Empirical Analysis." working paper university of Pennsylvania.

46. Shin, H. H., and Soenen, L. (1998), "Efficiency of working capital management and corporate profitability." Financial Practice and Education, 37-45.

47. Singhania, M., Sharma, N., and Rohit, J. Y. (2014), "Working capital management and profitability: evidence from Indian manufacturing companies. "Decision, 41(3), 313-326.

48. Soet, M. A., Muturi, W., & Oluoch, O., (2018), "Effect of Operating Cash flow management on financial performance of Mutual funds in Kenya." European Journal of Business, Economics and Accountancy. Vol. 6, No. 5, 2018.

49. T. Moodley, M. Ward and C. Muller (2014), "The relationship between the management of payables and the return to investors." Gordon Institute of Business Science, University of Pretoria, South Africa.

50. Thangjam Ravichandra, (2015), "Analysis of Relationship Between Profitability and Free Cash Flow to Firms", International Journal in Management and Social Science, Vol.03 Issue-08.

51. Thevaruban, S. J. (2016), "Impact of Cash Management on Financial Performance of the Sri Lankan Manufacturing Companies." International Journal of Economics and Business Review, 4(8), 118-126.

52. Turner, T. L., Balmer, D. F., and Coverdale, J. H. (2013), "Methodologies and study designs relevant to medical education research." International Review of Psychiatry, 25(3), 301-310

53. Vipulesh Shardeo (2015), "Impact of Inventory Management on the Financial Performance of the firm." Journal of Business and Management (IOSR-JBM). Vol. 17, Issue 4, Version VI, PP 1-12.

54. Vishal N. Shah (2020), "Impact of Receivables Management on Profitability: A Study on Selected Printing Companies Listed at BSE in India." A Global Journal of Interdisciplinary Studies.

55. Waithaka, A. (2012), "The relationship between working capital management practices and financial performance of agricultural companies listed at the Nairobi Securities Exchange." (Doctoral dissertation).