Relationship between Working Capital Management and Profitability of Automobile Companies in India: A Paradigm Shift towards Economic Strengthening

Syed Noorul Shajar

Abstract—Widespread interest in the field of corporate finance, in particular working capital management has grown rapidly in recent years. It is an act of judiciously balancing the liquidity and profitability of finance available to the management, which insinuate its inevitability for the management as an inexorable component of every walks of economic life whether in a household or in a business concern, in the public discipline or in private, for the purpose of profit earning or social welfare. So a well designed and implemented working capital management is expected to contribute positively to the profitability and firm's value. The efficient working capital management is very climacteric factor in maintaining survival, liquidity, solvency and profitability of any business organization. Moreover, an optimal working capital management positively contributes to the value of every concern. To overcome competition in a very complex and dynamic environment it is an arduous task for the companies to optimizing of their working capital as a real competitive advantage to leverage profit. To reach optimal working capital management, the manager should judiciously manage relationship between profitability and working capital components precisely. The prime objective of working capital management is to ensuring consistency in day to day operations of a concern vis-à-vis fulfilling short term financial obligations within the company. Which is only possible by deliberately managing inventories, receivables, payables and cash of the business concern. So this study is an attempt to measures the relationship as well as impact of working capital management on the profitability of 26 Automobile companies listed at Bombay Stock Exchange for the period 2007-2016.

Index Terms—Working capital management, Return on assets, Tobin's-q, automobile, profitability.

I. INTRODUCTION

Working capital is a company's surplus of current assets over current liabilities, which helps in measuring the extent to which a company can finance any increase in turnover from other sources of fund for their day to day operation [1]. working capital is the arithmetic difference between two balance sheet aggregated accounts i.e. Current assets and current liabilities [2]. Working capital management (WCM), refers to the financing, investment and control of the net current assets within the policy guidelines. Working capital can be regarded as the lifeblood of the business and its optimal and judicious provision can enhance the growth opportunity of the business [3]. Working Capital

Manuscript received April 25, 2017; revised April 5, 2017. S. N. Shajar is with the department of Commerce, Amu, Aligarh (e-mail: noorulshajar@gmail.com).

doi: 10.18178/ijtef.2017.8.4.566

Management (WCM) is an important corporate financial decision since it directly affects the profitability of the firm [4]. A firm ought to optimize its liquidity and profitability while conducting its daily business operations [5]. An optimal level of working capital maximizes firms' value [6]. Proper optimization of working capital means minimizing the working capital requirement and realizing maximum possible revenues [7]. The objective of working capital management is to ensure that the firm is able to meet its operating expenses and also remain in a position to pay short-term obligations as and when they fall due. The mismanagement of working capital may lead to a liquidity crisis and a reduction in profitability [8]. The working capital management normally consists of planning, assets control and the present debts in a way that removes the risk of meeting short-term expectations and avoids excessive investment on these assets. On the other hand the Indian automobile industry is one of the largest in the world. It is one of the key drivers that boosts the economic growth of the country. Since the de-licensing of the sector in 1991 and the subsequent opening up of 100 percent FDI through automatic route, Indian automobile sector has come a long way. Today, almost every global auto major has set up facilities in the country. The industry accounts for 7.1 per cent of the country's Gross Domestic Product (GDP). As of FY 2015-16, around 33 % of small cars sold globally are manufactured in India, Moreover, the growing interest of the companies in exploring the rural markets further aided the growth of the sector. The overall Passenger vehicle (PV) segment has 13 per cent market share. The Indian automobile sector has the potential to generate up to US\$ 300 billion annual revenue by 2026, create 65 million additional jobs and contribute over 12 per cent to India's Gross Domestic Product, as per the Automotive Mission Plan 2016-26 prepared jointly by the Society of Indian Automobile Manufacturers (SIAM) and government of India.

II. BRIEF BACKGROUND OF INDIAN AUTOMOBILE INDUSTRY

Following international trends, the Automobile industry in India showed significant growth in the years under period of study. The industry accounts for 7.1 per cent of the country's Gross Domestic Product (GDP). The growth was aided by favourable government policies during this period and levy of lower import duties on raw material inputs and on intermediate products. A substantial hike in demand for automobiles, were driven partly by easy availability of loans from banks and leasing companies at low financial cost,

which resulted favourably in the buoyant growth of the sector. Moreover, the growing interest of the companies in exploring the rural markets further aided the strength of the sector. The expansion in the sector, besides boosting the country's industrial output, also provided significant direct and indirect employment opportunities. Sales of passenger vehicles multiplied by 16.7 percent than previous fiscal in August 2016 obsessed by better-than-expected monsoon and strong buying sentiment. As per report published by Department of Industrial Policy and Promotion (DIPP), several auto makers' giants have started investing heavily in various segments of the Indian automobile industry during the last few years. The industry has attracted Foreign Direct Investment (FDI) worth **US\$ 15.06 billion** during the period April 2000 to March 2016, which itself depicts the luminous future of the industry. The selected 26 Automobile companies for the purpose of this research are listed at Bombay stock exchange (BSE-500) indices and plays a significant role in the transformation of Indian automobile industry by offering various price range cars, Special utility vehicles, motorcycles, Buses, Trucks etc. for different sections of society, designed with superior comfort, connectivity and performance.

III. LITERATURE REVIEW

According to [7] Efficiency in WCM helps in enhancing firm's free cash flow, which results in raising the firms' growth opportunities and maximisation of return to [9]. Explains that Working shareholders Capital Management includes maintaining optimum balance of working capital components namely receivable, inventory and payables and using the cash efficiently for day-to-day operations while analysis of the study showed that working capital management plays a pivotal role in determining and maximising overall profitability of textile firms [10], in their paper on relationship with working capital management and manufacturing sector of Pakistan indicates that the cash conversion cycle, net trade cycle and inventory turnover in days significantly affects the performance of the firms. In the words of [11] working capital management is recognized as an important aspect of financial management practices in all organizational forms. [12]. Found negative relationship of working capital management receivables and positive with inventory turnover in chemical sector firms listed at Karachi stock exchange [13] in their paper examined the trade-off between liquidity and profitability in the manufacturing sector of 31 listed Sri Lankan firms and the result showed that no significant relationship exist between liquidity and profitability among the chosen manufacturing firms in Sri Lanka. So firms should maintain an adequate level of liquidity to meet production demands and to make sure of un-interrupted production [14] in his paper analysed impact of working capital management on the profitability and capital structure of automobile firms in Pakistan and the results showed that firm size, liquidity and financial leverage are found to have a significant and direct effect on profitability whereas operating leverage is significant but negatively related with proxy measure of profitability [15] in their study focused on analysing the impact of working capital management on the profitability of two Indian automobile companies and

concluded that working capital management had insignificant relationship with profitability of selected automobile companies [16] in their study analysed impact of leverage on capital structure practices of five Indian automobile companies and found that degree of operating and combined leverage is having a significant relationship with profitability of the concern while financial leverage and debt-equity ratio is having an insignificant relationship with profitability [17] in their paper found significant negative relationship between components of working capital with profitability suggesting the fact that profit can be increased by tactfully managing cash conversion cycle and working capital components [18]. Emphasised in their paper that strategic choices developed by the wholesale and retail industry indeed affect their working capital management hence coherence between strategy and working capital should receive the utmost attention [19]. In their paper analyses the impact of working capital management on the selected Indian automobile companies and result depicts that for maintaining liquidity, solvency and profitability of any organisation working capital is an inevitable factor. So an in-depth literature review guides the researcher to go through the empirical evidence of the working capital management and its relationship with automobile companies in India to minutely grasp the conclusion. Henceforth, the comprehensive literature review discovers that working capital management impacts on the profitability of the firm. So the present study is an attempt to gauge the relationship between a set of such variables and the profitability of 26 Indian Automobile companies listed at Bombay stock exchange for 10 years period ranging from April 2006 to March2016.

IV. RESEARCH METHODOLOGY

A. Data Collection

The data collected belongs to Automobile companies listed on the Bombay Stock Exchange-500 indices. The companies which are incorporated on or before 2000 were only considered for the purpose of study. The reason for choosing this market is primarily due to the importance of the sector as discussed earlier. The study uses structured panel data, which primarily is a dataset in which the behaviour of companies are observed across time. Thus, 26 companies ten years data resulted in 260 total observations. The data were collected from CMIE (Centre for monitoring Indian economy), Prowess data base for the period ranging from April 2006 to March 2016.

B. Variables of the Study

To remain consistent with the earlier studies, common measures pertaining to working capital management and profitability were taken from the study of [17], [20], [21] and [22]. They used cross sectional yearly data and measured the variables on the pattern as mentioned below:

1) Explanatory variable

The explanatory variables represent inputs or causes of potential reasons for variation in the Explained variable. Some of the explanatory variables used in the study are as:

(1) No. of Days A/R = (Accounts Receivables/Sales) \times 365.

It shows the ability of firm to collect cash from customer

within appropriate time to enhance liquidity

(2) No. of Days A/P = (Accounts Payables/Cost of Goods Sold) \times 365.

It shows how long a company takes to pay off its creditors, as the time for payable is elongated it helps in maintaining more liquidity.

(3) No. of Days Inventory = (Inventory/Cost of Goods Sold) \times 365.

It is an efficiency ratio that measures the average number of days the company possess its inventory before selling it. As the time is lower, more productive for the concern.

(4) Cash Conversion Cycle = $\{(No. \text{ of Days A/R} + No. \text{ of Days Inventory}) - No. \text{ of Days A/P}\}.$

It is a metric that attempts to calculate the period of a concern to convert its applied resources into cash.

2) Control variable

A control variable is the variable which is unchanged throughout an experiment, its helps in knowing the better relationship between variables used in the study.

(5) Firm Size = Natural Logarithm of total assets.

Size of the firm shows the strength of firm, it is calculated by taking natural log of total assets

- (6) Leverage = (Short-Term Loans + Long-Term Loans)/Total Assets. (This ratio is used in order to gauge the relation between the external financing of the firm with its total assets)
- (7) Sales Growth = (Current year sales/ last year sales)-1. (Growth is a measurement of company's performance in the market)

3) Explained variable

The explained variable depicts the change in it due to explanatory variable.

(8) Return on assets ratio (ROA) = Net income (annual)/Average total assets.

ROA is used as explained variable in the study, it is a metric to measure how efficiently a company can convert the money used to purchase assets into net income or profits during a financial year.

(9) Tobin's-Q = {(Market value of equity + Book value of debt)/ Book value of Assets}

It is a measure of firm's assets in relation to market value of firm. It is used to know the efficiency of firm's value with respect to book value of its assets.

C. Framework Modelling Specification

After going through an in-depth review of literature, Consistent with previous studies of [10], [17], [23] and [24] the relationship with working capital management and companies profitability is shown by developing best fitted Fixed effect regression model (FEM) equations to gauge the impact of WCM with profitability and firm's value.

Model 1:

Model 1A: ROA_{it}= β 0 + β 1 AR + β 2 ICP + β 3 LEV. + β 4SIZE+ β 5 GROWTH+ ϵ _{it}

Model 1B: TOBIN-Q_{it}= β 0 + β 1 AR + β 2 ICP + β 3 LEV. + β 4SIZE+ β 5 GROWTH+ ϵ _{it}

Model 2:

Model 2A: ROA_{it=} β o+ β 1 AP + β 2 CCC+ β 23 LEV. + β 4SIZE + β 5 GROWTH + ϵ_{it}

MODEL2B: TOBIN-Q_{it}= β o+ β 1AP + β 2 CCC+ β 3 LEV. + β 4 SIZE + β 5 GROWTH + ϵ _{it}

Where, (ROA) is measure of profitability, i.e., Return on assets. TOBIN-Q measures the value of firm. Subscript i denote companies (cross-section dimensions) whereas t denotes years (time-series dimensions), β 0 is a constant term representing Y intercept of the regression line. (SIZE) is the company size as measured by natural logarithm of total assets. (LEV) is acronym for leverage which depicts Debt- equity ratio of selected companies. AP stands for average payment period in days, while ICP, CCC and AR denotes inventory conversion period, cash conversion cycle and average receivables in days of companies respectively. While ϵ is the error term of the models separately and β 0, β 1, β 2, β 3, β 4, β 5 are the Regression model coefficients.

V. DESCRIPTIVE STATISTICS

Table I provides descriptive statistics of all the variables incorporated in the study. Total number of observation is 260 for the study undertaken. Mean of return on assets is found to be 7.68%, insinuating that average return on assets of companies are 7.68% of total assets. The mean value of Tobin-q is found to be 1.60 which is more than 1 suggesting that firms have an incentive to increase their capital stock. The credit period granted by companies to their customers averaged at 40.86 days with a maximum of almost 209 days and minimum 1.22 days replicating the sound strategy adopted by companies to collect receivables, while on the contrary average number of days taken by the company to pay their suppliers are 69.72 days with a maximum of 156 days and minimum of almost 08 days. Inventory of the companies took an average of 80.46 days to be converted into cash. The mean average of overall cash conversion cycle stood at 51.61 days with a maximum of 421 days. Which suggest that Companies in order to improve their operation and increase the shareholder's wealth should pay attention on minimising cash conversion cycle by elongating payables and shortening receivables. The mean leverage ratio of the companies are 153% lagged by total assets. The table further shows that an average firm has a growth of 17% during the study period.

VI. EMPIRICAL ANALYSIS

This section entails, the empirical results prepared by using quantitative data analysis applying E-Views and SPSS. The analysis are presented through Pearson's bivariate correlation followed by regression analysis.

A. Correlation Analysis

Table II provides the Pearson correlation for the variables that we used in the regression model. Pearson's correlation analysis is used here to find the relationship between components of working capital management and proxy measure for profitability. It shows the level of strong or weak relationships between two variables. We found that the (ROA) return on assets is negatively correlated with the accounts receivables (AR), account payables (AP), inventory conversion period (ICP) and cash conversion cycle (CCC) of the firm. The negative correlation with

accounts receivables indicates that if the average collection period increases it will have a negative impact on the profitability, meaning hereby that as less time taken from receiving the debt more the cash is available to the companies to refill the inventory. Whereas the negative relation between accounts payables and ROA indicates an explanation that companies wait too long to pay their accounts payable. Earlier payments to suppliers might increase profitability because companies often receive a substantial discount for prompt payment [6]. Which implies that in order to enhance profitability the companies should not delay in paying suppliers and creditors. Size and growth of firms are found to be positively related to ROA which means that higher sales and maintaining major chunk of assets may result into higher profitability. While significant negative relationship of ICP and CCC with ROA indicates that lowering the period of ICP and CCC will result into higher profitability, which will help the firm to maximise their profitability [25]. On the other hand Tobin's-Q (TQ) is also found to be in negatively significant relationship with AR, ICP, and CCC, which insinuates that value of firm goes in negativity if period of AR, ICP and CCC are elongated. While size and growth of firms are positively related with value of firm signifying that expansion in size and growth of sales will result in maximisation of firm's market value.

B. Regression Analysis

1) VIF and Hausman test

Variance Inflation Factor (VIF) statistics were analysed in the study respectively for all the explanatory and control variables in separate models to check the existence of multicollinearity. The analysis were done using SPSS. From the below mentioned VIF Table III it is clearly shown that the statistics are within the limit, leading to the conclusion that there is no presence of multicollinearity amongst the explanatory variables in the data. The two main models consist of sub models with the same variable within each model by taking different response variable. So value of VIF remains same for the main models as shown in the table. The highest value of VIF statistics obtained is 1.754 in Model 1, 1.527 in Model 2. While lowest value in the models are 1.039 and 1.047 respectively. Whereas a commonly given rule of thumb is that VIF's of 10 or higher may be a reason for concern [26].

2) Correlated random effects-Hausman test

In order to test the result empirically, Fixed and Random effect model is being tested in the study followed by Hausman test to opt the better one. Hausman test is used to differentiate between fixed effects model and Random effects model (REM) in Panel data. Where acceptance of null hypothesis denotes the appropriateness of Random effect model, while fixed effect model (FEM) denotes the applicability of model when alternative hypothesis is accepted. Random effects model (REM) is preferred under the null hypothesis due to higher efficiency, while under the alternative hypothesis fixed effects (FE) is least consistent and thus preferred. In the above shown Table IV, p (significant) value is less than 0.01 at 1% level of significance in all the four models leading to the conclusion regarding rejection of null hypothesis, which further implies to the applicability of fixed effect model. Fixed effects estimation assumes firm specific intercepts, which capture the effects of those variables that are particular to each firm and constant over time [6]. So fixed effect model have been considered for analysis in all the regression models.

TABLE I: DESCRIPTIVE STATISTICS OF EXPLAINED, EXPLANATORY AND CONTROLLED VARIABLE DESCRIPTIVE STATISTICS (N=260)

Variable	Minimum	Maximum	Mean	Std. Deviation
ROA	-9.60	43.43	7.68	6.86
TQ	0.042	19.26	1.60	2.04
AR	1.22	209.49	40.86	25.05
AP	7.57	156.56	69.72	28.72
ICP	12.71	372.57	80.46	44.93
CCC	-75.23	421.34	51.61	66.86
LEV	0.22	6.19	1.53	0.99
SIZE	3.12	5.76	4.48	0.56
GROWTH	69	3.19	0.17	0.31

(Output generated by SPSS 20.0)

TABLE II: PEARSON BIVARIATE CORRELATION ANALYSIS

			IADLE	II: PEAKSON DI	VARIATE CORR	ELATION ANAL:	1 212		
	ROA	TQ	AR	AP	ICP	CCC	LEV	SIZE	GROWTH
ROA	1	.624**	360**	274**	311**	220**	.008	.153*	.236**
TQ		1	315**	.042	213**	272**	113	.128*	.209**
AR			1	.017	.622**	.763**	.317**	362**	087
AP				1	.041	384**	261**	154*	060
ICP					1	.862**	.379**	280**	125*
CCC						1	.472**	250**	088
LEV							1	303**	028
SIZE								1	098
GROWTH									1

(Output by SPSS)** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

TABLE III: VARIANCE INFLATION FACTOR (VIF)

Variables	Model 1	Model 2
AR	1.752	
AP		1.339
ICP	1.754	
CCC		1.527
LEV	1.232	1.391
SIZE	1.232	1.272
GROWTH	1.039	1.047

Source: (output generated by SPSS)

C. Fixed Effect Regression Output and Interpretation

Regression is a statistical measure which is used to determine the strength of the relationship between one explained variable (denoted by Y) and a series of other changing variables (known as explanatory variables (denoted by X). So far the study incorporates a framework of related literature and data analysis in order to gauge the relationship between components of working capital management and companies' profitability by framing 4 regression models as shown with the help of Table V. Account receivables in days were found to be negatively and highly significant with ROA and Tobin-Q at 1% level of significance in model (1A&1B). which is consistent with the study of [3], [6], [17] and [20] signifying that adopting restrictive credit policy by giving customers less time to make their payments improves value of firm vis-àvis profitability of the companies. Accounts payable in days were found to be negative and highly significant at 1% level of significance with ROA and remain insignificant at all level of significance with Tobin-Q, which is consistent with the earlier studies of [3], [6] and [17] taking ROA as an explained variable suggesting that the result make economic sense, since the longer a firm delays its payments in order to maintain higher level of working capital reserves it lost credibility in the market which in turn affects the goodwill of firm and hampers the profitability, but the results are contrary to the earlier researches of [18], [23] and [27]. ICP (Inventory conversion period) of the firms are found to negatively impact ROA at 5% level of significance implying that longer the inventory is tied less the working capital is available, meaning thereby a sudden drop in sales accompanied with a mismanagement of inventory will lead to tying up excess capital at the expense of profitable operations so for maximising the profitability, inventory conversion period of companies should be fasten. While this result is not statistically significant with Tobin-Q. The finding of the above result is consistent with the findings of [17], [24] and contrary to the finding of [23], [27] which suggest that maintaining high inventory levels helps in

reducing the cost of supplying the products and protects the companies against price fluctuations. Cash conversion cycle (CCC) of the companies in the models are found to be negative and highly significant at 1% level of significance insinuating that decrease in the cash conversion cycle will increase the profitability of companies which is consistent with the earlier researches of [17], [28] indicating that lower cash conversion cycle helps in maintaining favourable liquidity position to the companies which in turn enhances the profitability. The analysis of regression shows that coefficient of leverage is positive and significant at 1% and 10% level of significance with ROA in model (1A &2A) which is consistent with the study of [8], [14], and [23], meaning thereby more profitable companies are much likely to rely upon external capital in financing their operations. Hence more levered automobile companies are having a better opportunity to enhance their profitability. While in case of (Tobin-q) firm's value are negatively related by using more debt. The co-efficient of Size of companies are also found to be insignificant at all levels of significance in all the models suggesting that profitability and value of the companies are unchanged when the size of firm are expanded. Co-efficient of Sales growth of companies measured by comparing current year sales with previous sales are found to be highly significant at 1% level of significance in all the models signifying that profitability and value of companies are proportionately related with the growth in sales. Adjusted R² of the model are found to be 22.6%, 17.7%, 24.5% and 16.0% respectively signifying that almost 20 % of the variations in the profitability of the companies can be explained by the each model separately. F-value of the model shown by using ANOVA (Analysis of variance) shows the fitness of the model as p-value in each model are found to be < 0.1 at 1% level of significance. The Durbin-Watson statistics is used to test presence of autocorrelation within the residuals in the model. The study found non-presence of autocorrelation within the residuals as 1.5-2.5 is the range of acceptable level as suggested by [29], [30] in prior researches.

TABLE IV: TESTING FOR FIXED EFFECT MODEL

Model	Chi-square test	d.f	Probability
1A	16.661	4	0.000***
1B	12.526	4	0.013***
2A	13.234	4	0.010***
2B	14.191	4	0.000***

^{***} Significant at 1% (0.01) level (Source- Output generated by E-views

TABLE V: FIXED EFFECT MODEL REGRESSION RESULT

Dependent variable -	Return on Assets & To	bin-Q		
Result based on Fixed	effect model (Sample 20	07-2016)		
Total panel (balanced)	observations: 260			
(F.E.M) MO	DEL1	(F.E.M)	MODEL2	
PARAMETER	MODEL1(A)	MODEL1(B)	MODEL2(A)	MODEL2(B)
	ROA	TOBIN-Q	ROA	TOBIN-Q
Constant	5.181	1.660	11.114***	0.317
AR	073***	023***		
AP			089***	002
ICP	025**	-2.34		
CCC			039***	008***
LEV	1.289***	012*	0.786*	0.070
SIZE	1.065	0.155	.638	0.327
GROWTH	4.504***	1.288***	4.107***	1.269***
ADJUSTED-R ²	0.226	0.177	0.245	0.160
F-VALUE	13.57***	7.880***	16.067***	6.728***
D-W stat.	1.830	1.662	1.863	1.621

(Source: E-views & SPSS output)

^{***} p<0.01, ** p<0.05, * p<0.1 (statistically significant at 1%, 5% &10% respectively.)

VII. FINDINGS AND CONCLUSIONS

This paper furnishes a comprehensive evidence of gauging the relationship between efficient working capital management practices and profitability vis-a-vis value of firm's using a standard sample of 26 automobile companies for a period of 10 years resulting into 260 observations. Although some of the earlier studies have empirically examined the association between working capital and profitability. This paper is an extension of earlier researches by incorporating profitability and firm's value together. The findings of this paper adds to existing literature of [2], [6], [17], [24] and [28] who found a negative relationship between the AR, AP, ICP and cash conversion cycle with corporate profitability of listed companies in different economies. This results documents the role of WCM as a decisive steering in the hands of managers to deliberately draw a financial management decision. Optimisation of profitability depends upon judicious managing capability of managing working capital in any concern. The interpretation of empirical analysis applied in the study insinuate that Receivables, payables, ICP and CCC have a significant negative impact on the profitability (ROA) and value of firm (TOBIN-O) of Automobile companies in India. While leverage and growth impacts positively to the profitability of the companies. Fixed effect regression tests confirm a high degree of association between the working capital management components and profitability. Thus, company managers should focus more on strengthening the profitability of automobile companies by deliberately managing the components of working capital. Managing cash, accounts receivables and inventories in efficient way, will drive the companies in increasing their profitability. Further it can be conceived from the study that working capital management, which is an inevitable part of financial decision making paves a smooth way in significantly strengthening the economical position of any concern. As the Indian Automobile industry is one of the fastest growing industry of the world which contributes almost 7.1% of countries GDP. So as the global competition intensifies and product and market complexities put pressures on manufacturers and automotive suppliers, only companies that implement sustainable models to manage their working capital efficiently will be able to stay ahead of the pack in the coming decade. The companies under study shows a consistent pattern of growth in the industry which predicts a prosperous future of Indian automobile industry conceiving the fact that efficient management of working capital not only stabilize the growth but also keeps the momentum of profitability grown. So a prudent management of working capital will facilitate a better opportunity for Indian automobile industry to penetrate into the world market moreover improving the growth of economy.

REFERENCES

- [1] R. A. Hill, Working Capital Management, Recuperadode 202.191,120, 8020, 2013
- [2] M. Viskari, L. Lind, S. Pirttilä, F. Schupp, and T. Kärri, "Working capital management in the automotive industry: Financial value chain analysis," *Journal of purchasing and Supply Management*, vol. 18, no. 2, pp. 92-100, 2012.
- [3] K. Padachi, C. Howorth, and M. S. Narasimhan, "Working capital financing preferences: The case of Mauritian manufacturing small

- and medium-sized enterprises (SMEs)," Asian Academy of Management Journal of Accounting and Finance, vol. 8, no.1, pp. 125-157, 2012.
- [4] N. Ponsian, K. Chrispina, G. Tago, and H. Mkiibi, "The effect of Working Capital Management on profitability," *International Journal* of Economics, Finance and Management Sciences, vol. 2, no. 6, pp. 347-355, 2014.
- [5] H. Agha, "Impact of working capital management on profitability," *European Scientific Journal*, vol. 10, no. 1, 2014.
- [6] M. Deloof, "Does working capital management affect profitability of belgian firms?" *Journal of Business Finance & Accounting*, vol. 30, no. 3-4, pp. 573-588, 2003.
- [7] V. Ganesan, "An analysis of working capital management efficiency in telecommunication equipment industry," *Rivier Academic Journal*, vol. 3, no. 2, pp. 1-10, 2007.
- [8] B. Ukaegbu, "The significance of working capital management in determining firm profitability: Evidence from developing economies in Africa," *Research in International Business and Finance*, vol. 31, pp. 1-16, 2014.
- [9] M. M. Rahman, "Working capital management and profitability: A study on textiles industry," ASA University Review, vol. 5, no. 1, pp. 115-132, 2011.
- [10] A. Raheman, T. Afza, A. Qayyum, and M. A. Bodla, "Working capital management and corporate performance of manufacturing sector in Pakistan," *International Research Journal of Finance and Economics*, vol. 47, no. 1, pp. 156-169, 2010.
- [11] J. Enqvist, M. Graham, and J. Nikkinen, "The impact of Working Capital Management on firm profitability in different business cycles: Evidence from Finland," Research in International Business and Finance, vol. 32, pp. 36-49, 2014.
- [12] A. Mumtaz, M. Rehan, M. Rizwan, F. Murtaza, A. Jahanger, and H. A. Khan, "Impact of working capital management on firms' performance: Evidence from chemical sector listed firms in KSE-100 index," IOSR Journal of Business and Management, pp. 93–100.
- [13] R. K. Patel, "Trade-off between liquidity and profitability: A study of selected manufacturing firms in India," *International Journal of Scientific Research*, 2013.
- [14] H. J. Zubairi, Impact of working capital management and capital structure on profitability of automobile firms in Pakistan, 2010.
- [15] L. Ganesamoorthy and R. Rajavathana, "Management of working capital components among select automobile companies in India," *Asian Journal of Management*, vol.4, no. 4, pp. 301-307, 2013.
- [16] S.M. Kumar, M. T. A. Narayana, and B. H Rashmi, "Impact of leverage on the capital structure practice of selected automobile companies in India," *Imperial Journal of Interdisciplinary Research*, vol. 2, no. 5, 2016.
- [17] I. Lazaridis and D. Tryfonidis, "Relationship between working capital management and profitability of listed companies in the Athens stock exchange," *Journal of Financial Management and Analysis*, vol. 30, no. 76, pp. 1-12, 2006.
- [18] C. G. Li, H. M. Dong, S. Chen, and Y. Yang, "Working Capital Management, corporate performance, and strategic choices of the wholesale and retail industry in China," *The Scientific World Journal*, 2014.
- [19] S. A. Farooqi and S. Shajar, "Impact of working capital management on the profitability of automobile industry in India-an empirical study of selected automobiles company," *Pacific Business Review International*, pp. 1-9, 2015.
- [20] A. Gill, N. Biger, and N. Mathur, "The relationship between Working Capital Management and profitability: Evidence from the United States," *Business and Economics Journal*, vol. 10, no. 1, pp. 1-9, 2010.
- [21] H. Y. Ching, A. Novazzi, and F. Gerab, "Relationship between Working Capital Management and profitability in Brazilian listed companies," *Journal of Global Business and Economics*, vol. 3, no. 1, pp. 74-86, 2011.
- [22] G. Vural, A. G. Sökmen, and E. H. Çetenak, "Affects of Working Capital Management on firm's performance: evidence from Turkey," *International Journal of Economics and Financial Issues*, vol. 2, no. 4, p. 488, 2012.
- [23] D. M. Makori and A. O. Jagongo, "Working capital management and firm profitability: Empirical evidence from manufacturing and construction firms listed on Nairobi securities exchange," Kenya, 2013.
- [24] P. Martinez-Solano and P. J. Garc á-Teruel, "Effects of working capital management on SME profitability," *International Journal of Managerial Finance*, vol. 3, no. 2, pp. 164-177, 2007.
- [25] L. J. Maccini and A. S. Blinder, "The resurgence of inventory research: what have we learned?" *Journal of Economic Surveys*, vol. 5, no. 4, pp. 291-328, 1991.

- [26] D. N. Gujarati, Basic Econometrics, New York: MeGraw-Hill, pp. 363-369, 2008.
- [27] D. Mathuva, "The influence of working capital management components on corporate profitability. A survey on kenyan listed firms," Research Journal of Business Management, 2015.
- [28] H. H. Shin and L. Soenen, "Efficiency of working capital management and corporate profitability," *Financial Practice and Education*, vol. 8, pp. 37-45, 1998.
- [29] R. M. EYunos, N. Nazaruddin, F. A. Ghapar, S. A. Ahmad, and N. B. Zakaria, "Working capital management in Malaysian government-linked companies," *Procedia Economics and Finance*, vol. 31, pp. 573-580, 2015.
- [30] S. G. Makridakis, S. C. Wheelright, "Interactive forcasting: Univariate and multivariate methods," *Holden-Day*, Incorporated, 1078



S. N. Shajar is a senior research fellow in finance in the Department of Commerce, Amu, Aligarh. He has done his postgraduate in commerce (M.com) and Management (MBA) from Aligarh Muslim University, Aligarh and Symbiosis, Pune, India respectively. His research areas are corporate finance, accounting, taxation and international business.