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Phase II – Final Report

on

"A Study on Working Capital Management of Indian Pharmaceutical Industry"

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Abstract

Pharmaceutical industry is one such sector where companies are mostly reliable on its R&D operations to remain competitive in the market. To continuously develop and innovate new drugs and technologies, they are required to have a huge amount of investment in capital building. Thus studying and managing the working capital is of utmost importance to bring competitive edge and profitability in Pharmaceutical firms. The challenge here is to bring a balance between liquidity parameters and profitability of a company. The scope of this study is to identify the parameters which define working capital and study their impact on profitability of a company. Some of the identified parameters are inventory conversion period, operating cycle and cash cycle and liquidity ratios. For the same, a case study is done on Cadila Healthcare Ltd. and various hypotheses are formulated to develop a relationship between profitability and components of its working capital. Correlation and Regression analysis are carried out to study the significance and degree of relationship of each variable with the profitability. Further, top three companies belonging to different market capitalisations are selected and are compared on the basis of different variables of profitability and working capital. A sample data for a period of five years (2014 – 2019) is collected and the analysis is done using descriptive statistics. Based on this analysis, major positive and negative points of these companies are identified and relevant recommendations are put up. The findings of this study is a potential basis for future research works in the pharmaceutical industry pertaining to this domain.

1. Introduction

Finance management broadly covers three areas which are Working Capital Management, Capital Budgeting and Capital Structuring. The latter two areas deal with a company's decision on investment while working capital management is associated with the company's short-term assets, short-term liabilities, inventories and accounts receivable. Researchers believe that an efficient working capital management is a key to bring competitive edge and profitability to firms in a booming economy. On the contrary, studies have also shown that volatility of economy and market could be well managed by focusing on the working capital [4].

The challenge here is to bring a balance between liquidity and profitability of a company. Liquidity determines health of a firm in terms of its finances. By analysing its liquidity, the capability of the firm to fulfil short term debts is made sure. This is also one of the parameters to evaluate a firm's performance in the industry.

Similarly, Pharmaceutical companies could be evaluated for their profitability by calculating and analysing financial ratios. These companies rely on current liabilities to procure raw materials and to function daily activities. One working capital cycle is completed when the company receives money from the customer which is further used to pay back the loan. The companies which have an efficient working capital management tend to have comparatively shorter or negative cash cycles.

To study the impact of this cycle on profitability of a company, a relationship could be developed between a firm's profitability which is defined as Return on Assets (ROA) and various components of working capital such as inventory conversion period, operating cycle and cash cycle. Further, it could be studied for a pharmaceutical company, the intensity with which working capital management has its impact on profitability.

1.1 Indian Pharmaceutical Industry

Pharmaceutical Industry of India is responsible for production of around 60% of vaccines demanded all around the world. It stands at third position globally in terms of volume production and supply of drugs especially low cost generic drugs. And with respect to manufacturing and supply of medical devices, India comes at fourth position in Asia. Out of this global demand, approximately 40% is shared by the United States and 25% by the United Kingdom.

India's success in the Pharma sector is because of its excellence in the Research & Development department which is run with expertise of one of the finest engineers and scientists. At present, India has around 3000 pharma companies along with 10500 manufacturing facilities. The current global market for the drugs used to fight AIDS is around 80%. Moreover, the market of Active

Pharmaceutical ingredients for Indian Pharma sector is expected to grow to a revenue of around $6 billion by 2020.[1]

Top ten Indian Pharma companies based on Net Sales in FY 2018-19:[2]

Table 1. Top 10 Indian Pharma Companies

Sr. No.	Company	Total Net Sales (in Rupees Cr.)
1	Sun Pharmaceuticals Industries Ltd	29066
2	Aurobindo Pharma Ltd	19564
3	Lupin	16718
4	Cipla	16362
5	Dr. Reddy's Laboratories Ltd	14500
6	Cadila Healthcare Ltd	6500
7	Glenmark Pharmaceuticals Ltd	6403
8	Torrent Pharmaceuticals Ltd	5762
9	Alkem Laboratories Ltd	5714
10	Divi's Laboratories Ltd	4880

Market Size

India's revenue for domestic market of pharmaceutical sector was around $20 billion in 2019 which marked a growth of 9.9 percent from that of year 2018. This market size has growth potential to reach $55 billion by 2020. The global demand is composed of drug formulations, APIs, generic drugs, herbal products, biologicals and medical instruments. Out of this global market, maximum share is of the US which is around 30 percent in volume. Apart from that it also has a global as well as domestic market of biotechnology products which is growing at an annual rate of approximately 30 percent.

By 2025, the Pharmaceutical Industry of India is forecasted to rise to around $100 billion. In financial year 2019, the export of pharmaceutical products was at an amount of around $19 billion.[3]

[1] https://www.europeanpharmaceuticalreview.com/article/117413/the-covid-19-pandemic-and-the-indian-pharmaceutical-industry/
[2] https://indiancompanies.in/top-10-pharma-companies-in-india/
[3] https://www.ibef.org/industry/pharmaceutical-india.aspx

Government Initiatives & Investments

The Foreign Direct Investment (FDI) in the Pharmaceutical sector is extended up to 100 percent with reference to certain conditions. Indian Government has also come up with some schemes to develop the pharma sector of the country. Some of them are:

- The Government has introduced 'Pharma Vision 2020' to make India as a global leader of drug manufacturer. The same is reinforced by Make in India initiatives.
- Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) to promote low-cost and affordable drugs. It is further supported by policies like Drug Price Control Order.
- Initiation of Hyderabad Pharma city to lead India as the manufacturing hub for pharmaceuticals in the global market.
- Due to expiration of several branded drugs, supply of these to US market is expected to rise.
- A specific budget has been allocated to National Health Mission focusing both rural and urban public and also to Health Insurance Scheme (AB-PMJAY).
- The portion of government expenditure in this sector is significantly grown from 1.2 % in 2014-15 to 1.5 % in 2018-19.
- Six pharma parks are to be established in Uttar Pradesh.

1.2 Literature Review

The performance of a firm is majorly evaluated on the basis of its liquidity and the most commonly used parameters for the same are current ratio and quick ratio. However, many researchers in their work have mentioned that a firm's capability to generate operating cash flow from assets is considered to be most important to its liquidity (Abuzayed, 2011).

Sharif and Islam (2018) have suggested in their study that working capital management has its major impact on liquidity of the firm which further has significant influence on profitability. The study was done to demonstrate the acceptability of such relationships. With the help of techniques such as multiple regression, it was observed that there is a considerable relationship between the dependent variable, Return on Assets, and various independent variables like Cash conversion cycle, Inventory turnover etc. The study also showed that working capital has its impact on profitability of a firm.

A similar study was done focusing on a sample of ten companies, all belonging to the Indian Pharmaceutical Industry. Data of 10 years was analysed in terms of ratio analysis and descriptive statistics. The outcome of this study suggested that higher profitability could be obtained by a high ratio of current assets to total assets. On the other hand, inventories and receivables have a negative relationship with profitability and a high investment on them leads to decline of the same (Viswanathan *et al.*, 2016).

The same kind of relationship was established by Choudhary (2019) in his research work which included a case study on Cipla Ltd. The correlation tests concluded that profitability has a positive relationship with Total assets. However, the same is significantly negative for variables such as inventory conversion period, cash conversion cycle and average collection period.

Moreover, a study done on the Pharmaceutical industry of Bangladesh reveals that there is a positive impact of working capital management on performances of firms (Chowdhury and Amin, 2007). Thus depending upon selection of variables, there is a significant relationship between working capital management and performance of a firm, which could be positive or negative in nature (Edi and Saad, 2010).

Further, Talonpoika *et al.* (2015) has highlighted upon some of the strategies which could be developed to improve working capital management. The aim of a firm should be to maximise its cycle time and the research has suggested some of the specific changes for the same, which could be applied to relative variables. Various combinations of these changes are significant in affecting the variables and thus an improvement in cycle time of a firm could be observed in a longer period.

1.3 Research Problem

An effective management of working capital ensures liquidity of a business and results in profitability in terms of revenue. However, an optimum balance is required to be maintained as both surplus as well as deficit of working capital is often found to be non – profitable for companies. Here, the surplus amount indicates that the company is not productive enough and not utilising its funds efficiently. On the other hand, lack of funds hampers day-to-day activities of the company. In both the scenarios, profitability of a company is affected.

To remain competitive in the market, Pharma companies are also mostly reliable on its R&D operations. To continuously develop and innovate new drugs and technologies, they are required to have a huge amount of investment in capital building. Thus studying and managing the working capital is of utmost importance in the Pharmaceutical industry.

1.4 Research gap

Various studies have been concluded determining the relationship between working capital management and performance of a firm. However, different outcomes could be found depending upon the variables selected in these studies. Thus there is a need of identifying the significant parameters and analysing their correlation with the firm's profitability. Moreover, very little research work has been done in the context of Indian Pharmaceutical industry and its working capital management. The current study considers Pharmaceutical companies of different market

capitalizations and analyse their working capital management. This study is further followed by managerial implication of the same and relevant recommendations.

1.5 Utility of Study

The Pharmaceutical Industry requires a huge amount of capital investment to set up a manufacturing or R&D facility. The Government of India has recently come up with various initiatives to promote and invest in the Pharma sector of India. The availability of limited funds has certainly increased the competition not only with the global market but also amongst Indian pharma companies. Thus this brings attention of the firms to working capital management to remain competitive in the market. The resulting profitability would help companies in building a competitive edge during an economy boom. Also, an in-depth study of working capital would enable companies to perform efficiently and survive even in a falling economy.

1.6 Objective

1. To study the relationship between working capital management and profitability of Cadila Healthcare Ltd.
2. To assess working capital management of the selected companies and based on that, compare their performances.

2. Methodology

2.1 Approach

The present study involves a quantitative approach to the research. The research work is descriptive and correlational in nature. This method requires a deductive process of collection of existing data of the selected sample and formation of inferences based on the statistical analysis of this data.

To achieve the objectives of this study, hypotheses are used to build a causal relationship between the relevant variables.

2.2 Data Collection Method

The study is done on the basis of secondary data and the data is gathered from financial reports published by the selected companies, central websites of the selected companies, newspaper articles and various published research papers. These secondary data have been reinforced by the references mentioned at the end of this paper.

2.3 Sample Design

To study the Pharmaceuticals Industry of India on the basis of working capital management, a sample of three companies belonging to different Market Capitalization have been selected. Market capitalization determines the value of a company on the basis of its current market price and shares outstanding. Companies belonging to large cap are top 100 most valuable companies, while mid cap are ranked from 100 to 250 and small caps from 250 to 500. The financial data of these firms is collected for a period of five years from the Financial year 20014-15 to 2018-19.

1. Large Cap - **Cadila Healthcare Limited**
2. Mid Cap - **Abbott India Limited**
3. Small Cap - **AstraZeneca Pharma India Limited**

Table 2. Market Capitalization of selected companies

(As of 26 June, 2020 16:00)

Company Name	Last Price (Rs.)	52 wk High (Rs.)	52 wk Low (Rs.)	Market Cap (Rs. cr)
Cadila Health	363.65	383.65	206.45	37,228.40
Abbott India	15,957.70	18,569.00	8,299.80	33,909.00
AstraZeneca	3,349.40	3,562.50	1,635.30	8,373.50

Source: moneycontrol

2.4 Method of Data Analysis

- Identified variables for performance of pharmaceutical industry:

Table 3. List of Identified Variables

Dependent Variable:	
Return on Assets (ROA)	$y = \frac{\text{Net Income (PAT)}}{\text{Total Assets}}$
Independent Variable:	
1. Average Collection Period (ACP)	$x_1 = \frac{\text{Avg. Accounts Receivables}}{\text{Net Sales}} \times 365$
2. Average Payment Period (APP)	$x_2 = \frac{\text{Avg. Accounts Payables}}{\text{Cost of Goods sold}} \times 365$
3. Inventory Conversion Period (ICP)	$x_3 = \frac{\text{Inventory}}{\text{Cost of Goods sold}} \times 365$
4. Operating Cycle (OC)	$x_4 = ICP + ACP$
5. Cash Conversion Cycle (CCC)	$x_5 = ICP + ACP - APP$

6. Current Ratio (CR)	$X_6 = \frac{\text{Current Assets}}{\text{Current Liabilities}}$
7. Quick Ratio (QR)	$X_7 = \frac{\text{Current Assets - Inventory}}{\text{Current Liabilities}}$
8. Total Debt Ratio (TDR)	$X_8 = \frac{\text{Total Liabilities}}{\text{Total Assets}}$
9. Total Asset Turnover Ratio (TATR)	$X_9 = \frac{\text{Total Assets}}{\text{Net Sales}}$
10. NWC to Total Asset Ratio (NWCTA)	$X_{10} = \frac{\text{Current Assets - Current Liabilities}}{\text{Total Assets}}$
Control Variables:	
1. Firm Size	FS = Natural Logarithm (Total Assets)
2. Sales Growth	$SG = \frac{Sales_n - Sales_{n-1}}{Sales_{n-1}}$

- The data collected is categorized, tabulated and then analysed with the help of financial and statistical tools such as Correlation & Regression Analysis and Descriptive Statistics to obtain the relationship between variables.
- Null Hypotheses (H_0) and Alternative Hypotheses (H_1) are formulated in order to achieve the objective of this study. To understand the relationship between components of working capital management and profitability of a firm, significance of the formulated hypothesis is tested against each other. Pearson's correlation coefficient (r) is used to define the nature of relationship between different variables. This is further experimented with the help of one tailed t-test and the results are compared with critical value at 5% significance level.
- Graphical method approach is used to evaluate and compare certain parameters of working capital management of the selected companies.

2.5 Research Hypothesis

$H_0$1: There is no significant relationship between Average Collection Period (ACP) and Return on Assets (ROA).

$H_1$1: There is a significant relationship between Average Collection Period (ACP) and Return on Assets (ROA).

$H_0$2: There is no significant relationship between Average Payment Period (APP) and Return on Assets (ROA).

$H_1$2: There is a significant relationship between Average Payment Period (APP) and Return on Assets (ROA).

$H_0$3: There is no significant relationship between Inventory Conversion Period (ICP) and Return on Assets (ROA).
$H_1$3: There is a significant relationship between Inventory Conversion Period (ICP) and Return on Assets (ROA).

$H_0$4: There is no significant relationship between Operating Cycle (OC) and Return on Assets (ROA).
$H_1$4: There is a significant relationship between Operating Cycle (OC) and Return on Assets (ROA).

$H_0$5: There is no significant relationship between Cash Conversion Cycle (CCC) and Return on Assets (ROA).
$H_1$5: There is a significant relationship between Cash Conversion Cycle (CCC) and Return on Assets (ROA).

$H_0$6: There is no significant relationship between Current Ratio (CR) and Return on Assets (ROA).
$H_1$6: There is a significant relationship between Current Ratio (CR) and Return on Assets (ROA).

$H_0$7: There is no significant relationship between Quick Ratio (QR) and Return on Assets (ROA).
$H_1$7: There is a significant relationship between Quick Ratio (QR) and Return on Assets (ROA).

$H_0$8: There is no significant relationship between Total Debt Ratio (TDR) and Return on Assets (ROA).
$H_1$8: There is a significant relationship between Total Debt Ratio (TDR) and Return on Assets (ROA).

$H_0$9: There is no significant relationship between Total Asset Turnover Ratio (TATR) and Return on Assets (ROA).
$H_1$9: There is a significant relationship between Total Asset Turnover Ratio (TATR) and Return on Assets (ROA).

$H_0$10: There is no significant relationship between NWC to Total Assets Ratio (NWCTA) and Return on Assets (ROA).
$H_1$10: There is a significant relationship between NWC to Total Assets Ratio (NWCTA) and Return on Assets (ROA).

3. Context of Industry Problem

A working capital cycle of a company determines the flow of cash from the period of procuring raw materials and receiving cash on finished goods from the customers. For better profitability of the company, this cycle is preferred to be shorter or negative in order to get higher return on assets.

The concept of working capital management is still new and not commonly adopted in Indian companies, especially Pharmaceutical companies. While the cash cycles in developed countries like the US and Europe is around 40 days, the same in Indian companies is as high as 65 days. It was also reported that with a better management of working capital, a company could have released an average of 9 percent of net sales. This added amount could have been utilised to expand their assets and thus business.[4]

Supply chain management plays an important role in manufacturing companies associated with production and supply of pharmaceuticals. Poor logistics management is one of the major reasons behind such a longer cash cycle of Indian companies. The problem is more critical when a company is multinational and is involved in overseas operations as well. As per the World Bank, India holds a position of 46th in logistics performance, much behind than the US (ranked 10th).

As per the reporting done by EY, this kind of issue is faced by companies of all sizes; smaller or bigger. Working capital management is rarely focused in Indian companies. This major area of concern is supported by poor business policies and improper data management, which often result in lesser profitability. The companies are less adaptable to changes occurring in this rapid and volatile environment. Rather, businesses are run by traditional methods.

To study the complexity of the Pharmaceutical Industry of India, Porter's five forces are to be taken into picture. The companies believe in maintaining a healthy relationship with the customers. However, similar attention is required to be given to suppliers who act as a foundation of this whole cash cycle. Proper management of the customers as well as suppliers would improvise the flow of receivables and payables in long term. Also, in such an industry where contracting is a vital part of the process, a significant importance is required in improving contract management of the companies. Any inadequacy would delay the whole process and thus escalate the cash cycle further.

Studies like this are done to bring attention of the firms to working capital management to remain competitive in the market. The resulting profitability would help companies in building a competitive edge during an economy boom. Also, an in-depth study of working capital would enable companies to perform efficiently and survive even in a falling economy.

[4] https://www.livemint.com/Companies/RJ77ePrex5C8ubsORBR3II/Indian-firms-bad-in-working-capital-cycle-management-EY-rep.html

4. Presentation of Data

4.1 Return on Assets:

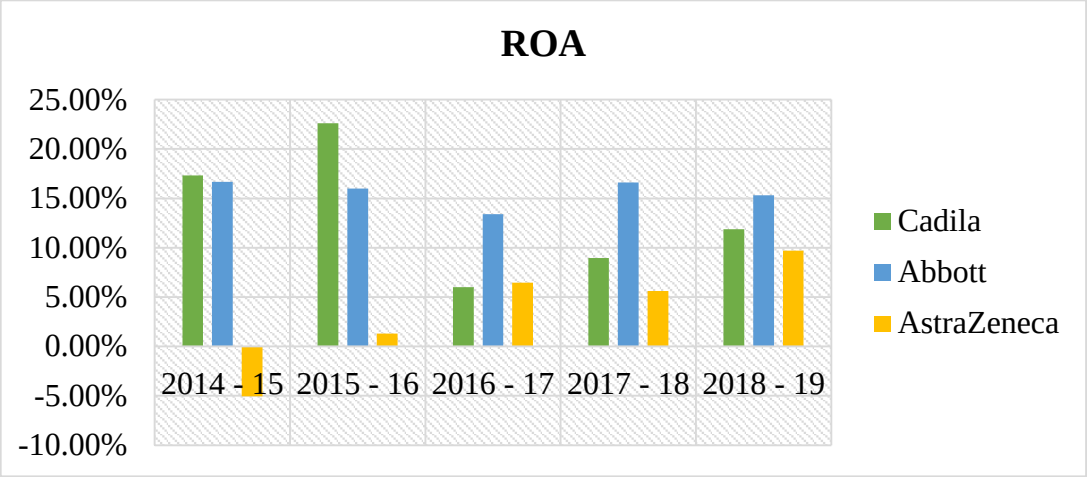

Figure 1. Comparison of sample companies based on Return on Assets

4.2 Average Collection Period:

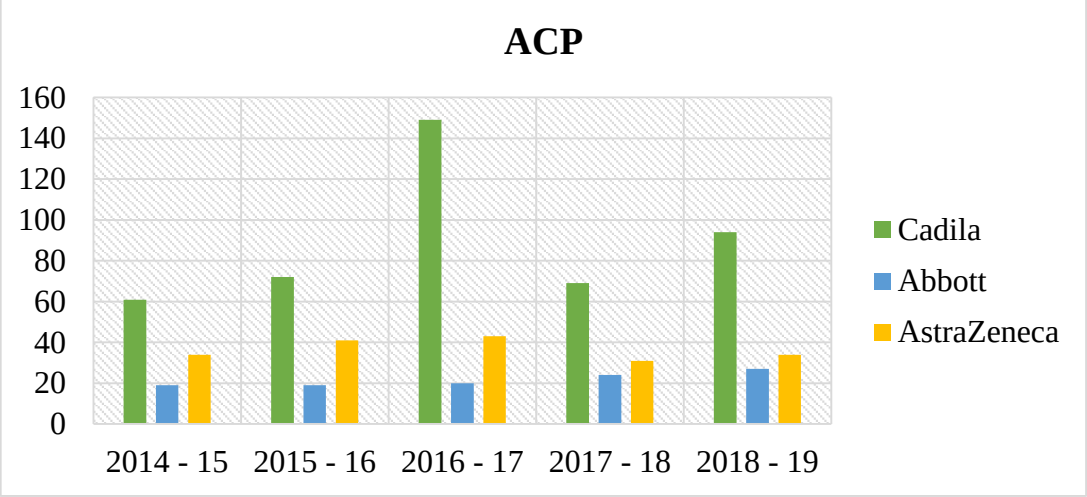

Figure 2. Comparison of sample companies based on Average Collection Period

4.3 Inventory Conversion Period:

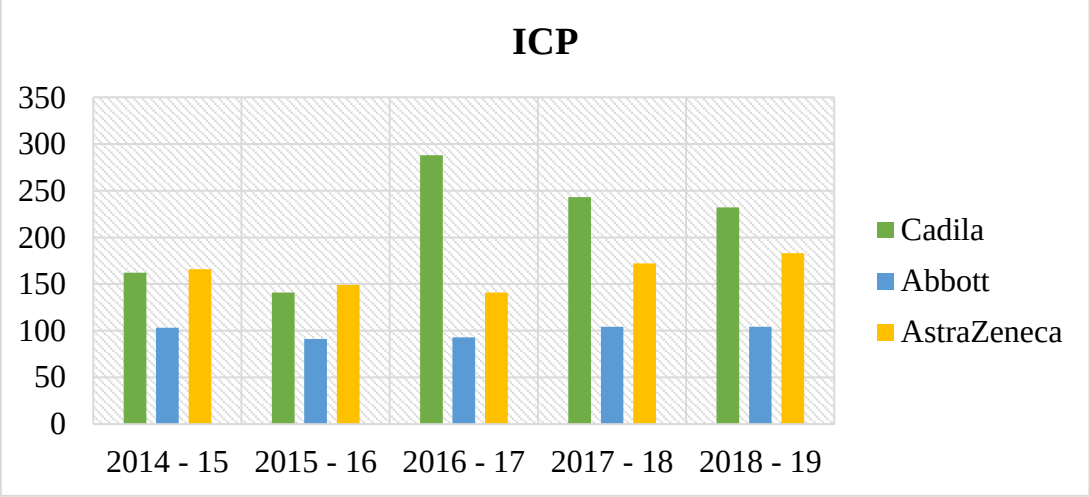

Figure 3. Comparison of sample companies based on Inventory Conversion Period

4.4 Total Assets Turnover Ratio:

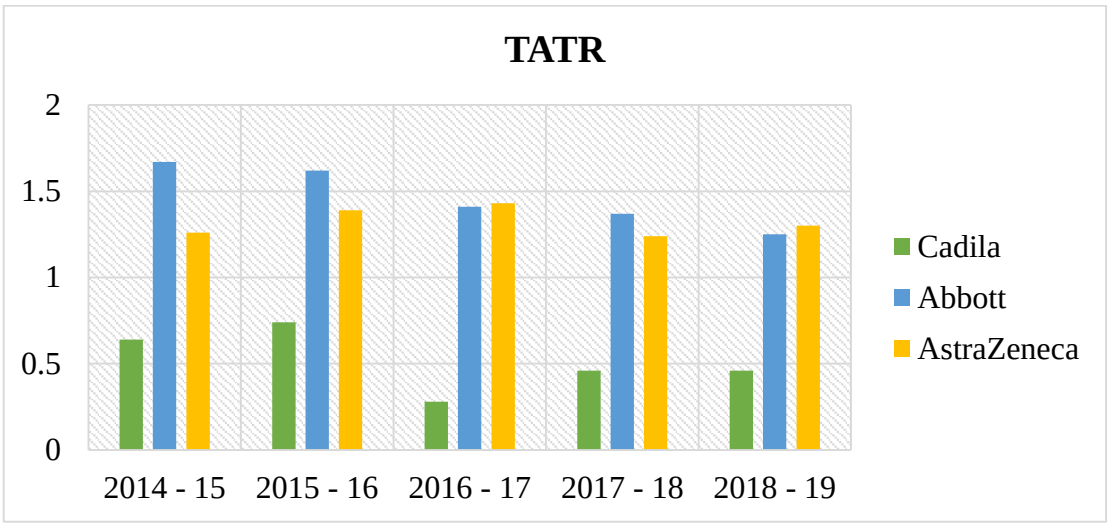

Figure 4. Comparison of sample companies based on Total Assets Turnover Ratio

4.5 Cash Conversion Cycle:

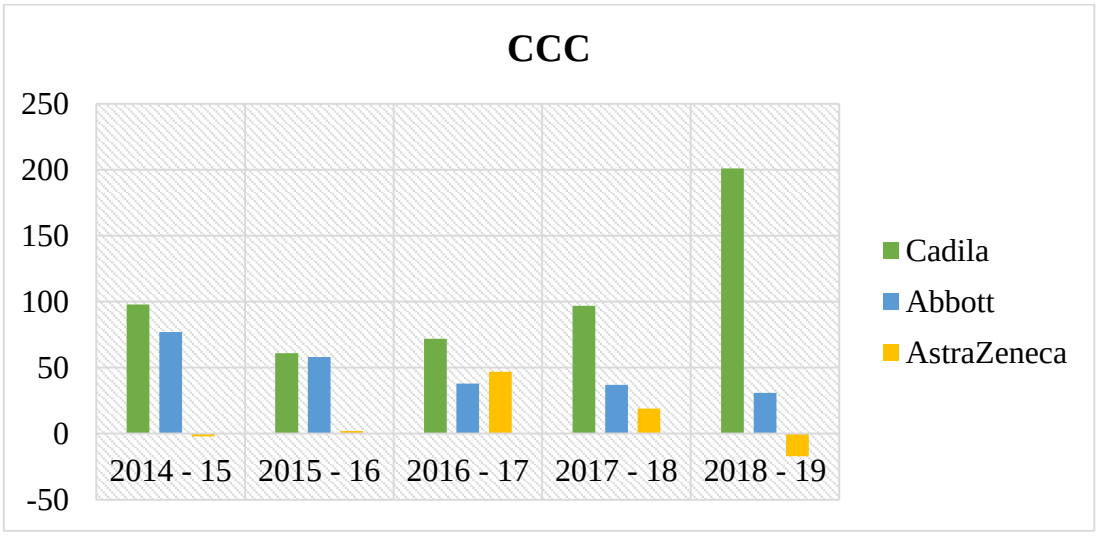

Figure 5. Comparison of sample companies based on Cash Conversion Cycle

4.6 Current Ratio:

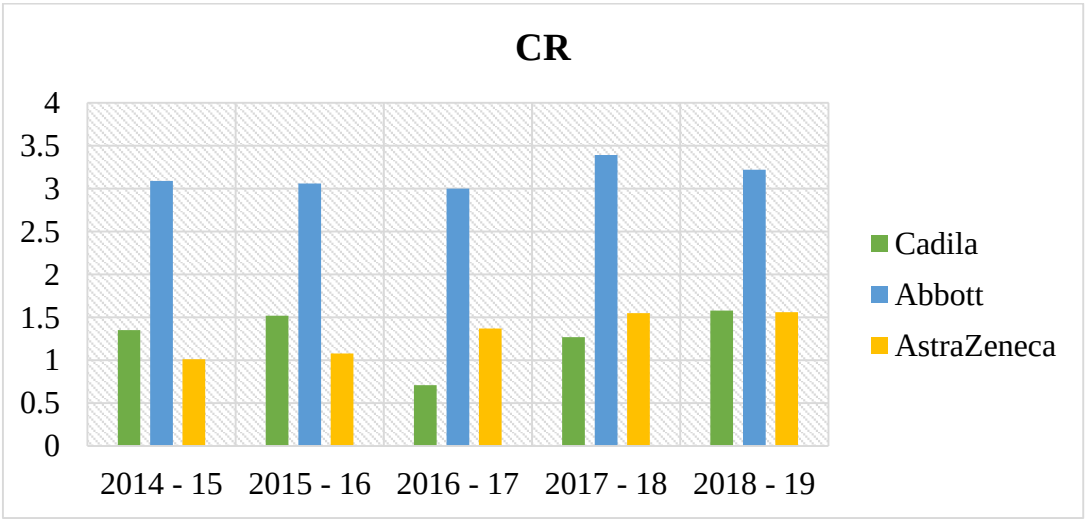

Figure 6. Comparison of sample companies based on Current Ratio

4.7 Quick Ratio:

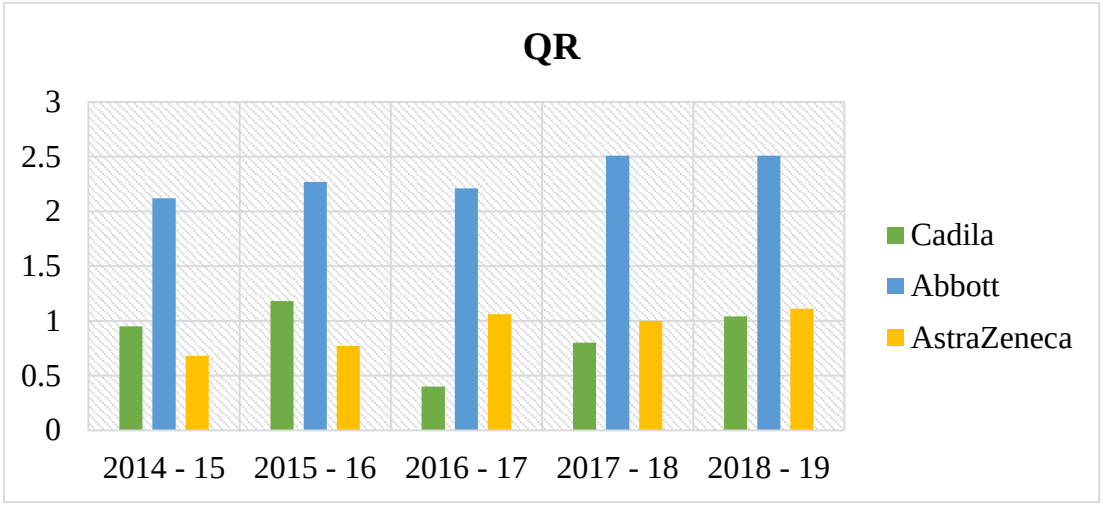

Figure 7. Comparison of sample companies based on Quick Ratio

4.8 Total Debt Ratio:

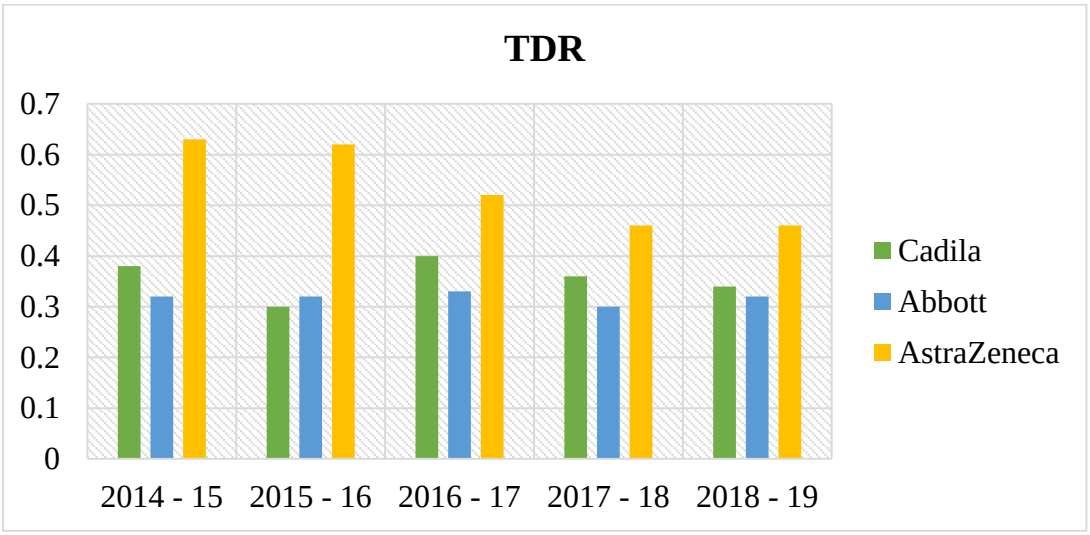

Figure 8. Comparison of sample companies based on Total Debt Ratio

4.9 Firm Size:

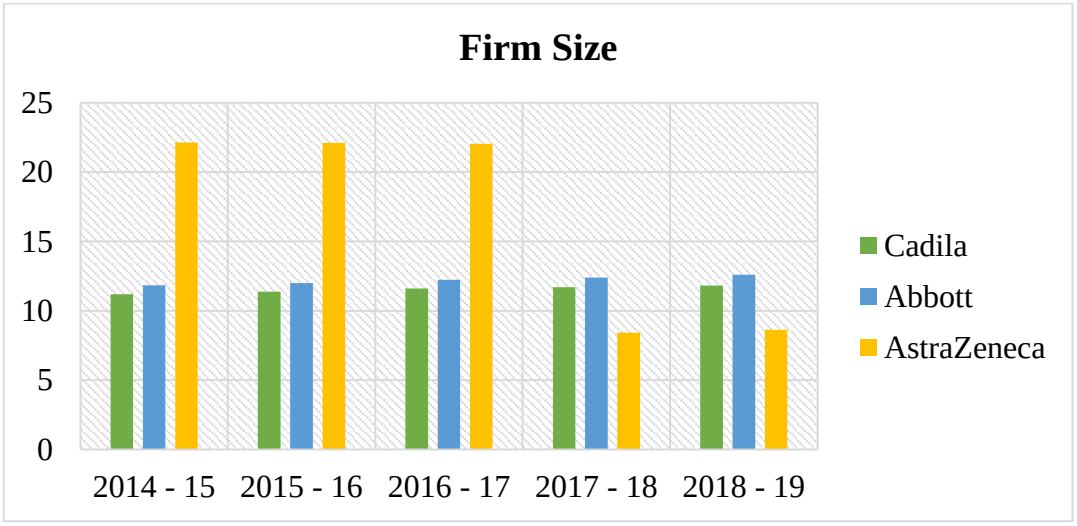

Figure 9. Comparison of sample companies based on Firm Size

4.10 Sales Growth:

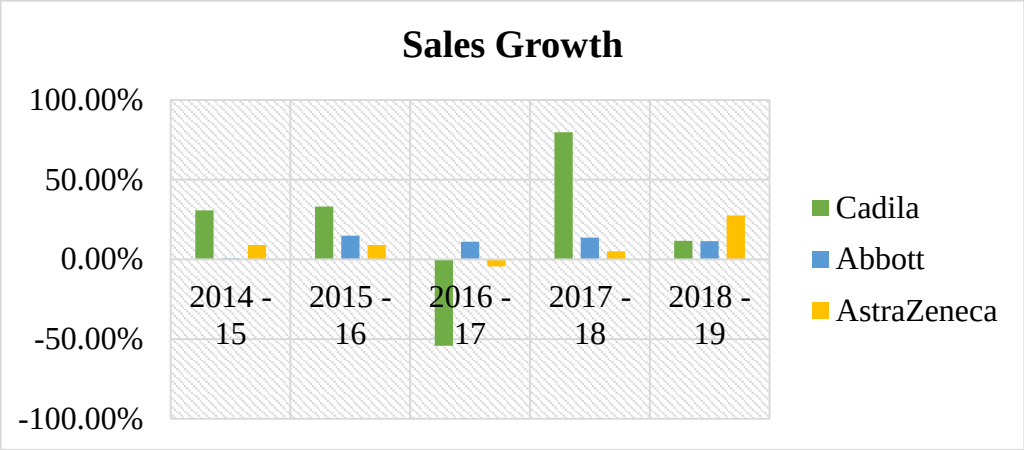

Figure 10. Comparison of sample companies based on Sales Growth

5. Analysis & Discussion

5.1 Correlation Analysis

	ROA	*ACP*	*APP*	*ICP*	*OC*	*CCC*	*CR*	*QR*	*TDR*	*TATR*	*NWCTA*	*Firm Size*	*Sales Growth*
ROA	1.00												
ACP	-0.60	1.00											
APP	-0.37	0.80	1.00										
ICP	-0.68	0.81	0.80	1.00									
OC	-0.68	0.93	0.84	0.97	1.00								
CCC	-0.45	0.06	-0.44	0.13	0.11	1.00							
CR	0.81	-0.58	-0.32	-0.40	-0.49	-0.22	1.00						
QR	0.89	-0.62	-0.38	-0.51	-0.58	-0.27	0.98	1.00					
TDR	-0.69	0.13	-0.19	0.01	0.05	0.43	-0.78	-0.79	1.00				
TATR	0.95	-0.75	-0.47	-0.76	-0.79	-0.44	0.85	0.91	-0.61	1.00			
NWCTA	0.82	-0.64	-0.35	-0.45	-0.55	-0.26	0.99	0.98	-0.75	0.87	1.00		
Firm Size	-0.61	0.58	0.29	0.55	0.59	0.43	-0.66	-0.64	0.23	-0.71	-0.71	1.00	
Sales Growth	0.30	-0.72	-0.47	-0.36	-0.52	0.00	0.38	0.40	-0.25	0.44	0.40	-0.02	1.00

Table 4 Pearson's Correlation Matrix

The first step in developing a relationship between any two or more variables is formation of correlation matrix and studying the nature of these relationships. Pearson's correlation matrix is used to ensure the validity of the variables chosen and this correlation analysis is a foundation for imminent regression analysis. Here, variables for profitability and working capital management of the firm are checked for existence of correlation against each other.

The variable for profitability (ROA) has obtained maximum correlation coefficient (r) with TATR (0.95) which signifies the presence of strongest correlation. It is followed by QR and NWCTA. When compared for single regression, these independent variables tend to have a relatively stronger influence on each other. However, this matrix is unable to define the causal relationship between the dependent and independent variables.

The matrix shows that ROA has a negative relation with the variables ACP, APP, ICP, OC, CCC and TDR. The negativity says that to increase the profitability of the company, these negative variables need to be reduced. The relationship in this case demonstrates the firm's ability to collect the receivables amount from the customers in a short span of time and use the added amount to buy the raw materials without any delay. With a negative ICP it can be inferred that to some extent, profitability could be impacted with the inventory holding period. Increase in the amount of inventory stored could result in the increase in cost associated with it and thus reducing the profitability of the company. Thus the firm is efficient in investing the funds in production of products and collecting the money from selling these products as the resulting operating cycle and cash conversion cycle is also negatively related to ROA suggesting a strong relationship.

This nature of relationship could be extended to Debt ratio too. A lower debt ratio indicates the company is having more assets and is effectively managing its debt by keeping it low. Thus the negativity suggests that for profitability to increase, it is healthy to maintain the debt ratio to its lower level. The fact could further be supported by a positive relationship of ROA and Total asset turnover ratio as shown in the table. If a firm is able to utilise its asset to its maximum efficiency, the debt would be low and hence the short term working capital. This explains the positivity in the relationship of NWCTA to ROA.

Further, the table clearly shows that CR and QR are positively related to ROA. Current ratio and quick ratio indicates liquidity of a firm. A high value of them suggests that the firm has enough liquid funds to ensure continuing operation of its day-to-day activities. Thus an increasing ratio of these, results in increase in profitability of the firm.

The matrix also indicates structural multicollinearity among various independent variables as one or more variables could be used to derive others. Here, this pattern in its maximum extent is found between NWCTA and CR (0.99) and QR (0.98) as these are interrelated in nature. Other such high correlation is existing between OC and ICP (0.97) as they both are related to operation of a firm. Such multicollinearity make the model redundant in information and therefore, these variables are ignored in the final multiple regression model.

5.2 Regression Analysis

5.2.1 Relationship between ACP and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.602
R Square	0.362
Adjusted R Square	0.283
Standard Error	0.051
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.012	0.012	4.547	0.066
Residual	8	0.020	0.003		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.242	0.047	5.151	0.001
ACP	-0.001	0.001	-2.132	0.066

Interpretation: The value of R^2 equals 0.362, indicating that 36.2% of the variations in ROA are explained by ACP. The coefficient of ACP suggests that there is a negative relationship between ACP and ROA. The estimated regression equation as obtained from the table is:

$$y = 0.242 - 0.001\ x_1$$

The equation indicates that if ACP goes up by one unit, ROA will go down by 0.001 units. However, P-value of ACP is 0.066 which is higher than the considered significance level of 5%. Thus, we do not reject null hypothesis. Hence, there is no significant relationship between Average Collection period and Return on Assets.

5.2.2 Relationship between APP and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.370
R Square	0.137
Adjusted R Square	0.029
Standard Error	0.059
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.004	0.004	1.270	0.292
Residual	8	0.028	0.003		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.193	0.044	4.376	0.002
APP	- 0.0003	0.000	-1.127	0.292

Interpretation: The value of R^2 equals 0.137, indicating that only 13.7% of the variations in ROA are explained by APP. The coefficient of APP suggests that there is a negative relationship between APP and ROA. The estimated regression equation as obtained from the table is:

$$y = 0.193 - 0.0003\, x_2$$

The equation indicates that if APP goes up by one unit, ROA will go down by 0.0003 units. However, P-value of APP is 0.292 which is much higher than the considered significance level of 5%. Thus, we do not reject null hypothesis. Hence, there is no significant relationship between Average Payment period and Return on Assets.

5.2.3 Relationship between ICP and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.684
R Square	0.468
Adjusted R Square	0.402
Standard Error	0.046
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.015	0.015	7.046	0.029
Residual	8	0.017	0.002		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.312	0.064	4.908	0.001
ICP	-0.001	0.000	-2.654	0.029

Interpretation: The value of R^2 equals 0.468, indicating that 46.8% of the variations in ROA are explained by ICP. The coefficient of ICP suggests that there is a negative relationship between ICP and ROA. The estimated regression equation as obtained from the table is:

$$y = 0.312 - 0.001\ x_3$$

The equation indicates that if ICP goes up by one unit, ROA will go down by 0.001 units. Also, P-value of ICP is 0.029 which is lesser than the considered significance level of 5%. Thus, we reject null hypothesis. Hence, there is a significant relationship between Inventory Conversion period and Return on Assets.

5.2.4 Relationship between OC and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.684
R Square	0.468
Adjusted R Square	0.401
Standard Error	0.046
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.015	0.015	7.032	0.029
Residual	8	0.017	0.002		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.298	0.058	5.098	0.001
OC	-0.001	0.000	-2.652	0.029

Interpretation: The value of R^2 equals 0.468, indicating that 46.8% of the variations in ROA are explained by OC. The coefficient of OC suggests that there is a negative relationship between OC and ROA. The estimated regression equation as obtained from the table is:

$$y = 0.298 - 0.001\ x_4$$

The equation indicates that if OC goes up by one unit, ROA will go down by 0.001 units. Also, P-value of ICP is 0.029 which is lesser than the considered significance level of 5%. Thus, we reject null hypothesis. Hence, there is a significant relationship between Operating Capital and Return on Assets.

5.2.5 Relationship between CCC and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.451
R Square	0.204
Adjusted R Square	0.104
Standard Error	0.056
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.007	0.007	2.045	0.191
Residual	8	0.025	0.003		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.211	0.047	4.435	0.002
CCC	-0.001	0.000	-1.430	0.191

Interpretation: The value of R^2 equals 0.204, indicating that 20.4% of the variations in ROA are explained by CCC. The coefficient of CCC suggests that there is a negative relationship between CCC and ROA. The estimated regression equation as obtained from the table is:

$$y = 0.211 - 0.001\ x_5$$

The equation indicates that if ICP goes up by one unit, ROA will go down by 0.001 units. However, P-value of ICP is 0.191 which is higher than the considered significance level of 5%. Thus, we do not reject null hypothesis. Hence, there is no significant relationship between Cash Conversion cycle and Return on Assets.

5.2.6 Relationship between CR and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.815
R Square	0.664
Adjusted R Square	0.622
Standard Error	0.037
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.021	0.021	15.804	0.004
Residual	8	0.011	0.001		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.004	0.040	-0.106	0.918
CR	0.106	0.027	3.975	0.004

Interpretation: The value of R^2 equals 0.664, indicating that 66.4% of the variations in ROA are explained by CR. The coefficient of CR suggests that there is a positive relationship between CR and ROA. The estimated regression equation as obtained from the table is:

$$y = - 0.004 + 0.106\ x_6$$

The equation indicates that if CR goes up by one unit, ROA will also go up by 0.106 units. Also, P-value of CR is 0.004 which is lesser than the considered significance level of 5%. Thus, we reject null hypothesis. Hence, there is a significant relationship between Current Ratio and Return on Assets.

5.2.7 Relationship between QR and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.891
R Square	0.793
Adjusted R Square	0.767
Standard Error	0.029
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.025	0.025	30.654	0.001
Residual	8	0.007	0.001		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.006	0.029	-0.190	0.854
QR	0.157	0.028	5.537	0.001

Interpretation: The value of R^2 equals 0.793, indicating that 79.3% of the variations in ROA are explained by QR. The coefficient of QR suggests that there is a positive relationship between QR and ROA. The estimated regression equation as obtained from the table is:

$$y = - 0.006 + 0.157\ x_7$$

The equation indicates that if QR goes up by one unit, ROA will also go up by 0.157 units. Also, P-value of QR is 0.001 which is lesser than the considered significance level of 5%. Thus, we reject null hypothesis. Hence, there is a significant relationship between Quick Ratio and Return on Assets.

5.2.8 Relationship between TDR and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.686
R Square	0.471
Adjusted R Square	0.405
Standard Error	0.046
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.015	0.015	7.116	0.028
Residual	8	0.017	0.002		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.353	0.078	4.511	0.002
TDR	-0.555	0.208	-2.668	0.028

Interpretation: The value of R^2 equals 0.471, indicating that 47.1% of the variations in ROA are explained by TDR. The coefficient of TDR suggests that there is a negative relationship between TDR and ROA. The estimated regression equation as obtained from the table is:

$$y = 0.353 - 0.555\, x_8$$

The equation indicates that if TDR goes up by one unit, ROA will go down by 0.555 units. Also, P-value of ICP is 0.028 which is lesser than the considered significance level of 5%. Thus, we reject null hypothesis. Hence, there is a significant relationship between Total Debt Ratio and Return on Assets.

5.2.9 Relationship between TATR and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.950
R Square	0.902
Adjusted R Square	0.890
Standard Error	0.020
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.029	0.029	73.495	0.000
Residual	8	0.003	0.000		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.052	0.024	-2.150	0.064
TATR	0.347	0.040	8.573	0.000

Interpretation: The value of R^2 equals 0.902, indicating that 90.2% of the variations in ROA are explained by TATR. The coefficient of TATR suggests that there is a positive relationship between TATR and ROA. The estimated regression equation as obtained from the table is:

$$y = - 0.052 + 0.347\ x_9$$

The equation indicates that if TATR goes up by one unit, ROA will also go up by 0.347 units. Also, P-value of TATR is 0.000 which is lesser than the considered significance level of 5%. Thus, we reject null hypothesis. Hence, there is a significant relationship between Total Assets Turnover Ratio and Return on Assets.

5.2.10 Relationship between NWCTA and ROA:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.824
R Square	0.679
Adjusted R Square	0.639
Standard Error	0.036
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.022	0.022	16.929	0.003
Residual	8	0.010	0.001		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.102	0.016	6.456	0.000
NWCTA	0.450	0.109	4.114	0.003

Interpretation: The value of R^2 equals 0.824, indicating that 82.4% of the variations in ROA are explained by NWCTA. The coefficient of NWCTA suggests that there is a positive relationship between NWCTA and ROA. The estimated regression equation as obtained from the table is:

$$y = 0.102 + 0.450\, x_{10}$$

The equation indicates that if NWCTA goes up by one unit, ROA will also go up by 0.450 units. Also, P-value of NWCTA is 0.003 which is lesser than the considered significance level of 5%. Thus, we reject null hypothesis. Hence, there is a significant relationship between NWC to Total Assets Ratio and Return on Assets.

5.2.11 Multiple Regression Model:

The final regression model is formulated by considering results of correlation matrix and simple linear regression. The independent variables having a high correlation amongst each other are neglected in this final model to avoid the effect of multicollinearity. After carefully analysing the contribution of each variable in the equation, a simplified set of independent variables (including control variables) is selected to enhance the accuracy of the model.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.977
R Square	0.955
Adjusted R Square	0.898
Standard Error	0.019
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	0.031	0.006	16.812	0.009
Residual	4	0.001	0.000		
Total	9	0.032			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.326	0.213	-1.527	0.201
ICP	-0.001	0.000	-4.350	0.012
CCC	-0.001	0.000	-3.081	0.037
CR	0.115	0.022	5.322	0.006
Firm Size	0.047	0.020	2.405	0.074
Sales Growth	-0.046	0.025	-1.856	0.137

Interpretation: The value of R^2 equals 0.955, indicating that 95.5% of the variations in ROA are explained by these selected variables. It is significant as the P-value of F statistic (Significance F in ANOVA table) is 0.009 which is less than the significance level 0.05. The negative coefficients of ICP, CCC and sales growth suggest that they are negatively related with ROA. While CR and firm size are positively related to ROA as indicated by their coefficients. The estimated regression equation as obtained from the table is:

$$y = - 0.326 - 0.001\ x_3 – 0.001\ x_5 + 0.115\ x_6 + 0.047\ FS – 0.046\ SG$$

The equation indicates that if ICP goes up by one unit, ROA will go down by 0.001 units keeping the other variables constant. Similar conclusions could be drawn for other variables' relation with ROA. Also, P-values of ICP, CCC, CR and Firm size are 0.012, 0.037, 0.006 and 0.074 respectively, which are lesser than the considered significance level of 5%. Thus ICP, CCC, CR and firm size have significant influence on ROA. While sales growth doesn't significantly influence ROA as its P-value is 0.137 which is greater than 0.05.

In this case, the current ratio has a relatively stronger influence on profitability than the other considered variables as the absolute value of its coefficients is highest (0.115).

5.3 Descriptive Statistics

For a period of five years from F.Y. 2014-15 to 2018-19 (n = 5)

5.3.1 Analysis of Profitability:

Return on Assets (ROA)	Cadila	Abbott	AstraZeneca
Mean	13.35%	15.60%	3.60%
Standard Deviation	6.65%	1.34%	5.70%
Minimum	5.99%	13.40%	-5.06%
Maximum	22.59%	16.67%	9.69%

Return on Assets is a measure of profit per rupee of assets. Thus, it governs the efficiency of a firm's management and hence its profitability in the market. During the last five years, Abbott has experienced a higher profitability as indicated by a comparatively higher Net Income to Total Assets ratio. The mean ROA for AstraZeneca is very low as in the first year the company encountered a negative profit after tax. However, it has continuously grown its profitability by effectively managing the resources. The maximum profitability has been achieved by Cadila (22.59%) which is a Large cap company.

However, Cadila has a high Standard Deviation which suggests that its profitability over the year is not consistent and thus varies more from year to year. Instead, Abbott with a lower SD has a profitability closer to its mean in all the years. The range of ROA is also very low with a minimum of 13.40% and maximum 16.67%. By this information, it could be concluded that Abbott is quite efficient in managing its working capital, thus maintaining the consistency of its profitability over the years.

5.3.2 Analysis of Asset Utilization:

Average Collection Period (ACP)	Cadila	Abbott	AstraZeneca
Mean	95	22	37
Standard Deviation	37	4	5
Minimum	69	19	31
Maximum	158	27	43

The mean ACP of Abbott is the lowest signifying that the company is successfully collecting its receivables from customers in a shorter period of time. Cadila has a very high ACP in comparison to others which is indicated by its larger mean. Also, the max. and min. for the company exceeds those of others in a larger manner.

Abbott and AstraZeneca are quite closer in terms of consistency over ACP. These companies have a control over their collections and hence are efficient in capitalizing. However, Cadila has a high Standard Deviation which suggests that its Receivables collection period over the year is not consistent and thus varies more from year to year.

Inventory Conversion Period (ICP)	**Cadila**	**Abbott**	**AstraZeneca**
Mean	213	99	162
Standard Deviation	60	7	17
Minimum	141	91	141
Maximum	288	104	183

Inventory Conversion Period determines the capability of a firm to rapidly convert its inventory into sales thus governing the efficiency of inventory management. The lesser the ICP, the more is the profitability for the company. The higher mean for Cadila suggests the company is holding its inventory for a longer period of time. It had an ICP of maximum 288 days in the last five years. When compared to other two companies, its standard deviation is also high indicating the unpredictability in its ICP. The minimums for Cadila and AstraZeneca are the same in value, however, AstraZeneca is more efficient in converting its inventory into sales.

Meanwhile, Abbott is exceeding other two companies in terms of its performance in ICP. Its standard deviation is very low signifying a stronger grip over its inventory management. The values of ICP are not dispersed very much and are closer to the mean.

Total Asset Turnover Ratio (TATR)	**Cadila**	**Abbott**	**AstraZeneca**
Mean	0.51	1.46	1.32
Standard Deviation	0.18	0.18	0.08
Minimum	0.28	1.25	1.24
Maximum	0.74	1.67	1.43

Total Asset turnover ratio is a measure of a company's ability to efficiently utilize its assets in terms of net sales. Clearly, this ratio for Cadila is less than one which indicates that the company is not using its assets up to their maximum capacity. The net sales achieved are lesser than the assets thus highlighting the inefficiency of the company. There could be an either problem in production or management of inventory and collections behind this lower ratio.

Instead, Abbott and AstraZeneca are doing well in management of their assets. However, Abbott's SD suggests that the consistency of its ratio is poor and thus varies from year to year. Overall, the

companies' management is more efficient than that of Cadila as Cadila's TATR is always less than one for the last five years.

Cash Conversion Cycle (CCC)	Cadila	Abbott	AstraZeneca
Mean	112	48	10
Standard Deviation	54	19	24
Minimum	68	31	-17
Maximum	206	77	47

Just like ACP and ICP, a lower cash conversion cycle is preferable for a higher profitability as it reflects that the company is able to recover its invested cash in a lesser time. Comparatively, AstraZeneca has the most efficient CCC as its mean is the lowest (10 days). It could also be noticed that it has a minimum of -17 days indicating the amount of time spent on receivables collections and conversion of inventory into sales is less than the period to payback to suppliers. This shows a good control over production as well as sales management of the company. Abbott has also maintained good CCC over the years with even better consistency in the numbers. Abbott with a lower SD has a CCC closer to its mean in all the considered years.

However, Cadila's average CCC is approximately twice as that of Abbott with a maximum of 206 days which is significantly higher. Also, it has a high Standard Deviation which suggests that its CCC over the year is not consistent and thus varies more from year to year.

5.3.3 Short – Term Solvency Analysis:

Current Ratio (CR)	Cadila	Abbott	AstraZeneca
Mean	1.29	3.15	1.31
Standard Deviation	0.35	0.16	0.26
Minimum	0.71	3.00	1.01
Maximum	1.58	3.39	1.56

Current ratio, which is a ratio of current assets to current liabilities, indicates the solvency of a company. A ratio larger than one indicates the company's ability to pay its short-term debt with its current assets. The above table shows that all the companies are solvent in nature.

Abbott's current ratio has always been around 3 in these five years. This suggests the company has lesser current liabilities with respect to its current assets. Also, a greater difference in current assets and current liabilities is the significance of a good working capital. However, with the help of this ratio it could be concluded whether the company has lesser current liabilities in comparison to other

companies. Though, the consistency in maintaining its short-term obligations is quite better than the others, as could be refereed through standard deviation.

Cadila's minimum ratio is 0.71 which means during that year the company was not in a position to meet its current debts through its current assets. While, AstraZeneca's 1.01 ratio suggests that the company had just enough current assets to fulfil its short-term obligations.

Quick Ratio (QR)	Cadila	Abbott	AstraZeneca
Mean	0.87	2.33	0.92
Standard Deviation	0.30	0.18	0.19
Minimum	0.40	2.12	0.68
Maximum	1.18	2.51	1.11

Quick ratio is more precise in estimating the solvency of a company as it doesn't take inventory into consideration. It signifies the company's capability to meet its short-term debt without selling its inventory. Just like CR, QR also needs to be more than one in order to be solvent and ensure continuous day-to-day operation.

As it could be seen from the above table, the mean quick ratio of Cadila and AstraZeneca are less than 1 which means the companies' solvency in the last five years was very less. However, their maximum value is above one, hence it could be indicated that the companies are capable of reaching a better QR if managed resourcefully. The concern could be raised for Cadila as its consistency is very low in terms of having control over QR.

The statistics for Abbott's quick ratio is similar to that of its current ratio. The company is in position to pay back its current liabilities without taking care of inventories. This signifies that the company is efficiently managing its assets and debts are also fulfilled in time.

5.3.4 Analysis of Long – Term Solvency:

Total Debt Ratio (TDR)	Cadila	Abbott	AstraZeneca
Mean	0.36	0.32	0.54
Standard Deviation	0.04	0.01	0.08
Minimum	0.30	0.30	0.46
Maximum	0.40	0.33	0.63

Total debt ratio of a company is calculated in order to measure its long-term solvency in terms of total liabilities and total assets. It indicates whether a company's assets are enough to meet its long-term obligations. A lower ratio (less than one) is good for the company as it means the company has

lesser debts than assets. All the three companies have a favourable ratio. A ratio of 0.5 is considered as less risky as in this case assets are double that of liabilities. AstraZeneca has a mean total debt ratio of 0.54 and a maximum of 0.63. Also, its standard deviation is comparatively high which makes it problematic to maintain a ratio less than or equal to 0.5.

Moreover, Abbott has managed its total debt ratio efficiently and not much diversity could be seen over the years. Similarly, the ratio for Cadila is also doing well and hence these both companies are less risky to investors. The ratio signifies financial leverage of the companies and an efficient ratio could attract lenders to invest in the companies which would be reflected in their market capitalisation.

6. Conclusion

- Through applying correlation tests on all the possible parameters of working capital management, it was observed that ACP, APP, ICP, OC, CCC and TDR have a negative relationship with the profitability of Cadila Healthcare Ltd. The degree of correlation is medium in case of ACP, ICP, OC and TDR while low-medium in case of APP and CCC. This indicates that to increase the profitability of the company, it needs to reduce the values associated with these parameters.

- Moreover, the relationship of the company's Return on assets with the parameters associated with short-term solvency such as CR and QR is high and positive in nature. Consequently, a keen focus is required on increasing the solvency of the company. Along with this, Assets turnover ratio has a very high and positive influence on the profitability as could be signified with positive coefficients of TATR and NWCTA.

- The results of simple linear regression analysis show that out of these variables ICP, OC, CR, QR, TDR, TATR and NWCTA have a significant influence on the profitability of the company. And only ACP, APP and CCC are insignificant, so their relationship with profitability is uncertain. Thus as a whole, working capital management of Cadila Healthcare Ltd. has a significant impact on its profitability.

- Further, the variables are tested for multiple regression analysis and after considering control variables, multicollinearity and other factors, the final model consists of ICP, CR and CCC. In this model, ICP and CCC have a significant and negative impact on ROA. While, CR is positively related to the dependent variable. It also shows that the relationship of sales growth with the profitability of the company is insignificant in nature.

- When compared with other two top companies belonging to Mid cap and Small cap, the performance of Cadila (Large Cap) is not found very satisfactory. The assets utilization capability of the company is not efficient and thus its overall cash conversion cycle is comparatively much longer (highest in F.Y 2018-19). Over the last five years, the company has performed unproductively in its production as well as receivables collection department.

- Also, the short-term solvency position of the company is not good in the market and the company doesn't not have adequate current assets to meet its short-term obligations. However, its long-term solvency ratio is remarkable and thus the company could attract potential investors as the future risks associated with it are less.

- Due to its poor to moderate performance related to these parameters, the profitability is also not satisfactory and is seen to be declining over the years (Figure 1). Meanwhile, Abbott India has performed exceptionally well in all the measures and its overall profitability is also superior than that of Cadila. AstraZeneca also has continuously grown its profitability by an efficient management of utilization of its assets. The company was able to achieve a negative cash conversion cycle in F.Y 2018-19 which is an advantage for it (Figure 5). However, due to its poor short-term and long-term solvency position, the company has not achieved a remarkable profitability. The data also shows that the ratios are continuously improving for the company and thus the profitability.

- With the overall performance analysis, Abbott India could be given rank one, followed by AstraZeneca and then Cadila. Thus, working capital management significantly influences a firm's profitability irrespective of its size and market capitalisation.

7. Managerial Implications

Pharmaceutical is one such industry where competition in the market is defined by Research & Development. With expiration of patents, many small capacity firms are able to enter this market and provide the products at a comparatively lower price. In such scenarios, bigger companies establish their competitive edge by continuously working on developing new drugs and other products to remain competitive in the market. Such developments and innovations require a huge amount of capital investment. The Government of India has recently come up with various initiatives to promote and invest in the Pharma sector of India. The availability of limited funds has certainly increased the competition not only with the global market but also amongst Indian pharma companies. In addition to that big pharma companies constantly face pressure of manufacturing low cost products. Thus, management of working capital is a key essential for pharma companies to grow amongst domestic as well as foreign players.

This study is focused on some major components of working capital concerning cash cycle, short-term and long-term solvency of a company. These parameters have a significant or insignificant relationship with the profitability. Thus irrespective of size of the firm or its market capitalization, the companies are required to work upon its working capital management. Moreover, the statistics also indicate that when compared with foreign companies, the cash cycle of a domestic player is very high. In the present study too, Abbott and AstraZeneca which are foreign players have average cash cycles of less than 50 days. On the other hand, Cadila which is one of the top 10 players of India has an average cash cycle of more than 100 days. This signifies that the concept of working capital management is least focused in the country. The traditional business policies and methods are being used for management of receivables, payables and inventories. And because of that domestic players suffer a reduction in their profitability.

While some portion of capital gain is achieved by selling the products, a major chunk of that is raised by attracting potential investors. Hence, the solvency position of a company plays a vital role for financial leverage. By looking at liquidity ratios, investors could understand the company's capability to fulfil its debt obligations. Thus to remain stable with respect to market volatility and to overcome economic slowdown, managers need to understand influential working capital parameters of their company and balance them with company's profitability.

8. Recommendations

1. **Improving Accounts Payment Period:** As the payment period of the company is already very high, the company needs to maintain a balance between ACP, ICP and APP. The problem with a greater payment period is that it increases the short-term liability which significantly affects the solvency position of the company. The quick ratio of the company is not satisfactory, thus in addition to ACP and ICP there is a need to focus on APP also. The creditors should be paid back faster which would improve the company's brand image in the market as risks to creditors is minimised.

2. **Inventory Management:** The time for holding inventories should be minimised so that the products could be sold fast to generate revenue. Here, major focus should be given to inventory management and just-in-time (JIT) process is proved to be effective for minimising the inventory holding period.

3. **Increasing Sales:** Another way of improving the cash conversion cycle is to increase the production and hence reduce inventory conversion period. In the last five years, Cadila has seen significantly high sales growth and a negative sales growth **too**. This indicates inconsistency in its sales management, thus this is also one of the key focal areas for the

company. Additionally, efforts should be given to slow moving inventory by implementing methods like discounting and marketing.

4. **Reducing Accounts Collection Period:** The decline in Cadila's profitability is most affected by its poor performance in cash flow management. It has seen a much longer period of accounts receivable and inventory conversion. The results suggest to reduce the number of days of accounts receivables. By reducing ACP and ICP, the cash flow would be positive and by delaying payments, there would be enough working capital for further production and investment.

Learnings from Summer Training Project

The first phase of this summer training project is dedicated to analyse the impact of COVID – 19 on pharmaceutical and manufacturing industries. A major portion of pharma companies are affected as they are dependent on China for the supply of most of the APIs. And due to national lockdown the global supply chain has got disrupted resulting into decline in manufacturing of drugs. Movement of vehicles carrying goods & supplies is banned in all parts of the country. Additionally, the ban on public transport has prevented labours from moving to their workplaces. To overcome these challenges, many companies have come together and have decided to share the available resources such as trucks for transportation needs.

Moreover, the country has seen a significant rise in demand of essential products such as PPEs, sanitizers and some drugs. However, due to lack of necessary raw materials and also workforce the companies are facing difficulties in fulfilling the demand. The production in pharma companies is reduced to a considerable level even though they are operating during lockdown too. The companies are not able to operate at their maximum capacity and due to this they are facing huge losses.

The companies have also been impacted financially. Due to the surge in import price, the cost of production has been increased. The export of certain products is also suffered due to lockdown which has reduced revenue from exports for pharma companies. However, the demand for products such as Hydroxychloroquine are seen to be increasing globally which would add to the income in the upcoming quarter.

The overall manufacturing sector is suffering as there is a growing decline in demand and production of the products as many of the stores and other facilities are closed down. The Q1 of 2020 has seen declined stock markets. The uncertainty of the market is increased significantly, bringing up risks for investors and other stakeholders. Due to stopped economic activities including production, companies are expected to face challenges in cash – flow liquidity. Hence there might be cases of non – fulfilment of debt commitments and if manufacturers are unable to recover, they might go insolvent.

The other phase of this training included studying working capital management of pharmaceutical companies of India. This project is again divided into two parts: first part includes a case study on Cadila Healthcare Ltd. defining a relationship between its profitability and working capital parameter, the second part is a comparative study of three companies on the basis of components of working capital.

This project has helped in learning the managerial implications of working capital management of a company along with enhancing the skills of data analysis. With the help of data analysis methods and financial ratios studied in the classroom study, I was able to achieve the objectives of this study in an

effective manner. By analysing Porter's framework for the Pharmaceutical industry, it could be understood that the barriers in entering this industry are less. Thus the companies are constantly facing competition from new entrants, especially smaller firms which are able to produce low cost drugs on expiration of patents. To overcome this challenge and to build a competitive edge, bigger firms need to become efficient in their working capital management. The concept of WCM has not been highlighted much in the country. However, it is well managed in countries like the US and Europe. With the help of this study, it was successfully concluded that global players are managing their working capital more efficiently than domestic companies.

To improve a company's profitability there are other factors too which significantly influence it. Companies operating with traditional and outdated business policies are lagging behind in terms of profitability. With the increasing importance of technology, the companies are required to adapt to these disruptive innovations in their system including data management. Pharmaceutical industry is also moving towards modified marketing trends where end consumers would be given equal focus. Hence, the companies are required to keep improvising the functional areas of business altogether.

This study requires a grip over financial as well as analytical skills and it was helpful in exploring the career option for Finance management. Working on a practical approach using theoretical knowledge has driven my interest towards this role. As the concept of WCM is still not applied to its maximum efficiency in Indian industries, the scope of working in this field would be enormous. Also, the future will be mostly data management using advances tools and technology. Thus, there is an opportunity to master skills of data analytics. This career path has a potential to provide a growing learning curve and is thus could be chosen as a career path.

Moreover, the study of COVID-19 and its impact has somehow changed the working styles of industries. This helped in learning the new possibilities and scenarios in financial market and how the companies would need to operate while adapting to market volatility.

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Annexures

Annexure 1: Financial Data of Cadila Healthcare Ltd.

F.Y 2009-10 to 2018-19 (in Rs. millions)

PAT	Total Assets	ROA	Firm Size	Previous Net Sales	Current Net Sales	Sales Growth
5,033	23,311	21.59%	10.06	19,457	24,249	24.63%
6,104	27,732	22.01%	10.23	24,249	29,199	20.41%
6,575	47,192	13.93%	10.76	29,203	31,508	7.89%
4,986	55,500	8.98%	10.92	31,508	36,757	16.66%
9,036	62,431	14.47%	11.04	35,274	40,421	14.59%
12,711	73,374	17.32%	11.20	40,421	52,844	30.73%
19,773	87,530	22.59%	11.38	52,844	70,353	33.13%
6,619	1,10,474	5.99%	11.61	70,320	32,307	-54.06%
10,908	1,21,637	8.97%	11.71	32,307	58,099	79.83%
16,021	1,34,922	11.87%	11.81	58,099	64,927	11.75%

Opening Receivables	Ending Receivables	Average Trade Receivables	Net Sales	Receivables Turnover Ratio	Average Collection Period
3,523	4,008	3,766	24,249	6.44	57
4,008	4,751	4,380	29,199	6.67	55
4,751	5,812	5,282	31,508	5.97	61
6,158	6,830	6,494	36,757	5.66	64
6,830	7,220	7,025	40,421	5.75	63
7,220	10,561	8,891	52,844	5.94	61
10,561	17,033	13,797	70,353	5.10	72
17,073	9,290	13,182	32,307	2.45	149
9,290	12,551	10,921	58,099	5.32	69
12,551	20,879	16,715	64,927	3.88	94

Opening Inventory	Ending Inventory	Average Inventory	COGS	Turnover Ratio	Inventory Conversion Period	Operating Cycle
3,490	3,808	3,649	7,679	2.10	173	230
3,808	4,645	4,227	8,699	2.06	177	232
4,645	5,012	4,829	10,370	2.15	170	231
5,012	5,872	5,442	12,675	2.33	157	221
5,872	6,635	6,254	14,151	2.26	161	225
6,635	8,043	7,339	16,516	2.25	162	224
8,043	6,575	7,309	18,918	2.59	141	213
6,575	9,329	7,952	10,085	1.27	288	437
9,329	13,207	11,268	16,957	1.50	243	311
13,207	14,104	13,656	21,479	1.57	232	326

Opening Payables	Ending Payables	Average Accounts Payable	COGS	Payable Turnover Ratio	Average Payment Period	Cash Conversion Cycle
2,833	3,710	3,272	7,679	2.35	156	75
3,760	4,897	4,329	8,699	2.01	182	50
3,459	2,848	3,154	10,370	3.29	111	120
2,848	3,607	3,228	12,675	3.93	93	128
3,607	4,617	4,112	14,151	3.44	106	119
4,617	6,713	5,665	16,516	2.92	125	98
6,713	8,982	7,848	18,918	2.41	151	61
8,999	11,129	10,064	10,085	1.00	364	72
9,961	9,921	9,941	16,957	1.71	214	97
8,029	6,640	7,335	21,479	2.93	125	201

Current Assets	Current Liabilities	Current Ratio
11,725	5,348	2.19
14,881	6,840	2.18
15,215	12,860	1.18
18,084	16,608	1.09
20,799	15,686	1.33
26,973	20,004	1.35
29,235	19,203	1.52
21,394	30,139	0.71
35,514	27,907	1.27
41,590	26,312	1.58

Current Assets	Inventory	Current Liabilities	Quick Ratio
11,725	3,808	5,348	1.48
14,881	4,645	6,840	1.50
15,215	5,012	12,860	0.79
18,084	5,872	16,608	0.74
20,799	6,635	15,686	0.90
26,973	8,043	20,004	0.95
29,235	6,575	19,203	1.18
21,394	9,329	30,139	0.40
35,514	13,207	27,907	0.80
41,590	14,104	26,312	1.04

Total Assets	Total Equity	Total Liability	Total Debt Ratio
23,311	16,221	7,090	0.30
27,732	20,899	6,833	0.25
47,192	25,493	21,699	0.46
55,500	29,115	26,385	0.48
62,431	36,299	26,132	0.42
73,374	45,254	28,120	0.38
87,530	61,374	26,156	0.30
1,10,474	66,183	44,291	0.40
1,21,673	77,455	44,218	0.36
1,34,922	89,565	45,357	0.34

Net Sales	Total Assets	Total Asset Turnover Ratio
18,329	23,311	0.79
21,762	27,732	0.78
24,133	47,192	0.51
29,165	55,500	0.53
35,245	62,431	0.56
46,861	73,374	0.64
64,365	87,530	0.74
30,542	1,10,474	0.28
55,760	1,21,637	0.46
62,070	1,34,922	0.46

Current Assets	Current Liabilities	NWC	Total Assets	Ratio
11,725	5,348	6,377	23,311	0.27
14,881	6,840	8,041	27,732	0.29
15,215	12,860	2,355	47,192	0.05
18,084	16,608	1,476	55,500	0.03
20,799	15,686	5,113	62,431	0.08
26,973	20,004	6,969	73,374	0.09
29,235	19,203	10,032	87,530	0.11
21,394	30,139	-8,745	1,10,474	-0.08
35,514	27,907	7,607	1,21,637	0.06
41,590	26,312	15,278	1,34,922	0.11

Annexure 2: Financial Data of Abbott India Ltd.

F.Y 2014-15 to 2018-19 (in Rs. lakhs)

PAT	Total Assets	ROA
22,896	1,37,363	16.67%
25,963	1,62,407	15.99%
27,665	2,06,381	13.40%
40,122	2,41,619	16.61%
45,033	2,94,091	15.31%

Firm Size
11.83
12.00
12.24
12.40
12.59

Previous Net Sales	Current Net Sales	Sales Growth
2,27,590	2,28,865	0.56%
2,28,933	2,62,842	14.81%
2,61,450	2,90,256	11.02%
2,90,256	3,29,850	13.64%
3,29,850	3,67,860	11.52%

Opening Receivables	Ending Receivables	Average Trade Receivables	Net Sales	Receivables Turnover Ratio	Average Collection Period
10,918	12,915	11,916	2,28,865	19.21	19
12,915	14,084	13,500	2,62,842	19.47	19
14,502	17,422	15,962	2,90,256	18.18	20
17,622	26,344	21,983	3,29,850	15.00	24
26,344	27,611	26,978	3,67,860	13.64	27

Opening Inventory	Ending Inventory	Average Inventory	COGS	Turnover Ratio	Inventory Conversion Period	Operating Cycle
35,905	38,413	37,159	1,31,196	3.53	103	122
38,413	37,010	37,712	1,50,808	4.00	91	110
37,010	50,063	43,537	1,71,207	3.93	93	113
50,063	58,533	54,298	1,90,474	3.51	104	128
58,533	60,679	59,606	2,08,860	3.50	104	131

Opening Payables	Ending Payables	Average Accounts Payable	COGS	Payable Turnover Ratio	Average Payment Period	Cash Conversion Cycle
13,622	19,356	16,489	1,31,196	7.96	46	77
19,356	23,289	21,323	1,50,808	7.07	52	58
23,014	47,469	35,242	1,71,207	4.86	75	38
47,469	48,063	47,766	1,90,474	3.99	92	37
48,063	66,352	57,208	2,08,860	3.65	100	31

Current Assets	Current Liabilities	Current Ratio
1,22,612	39,694	3.09
1,44,462	47,248	3.06
1,89,055	62,964	3.00
2,26,547	66,808	3.39
2,76,098	85,689	3.22

Current Assets	Inventory	Current Liabilities	Quick Ratio
1,22,612	38,413	39,694	2.12
1,44,462	37,010	47,248	2.27
1,89,055	50,063	62,964	2.21
2,26,547	58,533	66,808	2.51
2,76,098	60,679	85,689	2.51

Total Assets	Total Equity	Total Liability	Total Debt Ratio
1,37,363	93,753	43,610	0.32
1,62,407	1,10,764	51,643	0.32
2,06,381	1,38,694	67,687	0.33
2,41,619	1,69,276	72,343	0.30
2,94,091	2,00,859	93,232	0.32

Net Sales	Total Assets	Total Asset Turnover Ratio
2,28,865	1,37,363	1.67
2,62,842	1,62,407	1.62
2,90,256	2,06,381	1.41
3,29,850	2,41,619	1.37
3,67,860	2,94,091	1.25

Current Assets	Current Liabilities	NWC	Total Assets	Ratio
1,22,612	39,694	82,918	1,37,363	0.60
1,44,462	47,248	97,214	1,62,407	0.60
1,89,055	62,964	1,26,091	2,06,381	0.61
2,26,547	66,808	1,59,739	2,41,619	0.66
2,76,098	85,689	1,90,409	2,94,091	0.65

Annexure 3: Financial Data of AstraZeneca

F.Y 2014-15 to 2018-19 (in Rs. millions)

PAT	Total Assets	ROA
-20,83,97,042	4,11,59,27,938	-5.06%
5,25,89,820	4,05,72,10,863	1.30%
24,44,22,513	3,77,74,48,083	6.47%
259	4,605	5.63%
545	5,618	9.69%

Firm Size
22.14
22.12
22.05
8.43
8.63

Previous Net Sales	Current Net Sales	Sales Growth
4,73,97,09,712	5,17,06,94,092	9.09%
5,17,06,94,092	5,63,73,22,648	9.02%
5,63,73,22,648	5,39,57,00,832	-4.29%
5,437	5,710	5.02%
5,710	7,283	27.55%

Opening Inventory	Ending Inventory	Average Inventory	COGS	Turnover Ratio	Inventory Conversion Period
95,75,75,685	86,13,07,005	90,94,41,345	2,00,06,62,480	2.20	166
86,13,07,005	76,72,95,669	81,43,01,337	1,99,06,08,516	2.44	149
76,72,95,669	57,71,76,579	67,22,36,124	1,73,66,82,172	2.58	141
577	1,132	854	1,811	2.12	172
1,132	1,181	1,156	2,311	2.00	183

Opening Receivables	Ending Receivables	Average Trade Receivables	Net Sales	Receivables Turnover Ratio	Average Collection Period	Operating Cycle
52,92,91,865	42,77,27,494	47,85,09,680	5,17,06,94,092	10.81	34	200
42,77,27,494	84,35,58,558	63,56,43,026	5,63,73,22,648	8.87	41	190
83,14,32,941	43,60,31,872	63,37,32,407	5,39,57,00,832	8.51	43	184
430	546	488	5,710	11.70	31	203
546	798	672	7,283	10.84	34	216

Opening Payables	Ending Payables	Average Accounts Payable	COGS	Payable Turnover Ratio	Average Payment Period	Cash Conversion Cycle
1,09,87,09,835	1,11,27,15,671	1,10,57,12,753	2,00,06,62,480	1.81	202	-2
1,11,27,15,671	94,62,84,208	1,02,94,99,940	1,99,06,08,516	1.93	189	2
94,62,84,208	35,77,03,604	65,19,93,906	1,73,66,82,172	2.66	137	47
877	953	915	1,811	1.98	184	19
1,272	1,682	1,477	2,311	1.56	233	-17

Current Assets	Current Liabilities	Current Ratio
2,63,26,05,300	2,59,81,85,442	1.01
2,68,28,41,344	2,48,43,98,423	1.08
2,52,76,89,862	1,84,86,80,439	1.37
3,209	2,070	1.55
4,047	2,590	1.56

Current Assets	Inventory	Current Liabilities	Quick Ratio
2,63,26,05,300	86,13,07,005	2,59,81,85,442	0.68
2,68,28,41,344	76,72,95,669	2,48,43,98,423	0.77
2,52,76,89,862	57,71,76,579	1,84,86,80,439	1.06
3,209	1,132	2,070	1.00
4,047	1,181	2,590	1.11

Total Assets	Total Equity	Total Liability	Total Debt Ratio
4,11,59,27,938	1,50,75,53,378	2,60,83,74,560	0.63
4,05,72,10,863	1,56,01,43,198	2,49,70,67,665	0.62
3,77,74,48,083	1,80,45,65,711	1,97,28,82,372	0.52
4,605	2,469	2,136	0.46
5,618	3,008	2,610	0.46

Net Sales	Total Assets	Total Asset Turnover Ratio
5,17,06,94,092	4,11,59,27,938	1.26
5,63,73,22,648	4,05,72,10,863	1.39
5,39,57,00,832	3,77,74,48,083	1.43
5,710	4,605	1.24
7,283	5,618	1.30

Current Assets	Current Liabilities	NWC	Total Assets	Ratio
2,63,26,05,300	2,59,81,85,442	3,44,19,858	4,11,59,27,938	0.01
2,68,28,41,344	2,48,43,98,423	19,84,42,921	4,05,72,10,863	0.05
2,52,76,89,862	1,84,86,80,439	67,90,09,423	3,77,74,48,083	0.18
3,209	2,070	1,140	4,605	0.25
4,047	2,590	1,457	5,618	0.26

Annexure 4: Project Completion Certificate

CADILA PHARMACEUTICALS LIMITED

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Date : 23.06.2020

TO WHOMSOEVER IT MAY CONCERN

We hereby certify that **Gitanjali Karanwal** has undergone a Internship Training with the Organization from 20th April 2020 to 20th June 2020 for a period of 8 Weeks. His/Her project title was **A study on Working Capital Management of Indian Pharmaceutical Industry.** He/She has been a positive contributor to the organization. His/Her performance has been satisfactory.

With Best Wishes,

CADILA PHARMACEUTICALS LTD. "CADILA CORPORATE CAMPUS" SARKHEJ-DHOLKA ROAD, BHAT AHMEDABAD-382 210

Authorized Signatory

The Care Continues...