Impact of Working Capital Management on Automobile Firm's Profitability

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Abstract

In today's high-inflationary environment, it is important that companies assign greater importance to working capital management and give high priority to its effective management due to the rewards it can deliver. A continuous improvement mindset needs to be imbibed in the policies, processes and the manner in which the businesses are conducted and companies should deliberately avoid Working capital management as a window dressing event or an end period requirement. The study aims to understand the impact of working capital components (i.e. Inventory Conversion Period (ICP), Receivables Collection Period (RCP), Payment Deferral Period (PDP) and Cash Conversion Cycle (CCC) on profitability of 23 Automobile firms covering the period of 2007-2016 listed on Bombay Stock Exchange (Top BSE 500 on the basis of market capitalization). The data was collected from the annual reports extracted from Prowess database of CMIE and Capitaline and was analysed using Pearson's Correlation analysis and Panel data regression analysis like Fixed Effect Panel Least Square Method.

Keywords

Inventory Conversion period, Payment deferral period, Receivables Collection period, Cash Conversion Efficiency.

Introduction

Automobile industry in India has witnessed intriguing swing in present day with the effect of the global downturn, followed by recovery in domestic demand.[1] The growth in this sector has been steady over the past few years

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[1] The Indian Automotive Industry: Evolving Dynamics, Auto Survey report-2010 KPMG.

with an exception of two years marking global downturn, specifically, in the sales of commercial vehicles. The automobile manufacturers' gross turnover during the study period (2007-2016) increased at a CAGR of 11.72[2] percent. The country's largest carmaker Maruti Suzuki India recorded cumulative exports of 1500 thousand vehicles in September, 2016. The industry has advanced with vehicles based on alternative fuels with introduction of electric cars in the place of LPG, petrol and diesel cars due to continuous hiking of fuel prices as well as to reduce the emission of carbon-dioxide in the earth.[3] And also commercial vehicles and passenger vehicles running on CNG are ameliorating acceptance among transport service providers and consumers due to their curtailed cost of operation, and stirring green revolution among the manufacturers and consumers. This sector has witnessed large number of foreign players and reduced product lifecycle. The increased investment in R&D by government as well as the private sector has been one of the contributing factors for the growth in the automobile industry. The Automobile exports marked a CAGR of 16.23 percent during the study period. Indian automobile industry attracted foreign direct investment (FDI) of around USD 15.06 billion from April 2000 to March 2016. GOI has also encouraged 100% FDI investment in this sector under automatic route. This is also by delicensing and allowing free import of automotive components. GOI in order to boost this sector has abolished minimum investment criteria. The government further plans to encourage use of eco-friendly automobiles such as hybrid vehicles, electrical vehicles, and CNG based vehicles in India.

Management of working capital will have a significant impact on the profitability of the firms and is one of the important components of firm's financial management. (Deloof, 2003). Working Capital Management is one of the most indispensable and pivotal facet of short-term financial matters of an organization (Afeef, 2011). Increased working capital permits firms to increase their sales and obtain greater discounts for early payments; this apparently increases the Firms value. The affect on Firm's performance due to working capital decisions is significant and those firms with larger investment in working capital were successful in improving their firm's value. (Kim & Chung 1990, Wang 2006). The finding of Caballero et al.

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[2] Automobiles-IBEF (India Brand Equity Foundation) www.ibef.org

[3] Indian Automobile Industry vision "2020" Dr. P. Sankaran, Assistant Professor, Post Graduate Department of Commerce, Arignar Anna Government Arts and Science Collage, Karaikal. Pondicherry University. Volume-5, Issue-4, April-2016*ISSSN No. 2277-8160

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suggests the existence of inverted U-shaped association between amount invested in working capital and corporate performance, this further suggests that an optimal level of investment in working capital balances costs and benefits and in turn maximizes firm's value. (Caballero, Teruel & Solano 2012). Working Capital Management is a critical sphere in the field of financial management (Joshi, 1994). It is concerned with the decisions on the quantum and components of current assets and issues involved in financing the same. The association between corporate performance and working capital is non-linear (Khan & Ghazi 2013). This opinion was further elaborated in the studies of Shin and Seonen (1998) the firms with larger profits were not motivated in managing firm's performance and its working capital. Firms with greater emphasis on working capital levels incurred additional financing expenses and thus landing them up in bankruptcy.

The firms effectively manage their working capital by systematizing end-to end processes; this is consummated by marking down of inventories, downsizing replenishment times from suppliers and ameliorating cash collection and payment cycles. The firms have to identify and unearth the often secluded interdependencies among the different components of working capital and achieve maximum benefit especially in terms of savings, for this purpose the entire value chain has to be revisited right from product plan to designing to manufacturing to sales to after sales support. After analysing and identifying firms will have to work out ways to elucidate processes and phase out misuse and misapplication always keeping inherent placate in mind. Receivables and payables are one of the many ways of financing inventories. Firms need to regulate all three components concurrently across the value chain in order to pursue elementary attrition in asset levels.

The primary aim of working capital management should be to minimize inventory all through the value chain. This can be pursued with accurately assessing demand and optimising production processes with advanced delivery and logistic support (JIT, JIS) along with service level adjustments and variance management. With reference to receivables management, majority of the cash flow issues in the firms are due to mismatch in timing between costs incurred and customer payments, this could be overcome if companies promptly invoice and reduce lead time in invoicing, regular reminders, renegotiated payment terms and insisting on prepayments or advances improves firms liquidity significantly. With regards to payables, those firms using unpaid payables as their source of financing have achieved

higher profits and liquidity. Maximizing payment cycles, avoidance of early payments often result in positive cash flows to the firms. To conclude firms adopting working capital management practices should not undermine the potential trade-offs between the use of different components of working capital and their associated costs and benefits. Therefore, a best-practice working capital optimization is not just a pure abatement of working capital; it is infact a comprehensive improvisation with firm's value enhancement as an ambient purpose.

2. Review of Literature and Derivation of Hypothesis

Many studies have been conducted earlier to comprehend the association between working capital and profitability of a firm. The purpose of this review is to throw light on literature relating to the working capital management. The studies relating to working capital and its impact on profitability **(Jose et al. 1996; Shin and Soenen 1998; Wang 2002; Deloof 2003; Garcia-Teruel and Martinez-Solano 2007; among others)** have analyzed linear relationship between the two. Furthermore, a scrutiny of 1009 Belgian firms for a period of 1992-1996 by Deloof (2003) revealed that there is a significant impact on the profitability due to working capital and also the gross operating profit had significant negative relation with the number of days in receivables, inventories and payables. The findings were accordant to those of Shin and Soenen (1998) who also detected a strong negative relationship between the cash conversion cycle and the profitability of Listed American firms for 1975-1994 periods. In like manner, the study conducted on non-financial firms in USA for the period of 19 years (1975-1994) by Filbeck and Krueger brought out the fact that firms were profitable if they effectively managed their receivables, Inventory and Payables.

Lazaridis and Tryfonidis (2006), cross-sectional study on the listed firms of the Athens Stock exchange covering a period of 5 years (2001 04) ascertained that there existed a statistically significant relationship between profitability and working capital components. They observed that all things considered, profitability was negatively affected with increase in the payment deferral period. Furthermore, Lazaridis and Lyroudi (2000) have highlighted in their study a positive association among the return on assets a measure of profitability and cash conversion efficiency in a sample of 82 listed companies on Greek stock exchange. **Raheman & Nasr (2007)** observed, existence of negative relationship

between the profitability and deployment of working capital in listed Pakistani firms on Karachi stock exchange for a period of 5 years (1999-2004), in the same way, firms' performance was significantly affected by the inventory turnover, net trade cycle and cash conversion cycle as diagnosed by the study conducted by Raheman & Nasr (2007) of a sample of 204 manufacturing firms of Karachi stock exchange covering a period of 10 years (1998-2007).

In like manner, study of Afza & Nazir (2009), using regression technique on firms listed in Karachi stock exchange for a period of 8 years (1998-2005) signaled towards existence of negative association between profitability and amount invested in working capital. Likewise, using Multiple regression analysis, on a sample of manufacturing firms listed on Istanbul stock exchange covering a period of 10 years (1998 2007), observed the firms profitability if higher is lower accounts receivable cycle and inventory conversion period is maintained by them. A similar study by Sen and Oruc (2009), led to a conclusion that the relationship with profitability of companies listed on Istanbul stock exchange over a period of 15 years (1993-2007) and the working capital management pointed towards aggressive working capital leading to increased profitability. The situation of aggressive working capital was sustained by shortening the cash conversion period and loweing it's current ratio.

A study on Hindalco industries by Singh and Panday (2008) for the period of 17 years (1990-2007), the various ratios used in the study to measure impact of working capital management on profitability pointed were statistically significant. Findings of Saad and Mohammed (2010) using correlation multiple regression analysis on firms listed on Malaysian stock exchange concluded that there existed negative association between working capital components and firms' performance. Another study on Malaysian firms by Azhar and Noriza (2010) showed firms performance and value increases when managers were able to manage all the components of working capital efficiently. Study conducted by Dong and Su (2010) showed a negative association between profitability and cash conversion efficiency among the firms listed on Vietnam stock exchange for the period of three years (2006-08), and confirmed that by decreasing the number of days in accounts receivable and inventory, firms could enhance their profitability. Like observations have been made by Nobanee et al. (2011) for a large cross-section of 2123 Japanese firms listed in Tokyo stock exchange covering a period of 15 years (1990-2004). Similar

observations were sustained by Vijayakumar (2011) with his study on automobile sector for the period F 15 years (1996-2009). An investigation by Uyar (2009) also had a similar conclusion for a sample of firms listed on Turkey stock exchange.

Garcia Teruel and Martinez- Salano (2007) examined Spanish SME's using Panel Data Analysis with both fixed and Random effect models for the period of 7 years (1996-2002), to ensure that SMEs could appreciate their profitability by curtailing their cash conversion cycle, coupled with the fact that negative relationship prevailed between ROA (Return on Assets) and cash conversion cycle of 8,872 Spanish SMEs during the study period mentioned earlier. Furthermore, with respect to managing inventories and its related impact on profitability, Toomey (2000), Guariglia and Mateut (2006), have mentioned in their studies that companies with an intention to hold costs maintain only acceptable level on inventory. Long et al. (1993) highlighted on the possible costs that may accrue to the companies by maintaining high level of Inventories. Deloof (2003) studies have mentioned about stock-out situations and lost sales due to low levels of inventory. In the studies conducted by Koste and Malhotra (1994) the inventory flexibility is the crucial dimension in the Supply chain management. Inventory flexibility can be observed from an interspersed perspective, as it reflects the practices of the company to incorporate consumer demand fluctuations and quantity desired by them from time to time into their planning cycles and also the typecasting needed between the company and its suppliers, specifically with the rising demand. Robinson et al. advocates that due to inadequate planning of inventory, many organisations economic viability has been affected. Ganesan (2007) points that sustaining low levels of inventories, American firms in telecommunication equipment sector were able to reduce their reliance on external borrowings. Gaur and Kasevan (2006) highlighted on the negative association between inventory turnover and profitability.

With regards to the influence of accounts payable on companies' profitability, Deloof (2003), Lazaridis and Tryfonidis (2006) pointed towards the existence of negative association between profitability and number of days in accounts payable. Peterson and Rajan (1994) have mentioned the fact that trade credit is a cheaper substitute to bank credit and also the managers attempt to benefit from the flexible financing options available by delaying payments to their suppliers and also lowering the chances of receiving poor quality materials for the suppliers.

Furthermore, they argue that non-payment on bills on time to the suppliers may hamper their credit standing and reputation in the market.

With reference to accounts receivable and their possible impact on company's profitability, any shift in their eminence directly affects the company's financial viability. Granting of trade credit may be due to tough competition in the market, price, changing customer need and demands, technological development with this, any firm aiming to grant trade credit is an arrangement between gaining new buyers and related risk associated with capricious buyers. Guariglia & Mateut (2006), firms working capital would be locked up and add extra cost to be incurred to keep wheels of the business moving. Long et al. (1993), Deloof and Jeggers (1996), firms will experience increased sales with a trade credit policy that is flexible in nature. On the flip side, with rigid trade policy firm may lose buyers and in turn reduced profits. Pike and cheng (2003) firms' efficiency to manage working capital will enable enhancing corporate value along with high quality accounts receivable portfolio. Mathuva (2009), conducted a study with the sample of 30 firms listed on Nairobi stock exchange for the period covering 15 years (1993-2008), and found existence of negative association between Receivables conversion period and profitability

Ganesan (2007) states that American firms engaged in telecommunication sector were more dependent on external borrowing as their receivable cycle was longer. From an empirical point of view Deloof (2003), studies pointed towards possible negative association between gross operating income and receivables conversion period. In view of trade-off between liquidity and profitability, the decisions pertaining to working capital management are time consuming, Intermittent and recurring. It calls for effective planning of current assets and current liabilities. Apart from the efficient mix of working capital components, working capital management aims at maintaining company's liquidity in day-to-day operations. In the words of Raheman and Nasr (2007), the very nature of current asset is that assets are converted to cash within a short period of time. The company's liquidity depends on operating cash flows generated by those assets and not their values, whereas, current liability involve obligation, that the company has to honour within a short period of time. Zariyawati et al. (2009) listed that, if the firms fail to cover all the current liabilities with their available current assets along with creating a reasonable margin, it may have to face financial meltdown leading to

bankruptcy. The major two financial issues concerning firms are a proper balance between liquidity and profitability and management of working capital is highly influenced by these two factors Smith (1980).

In the words of Beaumont and Begemann (1997) if the firms wish to understand the relationship and its impact between working capital and profitability, an understanding between liquidity and profitability is equally important. As pointed by Michael and Eugene (2008), if firms wish to earn more returns, the investments have to be in more risky ventures. This is also highlighted in the theory of risk and return. Cooper (2003) Vishnani and Shah (2007) observed that excess funds points towards excess liquidity leading to negative influence on corporate profitability. Kalcheva and Lins (2007), along with Dittmarr and Mahrt-Smith (2007), state that, company's profitability and risk increases with low liquidity. Thus, it is a dilemma of working capital management to maintain a proper balance between profitability and liquidity.

In order to understand the link between working capital management and company's profitability, Deloof (2003), studies conclude that negative association existed between Gross operating margins (a measure of profitability) and cash conversion efficiency. The results of Eljelly (2004) were consistent with the findings of Deloof (2003), stating possible negative association between profitability and liquidity. Shin and Soenen (1998), as mentioned earlier found cash conversion cycle exerting negative influence on profitability. Van Horne and Wachowicz (2004), firms with more investment in current assets when compared to their current liabilities may have a negative impact of firms' profitability.

Closer scrutiny of the available literature leads to a comprehensive view that shortening cash conversion period lead to increased profitability. However, literature on Indian firms showcased contrary findings as investigated by Sharma and Kumar (2011) the study conducted on 263 Indian firms for the period of 10 years (2000-2008) noted a positive association between profitability between number of days in accounts receivable and inventory and negative association between number of days in accounts payable and profitability. These findings were contrary to many studies conducted in different countries in the past. Hence, it makes it pertinent and intriguing to explore the nature of working capital management and profitability of 23 Indian Automobile firms listed on Bombay Stock Exchange (BSE 500) covering a period of 10 years (2007-2016).

To conclude, the relation between working capital and a firm's profitability may, consequently, be concave rather than linear, and might be better captured by a quadratic relationship. Unlike previous studies, this paper contributes to the literature by analyzing the relationship between investment in working capital and profitability by taking into account the possible non-linear ties of the working capital management-profitability relation in order to test this risk and return trade-off between different working capital strategies.

2.1 Derivation of Hypothesis

The discussion above yields the following hypothesis:

Hypothesis 1

H_0: There is no significant relationship between the components of working capital and profitability.

H_1: There is a significant relationship between the components of working Capital and profitability.

Hypothesis 2

H_0: There is no significant influence of working capital on profitability.

H_1: There is a significant influence of working capital on profitability.

2.2 Objectives of the Study
1. To understand the relationship between different components of working capital and profitability.
2. To study the impact of components of working capital on firm's profitability.

3. Research Methodology

The companies included in the sample, the variables used and the statistical techniques applied in the study are discussed in this section.

3.1 Data Set and Sample

The scope of the study is limited to 23 Indian Automobile firms comprising the BSE-500 index in the Bombay stock exchange as on 31st March 2016, these companies are studied over a 10 year period. (2007-2016). The resources for the data were consolidated balance sheet and profit and loss accounts of the 23 Indian Automobile firms.

The data was extracted from Capitaline Database for 2007-2016 and manually entered in Microsoft Excel, SPSS and Eviews7 software. The final sample comprised of a total of 230 firm-year observations, which considered data from 23 firms over a period of 10 years. The primary objective of this study was to understand the association between working capital and firm profitability of Indian Automobile sector. The data analysis was done using the Software's like SPSS 21 and Eviews7.

3.2 Variables Used in the Analysis

In line with the objective to understand the influence of working capital on the profitability of Indian Automobile firms, below mentioned are the dependent, independent and control variables. The dependent variable is Return on Assets (ROA). Return on Assets is a determinant-indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient firms are at using its assets to generate earnings. Following are the independent variables, Average Collection Period (ACP), Average collection period refers to the time taken to collect cash from its customer, Inventory Collection Period (ICP), Inventory Collection Period refers to time taken to convert inventory into sales. Relevant data was also available on Raw-Material Conversion Period (RMCP), Work-in-Progress Conversion Period (WIPCP) & Finished Goods Conversion Period (FGCP). Therefore, in this study Inventory Conversion period (ICP) is further categorized into RMCP, WIPCP & FGCP. Average payment period (APP) Average payment period is the time taken to pay the firm's suppliers. Cash conversion cycle (CCC),
Cash Conversion cycle is used as a comprehensive measure of working capital as it shows the time-lag between the payment for the purchase of raw material and the collection of sales of finished goods. The Studies of Eljelly (2004), Deloof and Jeggers (1996), Deloof (2003), Shin and Soenen (1998), Lazaridis and Tryfonidis (2006) have advocated the categorization of Cash Conversion Cycle into RCP ICP and PDP. Apart from these variables, the size of the firm, the growth in its sales, firm leverage (FL) and Current Ratio and Quick Ratio are introduced as control variables. Current Ratio (CR) and Quick Ratio (QR) which is a traditional measure of liquidity is calculated by dividing current assets by current liabilities and liquid assets by current liabilities respectively. In addition, Size (Natural

logarithm of total assets), leverage is used as a proxy variable for Debt ratio (DR), and is calculated by total liabilities by total assets. Sales growth is also used as a control variable and it is calculated by $Sales_t/Sales_{t-1}-1$, where St is the current year sale and S_{t-1} is the previous sales of the firm. All the above mentioned variables have relationships that ultimately impact of working capital on profitability of the Indian Automobile firms.

S. No.	Ratio/Variable	Explanation	Formula
1	ROA	Return on assets	Net profit/total assets
2	NOP	Net operating profits	EBIT /Net Sales
3	GOP	Gross operating profits	Net profit/Net sales
4	RCP	Receivables conversion period	Average receivables * 365/sales turnover
5	RMCP	Raw material conversion period	Average raw materials * 365/raw materials consumed
6	WIPCP	Work in progress conversion period	Average work-in-progress * 365/ total cost of production
7	FGCP	Finished goods conversion period	Average stock of finished goods * 365/total cost of goods sold
8	ICP	Inventory conversion period	Average inventories * 365/COGS
9	PDP	Payment deferral period	Average payables * 365/COGS
10	CCC	Cash conversion cycle	ICP+RCP-PDP
11	SG_t	Sales growth	$(Sales_t/Sales_{t-1}) - 1$
12	FIRM SIZE	Size of firm represented by sales	ln(Sales turnover)
13	CR	Current ratio	Total current assets/total current liabilities
14	QR	Quick ratio	Total current assets - inventories/ total current liabilities

Table 1: Variables and their Notations

3.3 Model Specification

The principle endeavour of this study is to explore the impact of working capital management on 23 selected Automobile firm's profitability. In order to pursue the same an empirical investigation

followed by Gul et. al. (2013), Deloof (2003), Mathuva (2009), Shin and Soenen (1998), Sen and Oruc (2009), Lazaridis and Tryfonidis (2006), and Padachi (2006) was taken into account and implemented in four models mentioned below.

The study uses panel data regression analysis of cross-sectional and time series data. And also uses the pooled regression type of panel data analysis. The pooled regression, also called the constant coefficient model is one where both intercepts and slopes are constant, where the cross-section firm data and time series data are pooled together in a single column assuming that there is no significant cross section.

In the first regression equation, the relationship between ROA and ICP is explored. The second regression model investigates the possible association between ROA and RCP. The third equation studies the relationship between ROA and PDP and the fourth and the last model analyses the association between ROA and CCC.

Model 1: $ROA_{it} = \beta_o + \beta_1 ICP_{it} + \beta_2 DR_{it} + \beta_3 CR_{it} + \beta_4 QR_{it} + \beta_5 SGT + \beta_6 LNSALESTURNOVER_{it} + \varepsilon it$

Model 2: $ROA_{it} = \beta_o + \beta_1 RCP_{it} + \beta_2 DR_{it} + \beta_3 CR_{it} + \beta_4 QR_{it} + \beta_5 SGT + \beta_6 LNSALESTURNOVER_{it} + \varepsilon it$

Model 3: $ROA_{it} = \beta_o + \beta_1 PDP_{it} + \beta_2 DR_{it} + \beta_3 CR_{it} + \beta_4 QR_{it} + \beta_5 SGT + \beta_6 LNSALESTURNOVER_{it} + \varepsilon i$

Model 4: $ROA_{it} = \beta_o + \beta_1 CCC_{it} + \beta_2 DR_{it} + \beta_3 CR_{it} + \beta_4 QR_{it} + \beta_5 SGT + \beta_6 LNSALESTURNOVER_{it} + \varepsilon it$

Where:

ROA_{it} = return on assets of firm i at time t,

β = intercept of the model

i = it represent total number of companies i.e. i = 1, 2, 3….N

t = the period of the study i.e. t = 1, 2, 3…T

CR_{it} = firm's current ratio at time t

SGt_{it} = annual percentage increase in sales,

Ln (SALES TURNOVER) it = size of the company at time t,

RCP_{it} = average collection period/ number of days accounts receivable,

ICP_{it} = number of days inventory receivable,

PDP_{it} = average payment period/number of days accounts payable,

CCC_{it} = cash conversion cycle of company i at period t,

εit = the disturbance term

3.4 Empirical Analysis
3.4.1 Test for Normality

For testing normality of a series of data, the most commonly used normality tests are Shapiro-wilks' test and Lilliefors test, of which, Shapiro-Wilks' test has proved to be the better one in several statistical situations and is thus considered to be the most compatible one for smaller samples Norusis (1993). The table below reveals that as per Shapiro Wilks' test, all variables are statistically significant at 5% level. Therefore, in the present situation the Null hypothesis (Data are not normally distributed) is eliminated as þ value < 5%

	Tests of Normality					
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ROA	.120	230	.000	.887	230	.000
ICP	.125	230	.000	.959	230	.000
RCP	.176	230	.000	.893	230	.000
PDP	.063	230	.026	.956	230	.000
CCC	.205	230	.000	.494	230	.000
DR	.527	230	.000	.064	230	.000
CR	.104	230	.000	.946	230	.000
QR	.089	230	.000	.947	230	.000
SGT	.101	230	.000	.887	230	.000
LN Sales Turnover	.042	230	.200[*]	.986	230	.026
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Table 2: Results of Shapiro-Wilk Test for Normality of Data

3.4.2 Results of Hausman Test, Collinearity Diagnostics and DurbinWatson Statistics

The panel data technique was used to estimate the regression of a fixed effect model. In this regard a choice had to be made between fixed effect model and random effect model. This was done using hausman test (Chi square value 10.25%, and corresponding þ value < 5%), A fixed effect model is more appropriate.

Test for Normality	Chi-Sq. Statistics	Chi-Sq. d.f	Prob.(p-value)
Cross-section random	10.255081	6	0.0043

Table 3: Results of Fixed or Random Effect Model

In order to check the presence of auto correlation and multi collinearity in the data, Durbin Watson and Variance Inflation Factor (VIF) statistics was analysed respectively.

It is evident that the statistics are within limits, leading to the result that there is no presence of auto correlation in the data. In testing for Multicollinearity, the maximum value of VIF statistics obtained is 20.325 in Model 2 against debt ratio. Whereas, the rule of thumb commonly observed is that VIFs of 10 or more would signify presence of multicollinearity Gujarati et al. (2012). Furthermore, Montgomery and Peck[4] also suggest that when VIF is greater than 10, then regressions coefficient are poorly tested. To avoid the possibility of multicollinearity, it is important that the results from collinearity diagnostics should have tolerance value above 0.20. It can be observed from the above four models that the tolerance value is above 0.20. (Pallant, 2007, p. 156) except for debt ratio, were both the VIF and tolerance value are beyond the specified limit (VIF should be less than 10 and Tolerance value should be more than 0.2). Therefore, debt ratio will be dropped to overcome the high correlation among the independent variables and reduce multicollinearity.

The Durbin Watsons statistics value was found to be 1.90 in model 2; this was highest among the four models. The value of Durbin Watson ranges from 0 to 4 with an ideal value of 2 indicating that errors are not correlated. Furthermore, Durbin Watson value between 1.5 and 2.5 are acceptable level indicating no presence of collinearity (Makridakis & Wheelwright, 1978)[5]. In all regressions, standard errors are calculated using White's correction for heteroscedasticity. Breusch-Godfrey Serial Correlation LM Test was conducted to assess the presence of Auto correlation/ Serial Correlation, H_0 was accepted indicating presence of no Auto correlation/ Serial

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[4] D.C. Montgomery and E.A. Peck (1982) Introduction to linear regression analysis. John Wiley and Sons.

[5] Daniel Mogaka Makori & Ambrose Jagongo, International Journal of accounting and taxation, Vol 1, No 1, December 2013 © American research institute for policy development www.aript.org/ijat

correlation as the þ value is < 5% as indicated below in Table 5. For testing heteroscedasticity, Both Breusch pagan and Koenkar p-value was more than 0.05 this indicates that the null hypothesis can be accepted. The null hypothesis states that there is homoscedasticity which can be accepted because the p-value is more than 0.05. In cases where the White test statistics is statistically significant, heteroscedasticity may not necessarily be the cause, but specification errors. In other words, the white test can be a test of (PURE) heteroscedasticity or specification error or both (Gujarati and Sangeetha, 2012).

Parameter	Collinearity Diagnostics and Durbin-Watson Statistics							
	Model 1		Model 2		Model 3		Model 4	
Collinearity diagnostics	Tolerance	VIF	Tolerance	VIF	olerance	VIF	Tolerance	VIF
RCP	.526	1.902	-	-		-	-	-
ICP		-	0.344	2.910		-	-	-
PDP		-	-	-	0.704	1.421	-	-
CCC		-	-	-	-	-	.780	1.281
DR	.093	10.744	0.049	20.325	0.087	11.536	.082	12.150
CR	.940	1.063	0.948	1.055	0.910	1.099	.949	1.053
QR	.940	1.063	0.620	1.656	0.930	1.072	.910	1.045
SGT	.978	1.022	0.895	1.117	0.972	1.028	.959	1.042
Ln Sales turnover	.755	1.324	0.710	1.409	0.623	1.604	.812	1.232
Durbin Watson Value	1.83		1.90		1.85		1.83	
	Breusch-Godfrey Serial Correlation LM Test:							
F-statistic	20.53881		Prob. F(2,219)		0.0000			
Obs*R-squared	36.32706		Prob. Chi-Square(2)		0.0000			
	Breusch Pagan and Koenkar Test							
	LM		Sig					
Breusch-Pagan	10.830		0.212					
Koenkar	12.987		0.112					

Table 4: Collinearity Diagnostics and Durbin-Watson Statistics

3.5 Analysis Used in the Study

Descriptive and quantitative analysis is used in this research.

4. Data Analysis and Discussion

4.1 Descriptive Statistics

Descriptive analysis shows the average and standard deviation of the different variables of interest in the study. It also presents the minimum and maximum values of the variables which help in getting a picture about the maximum and minimum values a variable can achieve. In order to understand the different aspects of working capital management a descriptive analysis is conducted. Table 6 reports the Mean, Standard Deviation, the Minimum and the Maximum Values of the variables in the study. The period of study ranges from 2007-2016 and for a total 230 firm-year observations. As mentioned earlier, the return on assets variable represents the measure of profitability The Average Value of ROA is 11.29%. From the sample used for study, the value of profit can deviate from its average by 10.59%. The maximum return on asset is 66.45% while the minimum is -17.84%. The sample firms used for the study have a positive as well as negative profitability. Thus, it seems interesting to understand whether the positive/negative profits are due to industry specific or firm-specific characteristics or can be explained by the sound working capital management practices. The cash conversion cycle is the most complete measure of working capital management; because it quantifies the time invested capital is tied up in business operations. This is measure of liquidity and risk that includes growth.[6]

23 Indian Automobile Firms, 2007-2016, 230 firms-year observations				
Variable	**Mean**	**Std. Dev.**	**Minimum**	**Maximum**
A. Working Capital Measures				
A.1 ICP	56.2835	36.7529	10.9732	425.0292
A.2 RCP	39.0430	25.4029	1.1762	209.8677
A.3 PDP	52.4316	40.5454	11.5648	586.7065

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[6] "The impact of working capital management on the profitability of small and medium enterprises in South Africa"– by Richard Sollomons December 2014, Stellenbosch University http://scholar.sun.ac.za.

A.4 CCC	42.8949	63.7975	-411.9819	584.3504
B. Profitability Measures				
B.1 ROA	.1129	.1059	-.1784	.6645
B.2 NOP	.1103	.0765	-.2736	.5018
B.3 GOP	.0624	.0643	-.4451	.3953
C. Control Variables				
C.1 DR	.3475	.2094	.0000	.7804
C.2 CR	1.7753	1.4352	.2082	14.9330
C.3 QR	1.1797	1.1588	.0912	11.8496
C.4 SG_t	.1590	.2360	-.6928	1.5248
C.5 in Sales Turnover	8.3165	1.2958	4.8539	11.0861

(Source: SPSS 21 Output, Calculations based on Annual Reports of 23 Indian Automobile firms from 2007-2016.)

Table 5: Descriptive Statistics

Taking into consideration cash conversion cycle, sometimes it appears to be positive and sometimes negative (the minimum CCC is -411 days and the maximum is 584 days). Firms in order to be efficient and profitable should maintain low levels of cash conversion cycle and preferably a negative one. This is possible if firms insist on shorter receivables period without disappointing the customers and longer payment period without hampering the credit standing in the market. In the sample, firms receive their money in receivables form after an average of 39 days with a deviation of 25 days. Besides, they pay their dues after an average of 52 days with a deviation of 40 days and a minimum of 11 days.

The firms in the sample take on an average 56 days to convert inventory into sales with a deviation of 36days and maximum of 425 days. It could also be inferred from the information below that due to the nature of industry, collections and payments are faster, and this would facilitate firms taking advantage of current assets current liability as a source of financing. Whereas, the inventory conversion takes a long time due to the inherent nature of industry in terms of manufacturing and processing. The firms in the sample are able to

postpone their payments to the suppliers due to their firm size. In fact, the mean vale of the company size is 8.31% with a deviation of 1.29%. The minimum value is 4.85% and the maximum value is 11.08%. The average current ratio of Automobile firms in the sample is 1.77 with a deviation of 1.43 times. The lowest current ratio is reported at 0.20 times and highest is at 14.93 times. The sales growth rate is 15%.

4.2 Quantitative Analysis

After analysing the results of descriptive statistics of the variables under study, these variables are subjected to further measurement using correlation analysis. Pearson's correlation permits the identification of the possible association between working capital management and the firm's profitability. Table 6 presents the correlation analysis between the different components of working capital and profitability. The results reveal that a negative correlation was reported between receivables conversion period and return on assets (a measure of profitability) with coefficient (-.417), with p-value (0.000). It indicates that the result is highly significant at $\alpha = 1\%$, depicting that any increase receivables conversion period will have a significant negative effect on profitability. Similar results were drawn between inventory conversion period and return on assets with correlation coefficient (-0.335) and the p value (0.000). This again indicates that the results are highly significant at $\alpha = 1\%$, signaling towards the fact that if firm takes more time in converting inventory into sales, this can have an adverse effect on its profitability.[7]

Correlation results pertaining to payment deferral period and return on assets reveal that there existed a negative association between the two measures, with correlation coefficient (-0.139) and the p-value (0.036). This indicates that the results are highly significant at $\alpha = 5\%$, the negative association between PDP and ROA shows the less profitable firms wait longer to settle their dues. Additionally, firms often get discounts for prompt or early payments. This further reveals that, financing firms operations through current liabilities is more feasible when compared to external financing as the later comes with

[7] Working Capital Management And Profitability-Case of Pakistani Firms, Abdul Reheman and Mohamed Nasr, *International review of Business Research papers,* Vol. 3 No. 1. March 2007, Pp. 279-30

considerable costs. Firms pursue this by delaying payments to their suppliers and managing their working capital.[8]

		ROA	NOP	GOP	ICP	RCP	PDP	CCC	Debt Ratio	Current Ratio	Quick Ratio	Sales growth	LN Sales turnover
		Pearson's Correlation Coefficients											
		23 Indian Automobile Firms, 2007-2016, 230 firms-year observations											
ROA	Pearson Correlation	1	.545**	0.658**	-.335**	-.417**	-.139*	-.271**	-.595**	-.214**	-.182**	.257**	.270**
	Sig. (2-tailed)		.000	.000	.000	.000	.036	.000	.000	.001	.006	.000	.000
		230	230	230	230	230	230	230	230	230	230	230	230
NOP	Pearson Correlation	.545**	1	.912**	-.119	-.026	-.072	-.033	-.274**	.316**	.358**	.242**	-.059
	Sig. (2-tailed)	.000		.000	.071	.691	.276	.616	.000	.000	.000	.000	.372
	N	230	230	230	230	230	230	230	230	230	230	230	230
GOP	Pearson Correlation	.658**	.912**	1	-.386**	-.306**	-.093	-.286**	-.458**	.162*	0.215**	0.279**	.069
	Sig. (2-tailed)	.000	.000		.000	.000	.161	.000	.000	.014	.001	.000	.296
	N	230	230	230	230	230	230	230	230	230	230	230	230
ICP	Pearson Correlation	-.335**	-.119	-.386**	1	.668**	.090	.785**	.263**	.374**	.294**	-.238**	-.375**
	Sig. (2-tailed)	.000	.071	.000		.000	.173	.000	.000	.000	.000	.000	.000
	N	230	230	230	230	230	230	230	230	230	230	230	230
RCP	Pearson Correlation	-.417**	-.026	-.306**	.668**	1	.266**	.614**	.516**	.432**	.409**	-.128	-.560**
	Sig. (2-tailed)	.000	.691	.000	.000		.000	.000	.000	.000	.000	.052	.000
	N	230	230	230	230	230	230	230	230	230	230	230	230
PDP	Pearson Correlation	-.139*	-.072	-.093	.090	0.266**	1	-.478**	.207**	-.136*	-.122	-0.037	-.324**
	Sig. (2-tailed)	.036	.276	.161	.173	.000		.000	.002	.040	.066	.580	.000
	N	230	230	230	230	230	230	230	230	230	230	230	230
CCC	Pearson Correlation	-.271**	-.033	-.286**	.785**	.614**	-.478**	1	.225**	.474**	.409**	-.165*	-.233**
	Sig. (2-tailed)	.000	.616	.000	.000	.000	.000		.001	.000	.000	.012	.000
	N	230	230	230	230	230	230	230	230	230	230	230	230
Debt Ratio	Pearson Correlation	-.595**	-.274**	-.458**	.263**	.516**	.207**	.225**	1	.146*	.102	-.023	-.379**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.002	.001		.027	.122	.730	.000
	N	230	230	230	230	230	230	230	230	230	230	230	230
Current Ratio	Pearson Correlation	-.214**	.316**	.162*	.374**	.432**	-.136*	.474**	.146*	1	.976**	.015	-.285**
	Sig. (2-tailed)	.001	0.000	.014	.000	.000	.040	.000	.027		.000	.818	.000
	N	230	230	230	230	230	230	230	230	230	230	230	230
Quick Ratio	Pearson Correlation	-.182**	.358**	.215**	.294**	0.409**	-.122	.409**	.102	.976**	1	-.007	-.270**
	Sig. (2-tailed)	.006	.000	.001	.000	.000	.066	.000	.122	.000		.913	.000
	N	230	230	230	230	230	230	230	230	230	230	230	230
Sales growth	Pearson Correlation	.257**	.242**	.279**	-.238**	-.128	-.037	-.165*	-.023	.015	-.007	1	-.015
	Sig. (2-tailed)	.000	.000	.000	.000	.052	.580	.012	.730	.818	.913		.822
	N	230	230	230	230	230	230	230	230	230	230	230	230
LN Sales Turnover	Pearson Correlation	.270**	-.059	.069	-.375**	-.560**	-.324**	-.233**	-.379**	-.285**	-.270**	-.015	1
	Sig. (2-tailed)	.000	.372	.296	.000	.000	.000	.000	.000	.000	.000	.822	
	N	230	230	230	230	230	230	230	230	230	230	230	230

Table 6: Pearson's Correlation Coefficients

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

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

> Cash conversion cycle is one of the comprehensive measures of working capital, the results of correlation analysis reveal that there is negative association between cash conversion and return on assets with coefficient (-0.271) with p-value (0.000). Thus, it indicates that

[8] **Annual Journal of Technocrats Institute of Technology – MBA Volume – 04, December, 2014-** Dr. Ashok Kumar Panigrahi, Associate Professor in Finance , NMIMS University, Shirpur.- To understand the how negative working capital works, let us analyze Warner Brothers / Wal-Mart situation. When Wal-Mart ordered the 500,000 copies of a DVD, they were supposed to pay Warner Brothers within 30 days. What if by the sixth or seventh day, Wal-Mart had already put the DVDs on the shelves of its stores across the country? By the twentieth day, they may have sold all of the DVDs. In the end, Wal-Mart received the DVDs, shipped them to its stores, and sold them to the customer (making a profit in the process), all before they had paid Warner Brothers! If Wal-Mart can continue to do this with all of its suppliers, it doesn't really need to have enough cash on hand to pay all of its accounts payable. As long as the transactions are timed right, they can pay each bill as it comes due, maximizing their efficiency.

the result is highly significant at α = 1%. This shows that firms try to increase their profitability by decreasing their cash conversion cycle and *vice versa.*

With the above analysis we can conclude that, firms will prosper with increased profitability, if time involved in Inventory conversion and Receivables conversion is reduced but the time involved in payment deferral period is increased. With low or negative cash conversion cycle, firm's dependency on external sources of finance could be minimized considerable reducing cost on the other side. To conclude the outcome of correlation analysis demonstrates that Indian firm's working capital management very significantly and strongly influences their profitability.

The correlation analysis also reveals that a significant positive association between the RCP and CCC with coefficient (0.614) and the related with p-value (0.000) and this result is highly significant at α = 1%. This marks the fact that the CCC of a firm increases, if there is a delay in collections form customers and *vice versa*. Similar results were seen between ICP and CCC with coefficient (0.785) and the related p-value (0.000) and this result is highly significant at α = 1%, indicating the fact that, if firms are successful in lowering ICP, the days in CCC could also be minimized considerably.

There also existed a negative association between firms' PDP and CCC with coefficient (-0.478) and the related with p-value (0.000) and this result is highly significant at α = 1%. This highlights the fact that, if firms delay their payments as against the time taken to collect receivables and converting inventory into sales this will result in decrease in CCC. Many studies have supported that any decrease in CCC will result in an increase in profitability. In other words, negative association between PDP and CCC and positive association with RCP, ICP and CCC in turn has a considerable effect on firms' profitability.

To conclude, the correlation analysis concerning Indian Automobile firms shows that the working capital management very significantly and strongly influences profitability.

4.3 Regression Statistics

Model 1 test the hypothesis that Indian Automobile firms decisions pertaining to working capital impact profitability significantly and

this is pursued by managing the levels of inventories (one of the components of working capital). The regression results indicate existence of statistically positive insignificant relationship between ***Inventory conversion period and ROA*** (p-value > 5%). It means that if inventory in finished goods takes less time to sell, then, that may positively affect firm's profitability.

This also signifies that Automobile firms are more profitable if they maintain lower level of inventories. Indian Automobile firms can improve their profitability by reducing days involved in inventory conversion or maintain lesser inventory. The positive influence could also be due to the fact that if Indian Automobile firms maintain higher levels of inventories, costs associated with possible disruption in the production processes could be minimized and also the losses likely to be suffered due to short supply of products can be overcome. Due to the nature of the industry maintaining higher inventory levels is recommended as Automobile firms are subject to frequent price fluctuations in its raw materials as a result of unfavourable macro-economic conditions as observed by Mathuva (2010); Blinder and Maccinni (1991) The results are inconsistent with studies conducted earlier by Raheman & Nasr (2007), Deloof (2003), Garcia-Teruel and Martinez-Solano (2007) and Lazaridis and Tryfonidis (2006). The firms are able to adopt this non-conservative WCM policy due to huge investments in ERP, JIT, JIS and SCM. Inventory management should ultimately aim to strike a proper balance between maintaining sufficient balances to cater production requirements and at the same time not having extra inventory resulting in additional cost burden and also running risk of obsolescence. Companies are utilising all sorts of technology available in the market to manage their inventories at optimum levels. The coefficients of the other variables are mostly significant, ROA increases with Firm size (measured by the natural logarithm of Sales Turnover-as log transformation reduces the heteroscedasticity and influences of outliers in the regression model[9]) and sales growth. Current ratio and Quick ratio being theoretical measure of liquidity have significant impact on profitability in case of selected Indian Automobile firms.

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[9] Abdul Raheman, Talat Afza, Abdul Qyyum, Mahmood Ahmed Bodla, International Research Journal of Finance and Economics, ISSN 1450−2887 Issue 47 (2010), © Euro Journals Publishing, Inc. 2010, http://www.eurojournals.com/finance htm

Furthermore QR and Sales growth have positive influence on ROA and CR has negative influence on profitability. Moreover, this relationship is statistically significant. In this case, Adjusted R_2 was 54.74%; this indicates independent variables explained the dependent variable ROA very well. Overall model is significant with F- value 11.25 and corresponding-value = 0.0000.

Model 2 measures the possible influence of ***Receivables collection period on Firm's profitability*** that Indian Automobile firms decisions pertaining to working capital impact profitability significantly and this is pursued by ensuring that dues (Receivables-one of the components of working capital) to the companies are collected faster. The regression results indicate that the coefficient of RCP is negative (-0.042) and this is significant with þ-value= 0.0000. It is evident from Table 7 that RCP has a statistically negative significant relationship with ROA (a determinant of profitability) this implies that firms' profitability increases with decrease in receivables collection period. This could also mean that a decision on improving profitability by the Indian Automobile firms is highly influenced by its receivable collection period and to add to it RCP is a good indicator for explaining financial strength of Automobile firms in the short run. Companies face problems concerning delay in invoice payments, while being aggressive in pursuing payments companies also fear harming relationships with their customers, likewise customers also exert a lot of pressure on businesses to extend liberal credit and payment terms, payment discounts are effective way to accelerate cash flows but there is still no guarantee of prompt payment with early payment discounts. QR, Sales growth and Firm size are positively influencing profitability. This implies that the liquidity of the firm improves with increased profitability and the sales growth and Firms size expands with increased ROA. Furthermore CR has negative relationship with ROA. Moreover, this relationship is statistically significant. This implies that liquidity of the firm is affected with decrease in profitability. The regression results significantly differ from the study conducted by Sharma and Kumar (2011), Raheman, Afza, Qayyum and Bodla (2010). But are consistent with the study conducted by Mathuva (2010), Filbeck et. al. (2005), Shin & Soenen (1998), Deloof (2003). However, the overall model is statistically significant with F-value 12.62

(þ=0.0000). The Adjusted R2 of the model implies that 57.82 % of the variation in the profitability of the firms can be explained by the models independent variables.

Model 3 measures the hypothesis that Indian Automobile firms with lower profitability wait for a longer period in making payments to their suppliers. The negative relationship between the **Average payment period and profitability** indicates that the less profitable firms wait longer to pay their bills.[10] The regression results indicate that the coefficient of PDP is negative and insignificant at (p-value > 5%). This implies that any increase or decrease in the PDP affects profitability of the firm. This indication points out the fact that managers can improve profitability by reducing the credit period granted to their customers and in turn withhold their payments to suppliers so as to take advantage of the cash available for their working capital needs. This result could also be explained by the high implicit cost of vendor financing to the firm, since the firm foregoes discounts for early payments[11]. Companies offering payment discounts needs to analyse cost closely, as it should not result in moderate improvement in working capital by incurring huge expenditure. Incorrect invoices could result in delayed payments or disputes; this could be overcome by devising a mechanism to address customer inquiries. The results obtained are not consistent with the other studies conducted by Deloof (2003) & Raheman & Nasr (2007). Quick ratio Firms size and sales growth are positively affecting profitability, highlighting the fact that rise in ROA significantly improves liquidity and this rise is due to increased sales. Whereas, CR is negatively affecting profitability highlighting the fact that liquidity of the firm is significantly affected with decreased ROA. The Adjusted R^2 of the model is 55.05%, this points at the share of dispersion of ROA that is explained by PDP factors amounts to 55% with an F-Value of 11.39 which is highly significant at (þ<0.01).

Model 4 tests the hypothesis that Indian Automobile Firms generate liquidity that negatively influences their profitability. The regression

[10] **DELOOF M (2003)** does working capital management affect profitability of Belgian firms? J Bus Finance Account. & **Abdul Raheman* and Mohamed Nasr,** *International Review of Business Research Papers,* Vol.3 No.1. March 2007, Pp.279 – 300

[11] Pedro Juan Garcia-Teruel & Pedro Martinez-Solano – Effects of WCM on SME profitability

coefficient indicated an insignificant negative relation between **Cash Conversion Cycle and Return on Assets** at (p-value >10 %). This states that any changes in CCC will significantly affect profitability. It is consistent with the view that decreasing the CCC will generate more profits to the firm. Furthermore, negative influence of CCC and profitability could also be due to the fact that Automobile firm's profitability increases with minimized investment in current assets. It also implies that firms can create value for their shareholders by keeping the CCC to minimum. The rest of model variables are significantly affecting profitability. The increase in sales has a positive effect on profitability; current ratio has a negative effect whereas other control variables namely quick ratio firm size and sales growth are positively affecting profitability. The adjusted R^2 of the model 55.18% indicating all independent variables is explaining ROA significantly. The F-Value is 11.44 at (þ=0.0000).

FIXED EFFECT MODEL- DEPENDENT VARIABLE: Return on Assets (ROA)											
23 Indian Automobile Firms, 2007-2016, 230 firms-year observations											
	Model 1: ICP			Model 2: RCP			Model 3: PDP			Model 4: CCC		
	Co-efficient	T-Statistics	P-Value	Co-efficient	T-Statistics	P-Value	Co-efficient	T-Statistics	P-Value	Co-efficient	T-Statistics	P-Value
C	-0.269	-3.283	0.001	-0.148	-2.828	0.005	-0.186	-2.863	0.004	-0.110	-1.094	0.275
Variable	0.010	0.428	0.668	-0.042	-3.867	0.000	-0.019	-1.260	0.209	-0.047	-1.474	0.141
CR	-0.097	-2.017	0.044	-0.108	-2.613	0.009	-0.098	-2.282	0.023	-0.081	-1.918	0.056
QR	0.071	1.947	0.052	0.085	2.756	0.006	0.067	2.141	0.033	0.059	1.877	0.061
SGT	0.087	3.846	0.000	0.074	4.049	0.000	0.079	4.175	0.000	0.077	4.028	0.000
Ln Sales												
Turnover	0.016	3.887	0.000	0.015	3.692	0.000	0.014	3.250	0.001	0.017	4.069	0.000
R-squared	0.600788			0.627			0.603			0.604683		
Adjusted												
R-squared	0.547428			0.578252			0.550550			0.551844		
F-statistic	11.25915			12.62881			11.38934			11.44380		
Prob. (F-statistic)	0.000000			0.000000			0.000000			0.000000		
Durbin–Watson												
stat	1.818267			1.920207			1.848642			1.823199		

Table 7: Fixed effect model- dependent variable: return on assets (roa)

Conclusion

Majority of the Automobile firms have large amounts of the cash invested in working capital management. In this study, the effect of working capital management on 23 Indian Automobile firms' profitability was empirically investigated, using ROA as a measure of profitability and CCC as a principle

indicator of working capital management. The relationship has been examined using Panel data regression analysis. The findings of our study reveal that RCP had statistically negative significant relationship with profitability; this could be due to company/industry specific characteristics as majority of Automobile firm's sales are on credit basis. Therefore, RCP association with profitability is negative and significant.

PDP and CCC have statistically negative insignificant relationship with profitability. The variable ICP influences profitability positively. The findings of study are consistent with Shin Seonen (1998), Deloof (2003) & Raheman & Nasr (2007). The results of study also highlight that WCM is more of strategic than an operational concern for financial executives. Longer cash conversion cycle hamper firms profitability, and also low level of liquidity affects company's risk. The results further suggest that managers can increase profitability, considerably reduce costs and create value for their shareholders, along with this, and Firms' manager can finance their growth strategies with additional funds instead of investing them in inventory and receivable.

Further Research

Much could be done about working capital management in India in future. It is suggested further research could be done on the same topic covering more companies, many sectors, and also extending the time period of the study. The economic impact of government policies in recent times, namely, Make in India, Post-demonetisation can be researched on. The scope of future research may be extended by adding more variables, like, Risk adjusted, cash flows, Inflation adjusted cash flows, weighted cash conversion cycle and extending definition of working capital by including cash, marketable securities and bank overdraft.

Abbreviations

WCM = Working Capital Management
ICP = Inventory Conversion Period
RCP = Receivables Conversion Period
PDP = Payment Deferral Period
ROA = Return on Assets
CR = Current Ratio
QR = Quick Ratio

CAGR =Compound Annual Growth Rate

ERP   =Enterprise Resource Planning

JIT   =Just in Time

JIS   =Just in Sequence

SCM   = Supply Chain Management

R&D   = Research and Development

GOI   =Government of India

FDI   = Foreign Direct Investment

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