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RELATIONSHIP BETWEEN RECEIVABLE MANAGEMENT AND PROFITABILITY: A STUDY OF PHARMACEUTICAL INDUSTRY IN INDIA

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Abstract: India earned a unique place in the world of pharmaceutical industry and is currently ranked 3rd in the world in terms of pharmaceuticals production and is regarded as the pharmacy of the world. India is the largest supplier of low-cost vaccine, generic drugs as it offers the combination of low and affordable pricing with high quality. The present study endeavours to examine the relationship between receivable management and profitabilityin the Pharmaceutical industry in India during 2013 to 2022 by employing suitable working capital and profitability ratio. The present study makes a humble attempt to assess the financial performance with respect to some financial indicators based on the published secondary data retrieved from Prowess, CMIE database. The study finds significant relationship between profitability and liquidity with respect to certain variable. We have employed panel regression analysis specifically, to address the issue of performance of Pharma industry in general. Using systematic sampling technique, we have chosen 24 pharmaceutical companies in the final selection. We have employed eight independent variables, which have a nexus with profitability and liquidity. We have used three profitability ratio such as NPM, ROCE and ROA as dependent variable.

Keyword: Pharma Company, Profitability, Liquidity, Receivable Management

1. INTRODUCTION

The recent pandemic witnessed globally, has made a tremendous impact and has transformed the way we live; it has brought out the risk of disruption of supply chain of critical bulk drugs for the Indian pharma companies. The Indian pharmaceutical industry occupies the world's third largest industry by volume and satisfies most of the bulk intermediate and formulation drugs in the domestic market (Panda, 2017). The pharmaceutical industry usually segmented into major areas such as generic drugs, OTC medicines and API/Bulk drugs, vaccines, contract research and manufacturing etc. The union cabinet had already approved 100% FDI through automatic route for Greenfield

pharmaceutical projects. Recently, it also approved Production Linked Incentive Scheme (PLI) for this industry; the objective is to enhance manufacturing capabilities by increasing and inviting investment in this sector. An estimated outlay of Rs. 21,940 crore were approved for PLI 1.0 and PLI 2.0 with these policy initiatives schemes, it envisages to create global champions from India especially in high end technologically empowered global value chain from the mere US-FDA compliant firm. Working capital management is one of the pre-requisite processes of marshalling current assets and current liabilities to achieve sustainability and ensuring efficient performances of businesses. Profitability governed by the intellectual capital (IC) in the Indian pharmaceutical industry (Smriti, & Das, 2017) as it is perceived as an intellectual and science-based sector with huge investments in research and development. There are many factors that affect the profitability of firms and the management of working capital and its component has played a primordial role in this regard.Shah et al. (2018) found an insignificant relationship between working capital and return on equity in pharmaceutical companies. They have suggested that managing the components of working capital such as inventories, marketable securities receivables, and payables can enhance the profitability. Rahaman et al. (2018) observed that the effective and well managed WC enhances the profitability of pharmaceutical companies in Bangladesh. Similar, studies were conducted and same conclusion were arrived at which strongly support the nexus between efficient working capital management and the profitability in pharmaceutical companies of Bangladesh (Chowdhury, Alam, Sultana, & Hamid, 2018). The liquidity ratio or working capital ratio positively significantly affects the profit earning capacity of Indian pharmaceutical companies (Yameen, Farhan, & Tabash, 2019).Numerous studies have revealed conflicting relationship betweenprofitability and working capital management in the pharmaceutical companies of India. Joshi (2020) reported an insignificant relationship between WC indicators and profitability. No relationships were exhibited between WC and profitability (Bhunia, & Das, 2015). Gupta (2020) advocated the mild and moderate relationship between working capital management and profitability in Indian pharmaceutical firms. Bhunia, (2010) emphasised that study of liquidity is of paramount relevance to both the internal and the external analysts because of its close relationship with daily operations of a business.

2. SCOPE AND RATIONALE OF THE STUDY

There are many factors that affect the profitability of firms and the management of working capital and its component has played a primordial role in this regard. So profitability and its sustenance is greatly enhanced by efficiently managing working capital and more precisely on liquidity aspect and it can be considered as vital for success of any business firms. Managing working capital efficiently required to manage

its components i.e cash conversion cycle (short-term trade liabilities, short-term account receivables, and inventories). As these components play a pivotal role in the performance of firms and lead firms to strong liquidity position, expansion in business and consequently increasing the wealth of shareholders.

Empirical studies on the relationship between receivable management and profitability in the pharmaceutical industry in India can provide valuable insights specific to this context. The study analyses financial data, receivable management practices, and profitability indicators to examine the relationship between these variables. The findings can help pharmaceutical companies in India develop effective receivable management strategies to enhance profitability.

3. BRIEF REVIEW OF LITERATURE

Efficient liquidity management involves planning and controlling and the ability of a firm to meet its current obligations in such a manner that eliminates the risk of the inability to meet due short-term obligations, on one hand, and avoids excessive investment in these assets, on the other. Maeenuddin et.al. (2020) reported that to increase the profitability of the firm, manager should focus on the proper management of the various components of the working capital. Vijayakumaran, (2019) observed that the efficient management of working capital ensures a balanced trade-off between profitability and liquidity risk that is inherent and thus it affects the market value of the firm. This is due in part to the reduction of the probability of running out of cash in the presence of liquid assets. The working capital approach to liquidity management has long been the prominent technique used to plan and control liquidity. However, instead of employing net working capital as a measure of liquidity, many analysts advocate the use of various ratios predominantly, due to its advantage of making temporal or cross sectional comparison. The management of the business firm is naturally keen to measure its operating efficiency. Similarly, the owners invest their funds in the expectation of reasonable returns. Bagchi et al. (2012) has observed that the working capital management has both and liquidity and profitability insinuation. In order to produce higher yield the firm needs to burden higher risk. They observed that to sustain liquidity and working capital at higher level they have to assume low level of operating risk, which in turn may lower profitability. Ching et al (2011), conducted a study to investigate possible relationship between working capital management and profitability intwo separate group of companies, they have mentioned this as working capital intensive group and fixed capital intensive group in listed companies of Brazil and to identify the variables that most affect profitability. They have measured profitability in three different ways: return on sales (ROS), on asset (ROA) and return on equity (ROE). Ahmed et al. (2018) in their study empirically investigate the impact of WCM on the profitability of

pharmaceutical companies in Pakistan. By employing panel regression analysis whereby, they used Current Ratio, Cash Conversion Cycle and current asset to total asset as independent variable representing WCM and ROA, taken as dependent variable. Kamath (1989), however, argues that both current and quick ratios are deficient due to their static nature and the inadequacy of using them as measures of future cash flows and liquidity. These shortcomings of working capital and liquidity ratios have led researchers and analysts to advocate other measures of liquidity that are more indicative of cash availability. Abuzar M. A. Eljelly (2004) in his seminal article has observed that the need for working capital and liquidity is influenced greatly by the industry in which the company operates. Capital intensive industries mostly require low levels of working capital and tend to have smaller cash gaps than their labour-intensive counterparts. Accordingly, liquidity requirement is expected to have no significant negative impact on profitability of capital - intensive industries, while such effect is expected in labour-intensive ones. This study empirically examines the relation between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) from a sample of companies in Saudi Arabia. Ajanthan (2013) investigated the relationship between liquidity and profitability of trading companies in Sri Lanka. Using correlation& regression analysis and descriptive statistics, concluded that significant relationship exists between liquidity and profitability among the listed trading companies in Sri Lanka. Sanger, (2001) observed that liquidity management is important, he emphasised that both in good times as well as in troubled times is equally important. The efficient management of the broader measure of liquidity, working capital, and its narrower measure, cash, are both important for a company's profitability and wellbeing. Padachi (2006) had undertaken a study to examining the effect of accounts receivables days, inventories days, accounts payable days and cash conversion cycle on return on total assets. Ching, Novazzi and Gerab (2011) conducted a study to establish the relationship between working capital management and profitability in Brazilian listed companies. The objectives of their study were to investigate if there was any difference between corporate profitability and working capital management in two separate groups of companies: working capital intensive and fixed capital intensive; and to identify the variables that most affect profitability. They have employed three popular ratios, return on sales (ROS), return on asset (ROA) and return on equity (ROE) as dependent variable. The independent variables they used are cash conversion efficiency, debt ratio, days of working capital, days' receivable and days' inventory. Anser and Malik (2013) had taken cash conversion cycle (CCC) to measure the inefficiency of working capital management and to gauge the profitability, return on total operating assets (ROA) and return on equity (ROE) considered as dependent variable. The study was carried on manufacturing companies listed on Karachi stock exchange during the period of 2007 to 2011 and

reported a significant inverse relationship of CCC with ROA and ROE. Deloof, (2003) observed that as the number of days for converting inventory into cash increases, the more funds are to be dedicated for working capital. When operating cycle increases, it increases sale as well, but this will also lead to increase in cost and at the end can affect the profitability. Studies have suggested that there exists a significant inverse correlation between the profitability of a firm and cash conversion cycle (Shin and Soenen, 1998; Deloof, 2003; Raheman and Nasr, 2007). Bhunia, A. and Das, A. (2015) experimented the relationship between profitability and liquidity position focusing on working capital management of pharmaceutical firms in India. Using the database for the time period of 2003 -2013 they have employed various regression tests, descriptive statistics, and correlation statistics to prove the nexus between this two. Their results show a weak level of understanding between profitability and working capital management.

All the above literature that has been surveyed not only gives us an insight in conducting the working capital analysis and profitability to be precise on liquidity and profitability trade-off in the perspective of various countries and different industries across the globe. Therefore, keeping in mind the mechanisms of the researches conducted in different business environment, our research methodology for this present study has been developed.

4. STATEMENT OF THE PROBLEM

Corporate finance practice ensures a perfect and successful framework for asset management. Investment of funds in working capital has always enjoyed prominence as an important component linked to enhance profit level of the firm. Chowdhury et al. (2018) have used 12 variables to explore the relationship between WCM and profitability. The prime objective of a corporate firm is to generate and maximise profit that will eventually determine its business growth and it can be achieved by effective MWC. Thus, to measure impact of Working Capital on profitability, we have earmarked ratios specifically attributed to profitability such as return on total assets(ROA), return on capital employed (ROCE) and net profit margin (NPM) as it evaluates the profitability which is often regarded as trustworthy measure of profitability. The existence of a linear relationship, though not continuous, between profitability and liquidity corresponding to the holding of current assets at least up to a certain level by firms, is not an impracticable proposition. (Bhunia, Khan &Mukhuti, 2012).

The study endeavour to explore the following issues

1. To explore the association between liquidity management of working capital and profitability in Indian Pharmaceutical industry.
2. What is the profitability position of the pharmaceutical companies in India? And

5. RESEARCH METHODOLOGY

To gain an insight and understand the relationship, between management of liquidity and profitability in Indian pharmaceutical sectors for a sample of 24Indian Pharma companies over a period of 10 years from 2013 to 2022. The data used in the present study was retrieved from CMIE database. The systematic sample design method was applied in this analysis. In order to determine and selection of sample size of the steel companies we have employed the Yamane's formula for estimating sample size in respect to the population under study. The determination of sample size is paramount which ensure that the conclusions gained after analysis can be reliably applied to the full population under investigation. Using Yameen's formula we have selected around 75 companies, out of total population of 622 available in CMIE database and finally have to settle for 24 Pharma companies. Not all the companies are survived during the study period. The data have been obtained from the Centre for Monitoring Indian Economy's (CMIE) Prowess database.

The study employs 11 financial ratios to assess the liquidity and profitability of Pharma industry in India, in order to address the overall performance and to examine the factors which have relevance on the performance; we have employed Panel data regression technique. The panel data study is a technique that employs both cross section and longitudinal data of the time dimension to forecast the efficient associations. Since the data is pooled time-series and cross-sectional, panel data methodology is helpful to describe the causal relationship between working capital management and profitability in this study. While studying the performance, we have used return on capital employed (ROCE), return on assets (ROA) and net profit margin (NPM) as dependent variable. The other independent variable selected for the study are, Current Ratio (CR), Acid-test ratio (QR), Cash to current asset (CCL), creditor turnover ratio (CTR), debtor turnover ratio (DTR), debt equity ratio (DER) and stock turnover ratio (STR) and interest coverage ratio. Accordingly, we have framed three models for panel regression analysis. We have used EViews 10 to calculate the results for further investigation.

In order to ascertain the firm-specific factors of receivable management and profitability relationship, we have used panel data methodology as an important econometric technique. The panel data study is a technique that employs cross section data of the time dimension to forecast the efficient associations. Generally, panel data recommends that companies are heterogeneous. Time-series and cross-section analysis are not helpful in managing the heterogeneity. As the objective of the study is to observe the causal relationship between working capital management and profitability, panel regression analysis can detect the cause and influence of the relationship between working capital management and profitability through pooled ordinary least squares, fixed effects and random effects models.

5.1. Correlation analysis

Before conducting panel regression analysis, it is obligatory to check correlation analysis whether there is a relationship between the component of working capital indicators and profitability indicators or not. Specifically, correlation attempts to observe the strength and direction of the relationship between two variables. In a bivariate analysis, if the variables have the cause and effect association, they have a high degree of relationship between them. Correlation statistics of pharmaceutical companies in India is outlined in the subsequent sub-sections.

Table 1: Correlation Matrix

	ROCE	ROA	NPM	CCL	CR	QR	DER	ICR	STR	DTR	CTR
ROCE	1										
ROA	0.978	1.000									
	0.000										
NPM	0.703	0.748	1.000								
	0.000	0.000									
CCL	0.235	0.229	0.419	1.000							
	0.000	0.000	0.000								
CR	0.235	0.299	0.446	0.717	1.000						
	0.000	0.000	0.000	0.000							
QR	0.287	0.334	0.441	0.777	0.931	1.000					
	0.000	0.000	0.000	0.000	0.000						
DER	-0.372	-0.377	-0.440	-0.314	-0.316	-0.363	1.000				
	0.000	0.000	0.000	0.000	0.000	0.000					
ICR	0.117	0.108	0.199	0.240	0.214	0.223	-0.116	1.000			
	0.055	0.075	0.001	0.000	0.000	0.000	0.057				
STR	0.039	0.037	0.075	0.041	-0.078	-0.021	-0.040	-0.008	1.000		
	0.528	0.545	0.220	0.499	0.201	0.735	0.511	0.894			
DTR	0.178	0.061	0.155	0.349	-0.002	0.005	-0.175	0.142	-0.004	1.000	
	0.003	0.322	0.011	0.000	0.977	0.940	0.004	0.020	0.946		
CTR	0.251	0.300	0.319	0.154	0.357	0.357	-0.177	0.031	-0.056	0.034	1.000
	0.000	0.000	0.000	0.011	0.000	0.000	0.004	0.613	0.359	0.577	

While studying correlation analysis we have also taken into consideration the probability in order to ascertain the significance among the variables. Table exhibits that ROCE, a profitability indicator has a significant positive association with various liquidity ratio such as CR, QR, DTR and CTR with either at 1% or 5% level of significance. Similarly, ROA has a significant positive association with CCL, CR, QR and CTR. Likewise, NPM has a significant positive associated with CCL, CR, QR, ICR and CTR. DER is negativerelation though significantly associated with all the profitability indicators. However, it is seen that the STR is not significant with these

indicators at 5 % level of significance. From the figure, it is pertinent that ICR and STR has relatively lesser relevance, however, for this study we have decided to continue with all the variables.

5.2. Panel regression analysis

With the aim of addressing the findings of the panel regression that may give us the possible answer about the indicators which are appropriate and adequate for the steel industry in India. The random effects model has been used. Each of the three profitability indicators (ROCE, ROA, NPM) individually have been considered as dependent variables in each model and eight working capital management indicators have been considered as independent variables in each model. Primarily, two panel regression models, that is, fixed effects model and random effects model have been considered for elucidating the causal relationship between working capital management indicators and profitability indicators.

Therefore, three panel regression models have been structured for panel regression analysis. These are:

Model 1

$ROCE_{it} = \beta_0 + \beta_1(CCL_{it}) + \beta_2(CR_{it}) + \beta_3(QR_{it}) + \beta_4(DER_{it}) + \beta_5(ICR_{it}) + \beta_6(STR_{it}) + \beta_7(DTR_{it}) + \beta_8(CTR_{it}) + \eta i + \varepsilon_{it}$

Model 2

$ROA_{it} = \beta_0 + \beta_1(CCL_{it}) + \beta_2(CR_{it}) + \beta_3(QR_{it}) + \beta_4(DER_{it}) + \beta_5(ICR_{it}) + \beta_6(STR_{it}) + \beta_7(DTR_{it}) + \beta_8(CTR_{it}) + \eta i + \varepsilon_{it}$

Model 3

$NPM_{it} = \beta_0 + \beta_1(CCL_{it}) + \beta_2(CR_{it}) + \beta_3(QR_{it}) + \beta_4(DER_{it}) + \beta_5(ICR_{it}) + \beta_6(STR_{it}) + \beta_7(DTR_{it}) + \beta_8(CTR_{it}) + \eta i + \varepsilon_{it}$

Where,

$ROCE_{it}$ = Return on Capital Employed of Pharma Company i in year t;

ROA_{it} = Return on Assets of PharmaCompany i in year t;

NPM_{it} =Net Profit Margin of Pharma Company i in year t;

β_0 = Intercept coefficient of Pharma Company;

β_1 = Slope coefficient of independent variable CCL;

β_2 = Slope coefficient of independent variable CR;

β_3 = Slope coefficient of independent variables QR;

β_4 = Slope coefficient of independent variables DER

β_5 = Slope coefficient of independent variable ICR

β_6 = Slope coefficient of independent variable STR

β_7 = Slope coefficient of independent variable DTR

β_8 = Slope coefficient of independent variable CTR

CCL_{it} = Cash to Current Asset ratio of Pharma Company i in year t;

CR_{it} = Current ratio of Pharma Company i in year t;

QR_{it} = Quick ratio of Pharma Company i in year t;

DER_{it} = Debt-equity ratio of Pharma Company i in year t;

ICR_{it} = Interest Coverage ratio of Pharma Company i in year t;

STR_{it} = Stock turnover ratio of Pharma Company i in year t;

DTR_{it} = Debtors' turnover ratio of Pharma Company i in year t;

CTR_{it} = Creditors' turnover ratio of Pharma Company i in year t;

η_i = Unobservable heterogeneity (measuring the particular characteristics of each Pharma Company);

ε_{it} = Residual errors of Pharma Company i in year t;

In model 1, ROCE has been considered as a dependent variable; eight other important t indicators (CCL,CR, QR, DER, ICR, CTR, DTR and STR) have been considered as independent variables. Two panel regression models, that is, fixed effects model and random effects model using model 1have been presented in the following table.

Table 2: Panel Regressions Test Results (Dependent Variable: ROCE)

Variable	Fixed Effect			Random Effect		
	Coeff.	t-stat	Prob.	Coeff.	t-stat	Prob.
Intercept	5.751	1.251	0.212	6.135	1.496	0.136
CCL	-1.059	-0.303	0.762	-1.895	-0.626	0.532
CR	-2.848	-0.932	0.352	-2.728	-1.142	0.255
QR	5.146	1.089	0.277	5.830	1.548	0.123
DER	-7.926	-4.629	0.000	-6.899	-4.706	0.000
ICR	0.000	0.548	0.584	0.000	0.587	0.557
STR	0.007	0.482	0.631	0.007	0.548	0.584
DTR	1.305	2.657	0.008	0.860	2.419	0.016
CTR	0.894	1.601	0.111	1.033	2.222	0.027

Table 3: Hausman Test Results (ROCE)

Test Summary	Chi-Sq. Statistic	d.f.	Prob.
Cross-section random	5.778869	8	0.672

The Hausman test detects endogenous regressors (predictor variables) in a regression model and since the p value is not significant as the probability is 0.672, we therefore, accept the null hypothesis that direct us to go for Random Effect Model for the panel data as all of the individual effects in these models are random. Specifically, the null hypothesis tells that random effects model is more useful than fixed effects model. Accordingly, the panel data regression has been described by the random effects model in the present research work.

Panel regression analysis based on random effects model illustrates that ROCE is positively related to four working capital indicators. These are QR, STR, DTR and CTR, and STR however, none of them are significant at 1 % level. However, DTR and CTR are significant at 5% level. The panel regression results also revealed that ROCE is negatively related with CCL, CR and DER. If CR is increased by one unit, ROCE is decreased by 1.89 units that are not significant statistically even at 10% level of significance. However, QR is giving a positive coefficient of high magnitude thereby nullify the impact of negative CR to a considerable extent. This indicates that sample pharma companies somehow able to manage their near short-term obligations efficiently through proper utilisation its own financial resources. However, when DER is increased by one unit, ROCE is decreased by 6.8 units. This indicates that the sample steel companies are being financed by outsiders rather than its own economic sources. Also, signalled that the sampled pharma companies have been aggressive in financing its growth with borrowed funds. When DTR is increased by one unit, ROCE is increased by 0.86 units that are significant statistically at 5% level of significance. This indicates that the sampled pharma companies used its economic resources efficiently. When CTR is increased by one unit, ROCE is increased by 1.60 units that are significant statistically at 5 % level of significance. This indicates that the payment policy of the sampled steel companies is good and managing effectively. Finally, a positive coefficient of STR, though very marginal indicates that STR positively influenced ROCE and this results is statistically not significant. Regarding ICR it is found negligible impact on the ROCE, though initially, we thought ICR may have an impact on profitability but the results show otherwise.

In model 2, ROA has been considered as a dependent variable; eight other important t indicators (CCL, CR, QR, DER, ICR, CTR, DTR and STR) have been considered as independent variables. Two panel regression models, that is, fixed effects model and random effects model using model 2 have been presented in the following table.

Table 4: Panel Regressions Test Results (Dependent Variable: ROA)

Variable	Fixed Effect			Random Effect		
	Coeff.	t-stat	Prob.	Coeff.	t-stat	Prob.
Intercept	3.579	1.114	0.266	4.233	1.441	0.151
CCL	-0.444	-0.182	0.856	-1.075	-0.502	0.616
CR	-2.185	-1.024	0.307	-1.344	-0.790	0.430
QR	4.138	1.253	0.211	3.742	1.397	0.164
DER	-4.721	-3.947	0.000	-4.506	-4.348	0.000
ICR	0.000	0.575	0.566	0.000	0.691	0.490
STR	0.005	0.499	0.618	0.005	0.556	0.579
DTR	0.836	2.438	0.016	0.382	1.503	0.134
CTR	0.681	1.746	0.082	0.849	2.580	0.010

Table 5: Hausman Test Results (ROA)

Test Summary	Chi-Sq. Statistic	d.f.	Prob.
Cross-section random	3.404	5	0.638

The Hausman test detects endogenous regressors (predictor variables) in a regression model and since the p value is not significant as the probability is 0.638, we therefore, accept the null hypothesis that direct us to go for Random Effect Model for the panel data as all of the individual effects in these models are random. Specifically, the null hypothesis tells that random effects model is more useful than fixed effects model. Accordingly, the panel data regression has been described by the random effects model in the present research work.

Panel regression analysis based on random effects model illustrates that ROA is positively related to four working capital indicators. These are QR, STR, DTR and CTR, and STR however, none of them are significant at 1 % level. The panel regression results also revealed that ROA is negatively related with CCL, CR and DER. If CR is increased by one unit, ROA is decreased by 1.34 units that are not significant statistically even at 10% level of significance. However, QR is giving a positive coefficient of high magnitude thereby nullify the impact of negative CR to a considerable extent. This indicates that sample pharma companies somehow able to manage their near short-term obligations efficiently through proper utilisation its own financial resources. However, when DER is increased by one unit, ROA is decreased by 4.5 units. This indicates that the sample steel companies are being financed by outsiders rather than its own economic sources. Also, signalled that the sampled pharma companies have been

aggressive in financing its growth with borrowed funds. Finally, a positive coefficient of STR, though very marginal indicates that STR positively influenced ROA and this results is statistically significant at 1% level. Regarding ICR it is found negligible impact on the ROA, though initially, we thought ICR may have an impact on profitability but the results show otherwise.

In model 3, NPM has been considered as a dependent variable; eight other important t indicators (CCL, CR, QR, DER, ICR, CTR, DTR and STR) have been considered as independent variables. Two panel regression models, that is, fixed effects model and random effects model using model 2 have been presented in the following table.

Table 6: Panel Regressions Test Results (Dependent Variable: NPM)

Variable	Fixed Effect			Random Effect		
	Coeff.	t-stat	Prob.	Coeff.	t-stat	Prob.
Intercept	4.955	2.478	1.999	4.016	1.498	0.135
CCL	2.243	1.885	1.190	2.112	1.203	0.230
CR	-0.471	1.647	-0.286	-0.068	-0.047	0.963
QR	0.786	2.547	0.309	0.583	0.254	0.799
DER	-3.856	0.923	-4.178	-3.792	-4.549	0.000
ICR	0.000	0.000	1.092	0.000	1.312	0.191
STR	0.002	0.008	0.289	0.003	0.435	0.664
DTR	0.799	0.265	3.020	0.660	2.900	0.004
CTR	0.504	0.301	1.673	0.751	2.778	0.006

Table 7: Hausman Test Results (NPM)

Test Summary	Chi-Sq. Statistic	d.f.	Prob.
Cross-section random	8.685929	8	0.3695

The Hausman test detects endogenous regressors (predictor variables) in a regression model and since the p value is not significant as the probability is 0.3695, we therefore, accept the null hypothesis that direct us to go for Random Effect Model for the panel data as all of the individual effects in these models are random.Specifically, the null hypothesis tells that random effects model is more useful than fixed effects model. Accordingly, the panel data regression has been described by the random effects model in the present research work.

Panel regression analysis based on random effects model illustrates that NPM is positively related to five working capital indicators. These are CCL, QR, STR, DTR

and CTR however, none of them are significant at 1 % level. However, CTR and DTR are statistically significant at 10 % level. The panel regression results also revealed that NPM is negatively related with CR and DER. Similar assertion can be made from the results stated previously with respect to ROCE and ROA. None of the variable in question is statistically significant.

6. CONCLUSION

The study employed panel regression analysis to gauge the extent of association between profitability and liquidity during the study period from 2013 to 2022. As the method of panel regression with random effect, it is observed that when we consider ROCE an important profitability indictor we found that it has a positive association with QR, STR, DTR and CTR, the results also shows that liquidity indicators QR and CTR gives conflicting results which is evident. However, for the sake of study, we may conclude that the Pharma company's liquidity position is good, the other indicators of working capital too are important in explaining the dependent variable of profitability such as ROA and NPM. The debt-equity ratio throughout the study has negative coefficient with respect to all the dependent variable indicating inverse relation. While considering ROA as a dependent variable with same parameters as independent variable we found CTR results to be statistically significant at 5% level of significance, the other independent variables are not statistically significant. However, when we consider, the NPM as a dependent variable and other eight variables as independent variable, we found except debt equity is significant at 1% level, DTR and CTR is significant at 1% level. Therefore, we can conclude that pharma companies usually have negative DER coefficient which suggest that all the selected dependent variable has inverse association with DER and it is significant thereby indicating the presence of debt burden on the steel industry. Regarding ICR it is found negligible impact on the ROA, though initially, we thought ICR may have an impact on profitability but the results show otherwise. It is also shown that and CTR has significant positive relation with ROA, to manage assets efficiently they can be used as a positive authority. Thus the study has accomplished its stated goal and we have found some statistical significance between profitability and various component of working capital especially with respect to quick ratio, debtors' turnover, creditors' turnover, cash to working capital ratio which have some connection with the liquidity position of the Pharmaceutical companies.

References

Anser, R., & Malik, Q. A. (2013). Cash conversion cycle and firm's profitability—a study of listed manufacturing companies of Pakistan. *IOSR Journal of Business and Management, 8(2), 83- 87. view at Google scholar / view at publisher*

A. M. Eljelly (2004), "Liquidity profitability tradeoff: An empirical investigation in an emerging market," *International Journal of Commerce and Management,* vol. 14, no. 2, pp. 48-61, 2004.

Ahm Yeaseen Chowdhury, Mohammad Zahedul Alam, Sabiha Sultana, and Md. Kaysher Hamid (2018), Impact of Working Capital Management on Profitability: A Case Study on Pharmaceutical Companies of Bangladesh, *Journal of Economics, Business and Management*, Vol. 6, No. 1, February 2018

Ajanthan, A. (2013). The relationship between dividend payout and firm profitability: A study of listed hotels and restaurant companies in Sri Lanka. *International Journal of Scientific and Research Publications*, 3(6), 1-6. view at Google scholar

Bagchi,B., Chakrabarti, J.& Basu Roy, P.(2012), Influence of Working Capital Management on Profitability: A Study on Indian FMCG Companies, *International Journal of Business and Management*; Vol. 7, No. 22; 2012 ISSN 1833-3850 E-ISSN 1833-8119 Published by *Canadian Center of Science and Education.*

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

Bhunia, A, and Khan, I. U. (2011). "Liquidity Management Efficiency of Indian Steel Companies (A Case Study)". *Far East Journal of Psychology and Business,* 3 (3).

Bhunia A. (2010). A study of managing liquidity. *Journal of Management Research*, 1(9), 21.

Ching, H. Y., Novazzi, A., & Gerab, F. (2011). Relationship between working capital management and profitability in Brazilian listed companies. *Journal of Global Business and Economics*, 3, 74-86.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance & Accounting*, 30(3 4), 573-588.

Kamath, R. (1989), How useful are common liquidity measures. *Journal of Cash Management*, 9(1), 24-28.

Ferdaous, J., & Rahman, M. M. (2017). The effects of research and development expenditure on firm performance: an examination of pharmaceuticals industry in Bangladesh. *Business & Entrepreneurship Journal*, 6(2), 1-20

Maeenuddin, L. Y., Nassir A. M., Hafeez M., Chughtai, M. S. and Hussain A. (2020). An Empirical Investigation of Working Capital Management Components and Its Association with Firm's Profitability (ROE). *Talent Development & Excellence,* 12(3), pp. 2644 – 2662.

Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: an analysis of Mauritian small manufacturing firms. *International Review of business research papers*, 2(2), 45-58.

Panda, S. (2017). Influence of research and development (R&D) cost on profitability: A study of Indian pharmaceutical sector. *Splint International Journal of Professionals*, 4(1), 60–66

Raheman, A., & Nasr, M. (2007). Working capital management and profitability–case of Pakistani firms. *International Review of Business Research Papers*, 3(1), 279-300.

Sagner, J.S. (2001), Working capital: A modern approach. *Financial Executive*, 17(7), 69-76.

Shafique Ahmed, Farhan Ahmed and Sahabia Kanwal (2018) Corporate profitability-working capital management tie: empirical evidence from pharmaceutical sector of Pakistan, *Asian Journal of Empirical Research* Volume 8, Issue 7 (2018): 259-270.

Shin, H. H., & Soenen, L. (1998). Efficiency of working capital management and corporate profitability. *Financial Practice and Education*, 8, 37-45.

Shah, B., Gujar, M. A., & Sohu, N. U. (2018). The impact of working capital management on profitability: case study of pharmaceutical and chemical firms listed on Karachi stock exchange. *International Journal of Economics, Commerce and Management*, 6(3), 200-220

Smriti, N., & Das, N. (2017). Impact of intellectual capital on business performance: evidence from Indian pharmaceutical sector. *Polish Journal of Management Studies*, 15(1), 232-243.

Vijayakumaran, R. (2019). Efficiency of Working Capital Management and Firm Value: Evidence from Chinese Listed Firms. *International Journal of Financial Research*, 10(6), pp. 133-144.