

A Study on Engineering of Cash Management and its impact on Profitability of Indian Pharmaceutical Industry with Special Reference to Cipla Ltd.

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Abstract: The creation of firms' value is been positively expected by a well designed and implemented cash management. The purpose of this paper is to examine the trends in cash management and its impact on firms' performance and also to examine significant difference between the profitability of firms and industries. Here we consider the return on total assets as dependent variable which is used as a measure of profitability and relation between cash management and corporate profitability. For this purpose here we have taken a sample of ten Indian Pharmaceuticals firms (NSE listed) and the period of 2000-2014. In this study we used panel data regression for the investigation of the results. The other main variables used in this analysis are cash conversion cycle(CCC), GEAR, CATA, CLTA, CATURN, LNSales. In previous empirical work a strong significant relationship between WCM and profitability has been found. In this way the final analysis of the operational efficiency, liquidity and profitability of the Indian Pharmaceuticals firms have shown a significant changes and it also shows how best practices are prevailing in the Cipla Ltd. and others which are contributing to performance. We have also come out how the findings also reveal an increasing trend in the working capital financing (short-term component).

Key words: working capital management, Profitability, liquidity & operational efficiency.

I. INTRODUCTION

The main reason of firms which holds assets is to generate returns. In this way the value of an asset is determined according to its capacity to generate future cash flows. For example, a firm might maintain large account receivables and a varied stock of inventory in an effort to gain greater loyalty from customers and in turn generate more future sales. But, now the question arises if the main goal of the firm is to distribute profits to investors, why do it choose to hold cash? Perhaps the first idea that comes to mind is that cash is needed to perform transactions, for example, to pay general expenses and wages or to make purchases. Of course, in some cases a firm may be able to effect these transactions using credit rather than cash, but eventually such obligations need to be paid. Thus, as long as the company operates, there is a transaction motive for holding cash.

Second, a firm will need to hold some cash to be able to respond to the unexpected. On the one hand, an unexpected event may be bad, for example, if a large customer fails to pay on time. In this case, the firm can only pay its bills when it has sufficient back-up money available. This is typically referred to as a precautionary motive for holding cash. On the other hand, an unexpected event may be good, say, if a firm faces a profit-increasing investment opportunity. To the extent that pursuing such opportunities requires cash, the firm may choose to hold higher cash balances simply to be able to profit from this valuable option. Here the option motive for holding cash is to close, but richer than, the typical speculative motive for holding cash.

Related to the previous concept, a cash balances are used as a hedging tool in the firm. In particular, a firm that generates volatile (i.e., unpredictable) cash flows may choose to hold higher cash balances.

If we consider the development of technologies that facilitate transactions and the evolution of local and global markets that provide a wide variety of hedging alternatives, we would expect corporate cash balances to have decreased over time. However, the observed pattern is just the opposite: cash-to-assets ratios, for example, have more than doubled over the last 25 years.

So why are firms increasing their cash balances? That is, why do firms increasingly find it valuable to hold cash? Some researchers agree that most of this departure is explained by the risk component; that is, it is explained either by this option value of cash holding or by the use of cash as a hedging tool.

This chapter summarizes the factors in which a financial manager needs to take into an account respect to the firm's cash management policy. Initially we have given a brief discussion of the various motives for holding cash. At the conclusion we have summarized the key variables that the literature shows determine a firm's optimal cash balances. Next, we have explained why a firm's cash collection policy and its cash conversion cycle matter for good cash management. Finally, we have discussed how a firm can optimally invest its idle cash.

II. LITERATURE REVIEW

Baumal (1952) emphasized that the total cost of the cash balance to be held by the firm should be minimum. He attempted to apply the inventory model to determine the level of cash to be held by the business firm. He stated that the total cost is the sum of interest opportunity cost and broker's fees. The model, which he has applied in his study, is as follows:

$$C = \sqrt{\frac{2bT}{i}}$$

Where, C= the cash balance to be held by business firm, b is the broker's fees or transaction cost, T is the total cash needed, and i is the interest opportunity cost. He opined that the transactions demand for cash would vary approximately in proportion with the money value of transactions.

Baumal assumptions about the behaviour of cash inflow and outflows are probably more application to an individual than to a business firm. It is because inflows are likely to be less lumpy and outflows are likely to be less smooth for the firm. **Sagan (1955)**, Sagan pointed out that responsibility of money manager is to provide funds when needed to invest by examining liquidity and profitability of, various investment opportunities. He suggested that the money manager should take his decisions on the basis of cash budget and total current assets position rather than on the basis of traditional working capital ratios. This is important because efficient money manager can avoid borrowing from outside even when his net working capital position is low. The study pointed out that there was a need to improve the collection of funds but it remained silent about the method of doing it. Finally, he concluded that the money manager should be a combination of credit analyst, a commodity specialist, a money market expert, a bit of a horse trader, and a banker. Moreover, this study is descriptive without any empirical support. Therefore, the validity of facts is found low. **Tobin (1956)** studied on the interest elasticity of transaction demand for cash. He indicated that there are important economies of scale in cash holding and an inverse relationship between interest rates and the demand for money. His study is different from Baumal's study to the extent that the individual's interest earnings not of transaction costs were maximized. He himself recognized that his result is similar to Baumal's equation. In the study of **Friedman (1959)**, His empirical results indicated that the permanent income elasticity was 1.8 and the effect of interest rates on the demand for money was too small to be statistically significant. He concluded that the demand for money is not statistically sensitive to changes in the rate of interest. In fact, his estimates apply to individuals, but he believed his model could be applied to the business firms as well.

Meltzer (1963) investigated the demand for money by business firms. The study of Meltzer was based on 14 industries for nine years with assets - class observation. In his study, he specified the following function as a first approximation to the theory:

$$M = f(r, w)$$

Where, M is money, the sum of currency and demand deposit of the public, r is a market rate of interest and w is the net wealth of the public. He used sales as a proxy for the firm's wealth. In order to reach conclusion, he tested three function forms:

$$\begin{aligned} \log C &= a + \beta \log S \\ C &= a + b S^{1/2} + dS \end{aligned}$$

He found that by applying above equation (the log form) does better than the non-log on the average. Finally, he concluded that the demand for money by business firm is a function of sales, linear in logarithms and unit elastic to first approximation. He, further noted that the result supported the evidence from his time series analysis based on quite different data for a sixty year period. His study is one of the important contributions towards the theory of the demand for money by business firm. Van Horn (1969) examined separately the level of a firm's liquid assets and the maturity composition of its debt in order to illustrate the respective trade-off between risk and return. This study presents a risk return trade off in working capital management in entirely new perspective different from Walker study. Nadiri (1969) studied on the determinants of real cash balances in

the U.S. total manufacturing sector. By using regression equation, Nadiri found that the demand for real cash balances was determined by output (wealth), the interest rate, and the expected rate of change in the general price level and factor prices. The level of the long-term interest rate and the change in the interest rate are significant determinants of real cash holdings of the manufacturing sector. Lastly, Nadiri concluded that the question of whether the short or long term interest rate is a better proxy of the relevant interest rate required further investigation. Marvill and Tavis (1973) in their study They pointed out that the current assets and liabilities of a firm are the stock reflection of closely interrelated operational and financial cash flows. They suggested that the net effect of these combined flows must be recognized in searching for the optimal credit inventory or short term borrowing policies. Smith (1997) studied on modelling associations between working capital and operating profit. The purpose of the study was to report on results of research undertaken to model associations between traditional and alternative working capital measures and operating profit in 135 industrial firms listed on the Johannesburg Stock Exchange over a period of ten years starting from 1984 to 1993. In the study they found the traditional working capital leverage ratio of current liabilities divided by gross funds flow displayed the greatest associations with operating profit. As per the findings, a decrease in total current liabilities divided by gross funds flow could indicate an improvement in operating profit and vice versa. Shin and Soenen (1998) studied on efficiency of working capital management and corporate profitability. They investigated the relation between the firm's net trade cycle and its profitability. The relation was examined using correlation and regression analysis. They found that in all cases, a strong negative relation between the length of the firm's net trade cycle and its profitability. Pinkowitz and Williamson (2001) examined the effect of bank power on cash holding patterns of industrial firms for a sample of Japanese firms for the periods 1974-1995, German firms for the periods 1984-1994 and US firms for 1971-1994. They found that high cash holdings mean higher rents extracted by the banks during the periods when they enjoy certain power in the corporate lending system. Toby (2005) in his paper he suggested that; the finance managers in manufacturing enterprises needed to redefine their banking relationship regularly as a strategy for managing anticipated and unanticipated gap. Nguyen (2005) investigated the hypothesis that money balances have a preventive motive and serve to mitigate the volatility of operative earnings that they used as a proxy for risk. Their results showed that money holdings are completely related to firm level risk, however negatively concerning trade risk. In line with past researches, money holdings were found to be decreasing with the firm's size and debt ratio and increasing with its gain, growth prospects, and dividend pay-out ratio. Guney et al (2006) examined the impact of leverage on cash balances of companies. They found high levels of leverage, a positive relationship between money holdings and leverage exists. Their results counsel a significant non-linear relationship between cash holding and leverage. Drobetz and Gruninger (2006) investigated the determinants of Swiss non-financial firms' cash holdings over the 1995-2004. The results showed that the median of Swiss corporations hold almost doubly the maximum amount cash and cash equivalents because the median of UK or U.S. firm.

3.1 Objectives & Research Hypotheses:

The objective of this research is to distinguish the relationship between methods of cash management and profitability of Indian Pharmaceutical companies and to examine the causes for any significant differences between the Indian pharmaceutical companies.

H₀: A Significant relationship exists between the cash conversion cycle and return on total assets.

3.2 Research Methodology

The primary aim of this study is to investigate the impact of cash management on corporate profitability of Indian Pharmaceutical Industry. This is achieved by developing a similar empirical framework first used by Shin and Soenen (1998) and the subsequent work of Deloof (2003). We extend our study to examine the possible causes for any significant differences between the Companies. Our study focuses exclusively on those Indian Pharmaceutical companies are listed in NSE Pharma Indices.

Thus the empirical study is based on a sample of 10 Indian Pharmaceutical Companies. The data has been collected from Prowess data base and companies annual reports. The sample was drawn from the list of NSE Pharma indices. All companies' data was available for a 14 years' period, covering the accounting period 1999-2000 to 2012-2013. This has given a balanced panel data set of 140 firm-year observations for a sample of 10 firms.

Explanatory variables

The Cash Conversion Cycle (CCC) is used as a comprehensive measure of working capital as it shows the time lag between expenditure for the purchases of raw materials and the collection of sales of finished goods. The longer the cycle, the larger the funds blocked in working capital. The return on assets is a better measure since it relates the profitability of the business to the asset base. There are many ways of managing return on assets but, in principle, key levers are, of course, profit increase and assets reduction. The latter has become more important to many businesses as the former becomes more elusive.

Cash conversion cycle: Period of cash conversion

Cash Conversion Cycle = Inventory in days + Account Receivables in days – Account Payables in days

Control variables

In order to account for firm's size and the other variables that may influence profits so we use sales a proxy for size (the natural logarithm of sales), the gearing ratio (financial debt/total assets), the gross working capital turnover ratio (sales/current assets) and the ratio of current assets to total assets are included as control variables in the regressions.

III. ANALYSIS OF CASH MANAGEMENT

3.1 Composition of cash: As it is known, holding cash is very important to run a business. In this study the total annual cash & bank balances of Indian pharmaceutical companies are shown in the table 1. Holding cash depends upon policy & size of the company. Annual industry average of Cash and Bank balance is Rs 2528.02 million. The Divi's Laboratories Ltd. holds minimum cash balance i.e. as an average of Rs140.07 million, where as the maximum cash is being held by Glaxosmithkline Pharmaceuticals Ltd. the nature of cash is much fluctuating in each pharmaceutical company. There are huge fluctuations in cash balances of Glaxosmithkline Pharmaceuticals Ltd., from the year 2007 to 2013. In Cipla Ltd. cash has increased from Rs 58.20 million in 2000 to Rs 1053.80 million in 2012. During 2004 to 2007 cash increased continuously and after 2007 with fluctuation it decrease. Maximum cash balance held by Cipla Ltd. is Rs 1314.90 million in 2006 and minimum Rs 58.20 million in 2000.

Table 1 Cash and Bank Balance (Rs in millions)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	45.50	224.10	331.50	374.10	138.00	1420.70	5000.70	2393.20	869.40	45.60	1223.30	141.30	1176.90	97.50	962.99
Cadila Healthcare Ltd.	418.70	57.00	90.00	372.00	264.00	23.00	124.00	190.00	256.00	282.00	424.00	1183.00	916.00	894.00	392.41
Cipla Ltd.	58.20	155.70	131.20	62.40	112.00	444.80	1314.90	792.80	530.00	608.40	839.80	553.00	1053.80	463.70	508.62
Divi'S Laboratories Ltd.	42.90	48.40	44.90	71.90	44.90	101.60	172.20	126.10	128.70	128.70	128.00	218.20	346.80	357.70	140.07
Dr. Reddy'S Laboratories Ltd.	194.40	4885.60	6884.00	4080.80	8917.30	6509.50	14567.20	5367.00	3844.00	3978.00	662.00	8490.00	9400.00	6651.00	6030.77
Glaxosmithkline Pharmaceuticals Ltd.	162.60	567.40	1405.60	594.10	633.80	475.30	350.30	1549.90	9065.40	16726.00	19480.70	19863.70	20408.80	20296.40	7970.00
Glenmark Pharmaceuticals Ltd.	71.60	45.40	40.60	67.70	1092.70	891.60	113.80	111.80	116.90	50.70	309.50	475.20	1677.80	1084.60	439.28
Lupin Ltd.	153.00	222.10	147.90	150.40	177.80	4506.30	3480.90	2128.00	120.30	373.80	374.60	192.00	201.20	1462.80	977.94
Piramal Enterprises Ltd.	339.50	230.40	159.90	154.70	74.90	109.20	220.50	340.70	174.70	156.40	17540.30	132.40	242.40	318.50	1442.46
Sun Pharmaceutical Inds. Ltd.	105.60	147.80	786.80	757.50	8900.30	12309.80	12026.80	9728.60	12654.70	888.70	12509.10	13277.10	4311.20	1414.80	6415.63
Industry Average	159.20	658.39	1002.24	668.56	2035.57	2679.18	3737.13	2272.81	2776.01	2323.83	5349.13	4452.59	3973.49	3304.10	2528.02

4.2 Size of Cash

The cash to Current Assets ratio measures a company's liquidity, which shows however liquid a company is by its cash and Marketable securities alone. High or increasing cash to Current Assets ratio is mostly a positive sign. This also shows that the company's liquid assets represent a bigger portion of its Total Current Assets. It also indicates the company is in higher position to convert its non-liquid assets, such as inventory, into cash.

Table 2 shows the average percentage of cash to current assets of pharmaceutical companies is 14.21%, which shows companies keep low portion in the form of cash & bank balances. The highest cash to current assets ratio is 83.46% of Glaxosmithkline Pharmaceuticals Ltd. in the year 2010 and the annual average is also highest at 44.54%. From 2008 to 2011 Glaxosmithkline Pharmaceuticals Ltd. held cash 72.80% to 80.09% that is the main reason why its annual average is highest during the study period. On the other hand Cipla Ltd. holds lowest cash balance on an average 2.02%, it is fluctuating between 0.58% to 5.97% throughout the study period.

Table: 2 Cash/Current Assets (in %)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	1.13	4.44	5.01	4.84	1.73	12.10	28.55	13.25	4.28	0.21	4.11	0.49	3.34	0.20	5.98
Cadila Healthcare Ltd.	23.25	3.15	2.78	10.21	7.97	0.57	2.13	2.98	3.34	3.42	4.16	9.34	6.55	5.93	6.13
Cipla Ltd.	1.33	2.31	1.36	0.58	0.82	2.32	5.97	2.94	1.55	1.79	2.26	1.50	2.47	1.03	2.02
Divi'S Laboratories Ltd.	5.48	4.75	3.49	3.56	1.82	3.37	4.39	2.50	1.86	1.77	1.34	1.80	2.47	2.07	2.91
Dr. Reddy'S Laboratories Ltd.	4.19	43.12	49.91	36.00	54.69	38.15	48.21	25.56	15.03	16.71	2.14	20.18	16.85	9.45	27.16
Glaxosmithkline Pharmaceuticals Ltd.	5.02	15.51	31.80	16.51	15.71	13.20	9.31	35.66	72.80	83.07	83.46	80.31	81.04	80.09	44.54
Glenmark Pharmaceuticals Ltd.	8.02	4.01	2.32	3.03	26.80	17.21	1.72	1.25	2.06	1.01	7.81	7.90	17.85	7.34	7.74

Lupin Ltd.	3.32	4.52	2.65	3.37	3.54	40.37	26.22	14.42	0.83	2.15	1.67	0.66	0.55	3.05	7.66
Piramal Enterprises Ltd.	14.77	7.75	4.36	3.84	1.67	2.44	4.21	5.30	2.40	2.47	17.69	0.28	0.61	2.06	4.99
Sun Pharmaceutical Inds. Ltd.	4.18	5.42	18.23	20.70	67.52	68.97	55.83	39.45	50.82	7.17	50.84	48.42	20.36	3.52	32.96
Industry Average	7.07	9.50	12.19	10.27	18.23	19.87	18.65	14.33	15.50	11.98	17.55	17.09	15.21	11.47	14.21

Table 3 shows the relationship between cash and current liability. This Ratio shows liquidity position of the company, higher ratio shows good liquidity position of company. The cash and current liability Ratio shows the overall industry average is 72.82%, which shows more than two third of the current liability can be paid by cash, but this average is derived by only three companies mainly by Glaxosmithkline Pharmaceuticals Ltd. whose average of cash to current liability ratio is 257.38%. This figure exhibit that company has two and half of cash than current liability. Two more company Sun Pharmaceutical Inds. Ltd. and Dr. Reddy'S Laboratories Ltd. have cash balance more than of current liability, 215.76% and 119.40% respectively. In the year 2005 the cash to current liability ratio of Sun Pharmaceutical Inds. Ltd. is 740.75%, this is the highest ratio of cash and current liability. In the contrast 0.72% cash to current liability ratio is of Aurobindo Pharma Ltd., that is the lowest figure of this table. In case of Cipla Ltd. cash to current liability ratio is moving between 1.66% to 24.90%. On an average cash to current liability ratio of Cipla Ltd. is 7.03%. It is found that the liquidity position of Glaxosmithkline Pharmaceuticals Ltd. is better than other companies.

3.3 Velocity of Cash

The cash turnover ratio indicates the company's efficiency or activity in use of cash for generation of sales revenue during the year, which is the number of times that cash turns over per year (cash to goods and again goods to cash). A high turnover of cash ratio may indicate inadequate cash balance in company. This may lead to financial problems if further financing is not available at reasonable prices, it may leave the company weak to creditors, while a low ratio may indicate an inefficient use of working capital. In general, sales five to six times larger than working capital are needed to maintain a positive cash flow and finance sales. Table 4 shows the average cash turnover ratio of pharmaceutical companies is 75.41 times, which shows the companies keep good positions form of sales.

Table: 3 Cash to current Liabilities (in %)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	3.56	15.73	16.05	24.12	7.07	50.02	155.45	57.97	17.59	0.77	15.79	2.21	12.23	0.74	27.09
Cadila Healthcare Ltd.	57.40	6.71	5.22	20.45	14.32	1.15	3.29	6.84	8.72	7.27	10.91	24.47	21.28	17.02	14.65
Cipla Ltd.	3.49	6.30	3.65	1.66	2.27	6.99	24.90	9.10	5.23	6.33	9.01	5.99	9.88	3.60	7.03
Divi'S Laboratories Ltd.	9.36	13.84	8.61	13.51	6.72	8.82	13.89	7.99	7.96	7.88	5.53	7.38	12.08	12.14	9.69
Dr. Reddy'S Laboratories Ltd.	18.32	297.98	328.45	140.05	245.48	117.66	229.97	78.82	36.60	27.48	5.75	49.30	60.23	35.48	119.40
Glaxosmithkline Pharmaceuticals Ltd.	14.15	37.40	68.96	28.83	28.88	18.45	14.14	63.32	333.78	528.20	562.67	731.92	622.11	550.55	257.38
Glenmark Pharmaceuticals Ltd.	28.63	10.80	7.64	10.90	158.25	80.80	6.10	4.10	5.13	2.58	14.84	11.88	24.60	12.94	27.09
Lupin Ltd.	10.46	14.39	8.08	7.64	7.42	150.44	97.87	48.54	1.56	6.15	5.37	2.18	2.04	13.12	26.80
Piramal Enterprises Ltd.	28.52	14.03	10.19	8.27	3.39	5.33	9.35	12.14	5.34	4.33	215.89	1.66	3.21	4.13	23.27
Sun Pharmaceutical Inds. Ltd.	17.64	24.69	93.52	66.70	649.61	740.75	247.29	133.95	220.82	33.75	398.47	285.68	84.75	23.00	215.76
Industry Average	19.15	44.19	55.04	32.21	112.34	118.04	80.23	42.28	64.27	62.47	124.42	112.27	85.24	67.27	72.82

The highest cash turnover ratio is 745.59 times of Aurobindo Pharma Ltd. in the year 2013 and the annual average is also highest 167.52 times. In 2000, 2009, 2011 and 2013 Aurobindo Pharma Ltd. held average cash turnover ratio 500.85 times that is the main reason why its annual average is highest during the study period. On the other hand Cipla Ltd. holds second largest cash turnover ratio on an average 126.37 times. The lowest cash turnover ratio in Cipla Ltd. is 27.82 times in the year 2006 and the highest cash turnover ratio in Cipla Ltd. is 329.43 times in the year 2003.

3.4 Analysis of Cash flow

The table 6 depicts the cash flow statement of Indian pharmaceutical companies. A cash flow statement could be a financial statement that shows however changes in balance sheet and income accounts have an effect on cash and cash equivalents, and breaks the analysis all the way down to operative activities, investment

activities and financing activities. The cash flow statement is beneficial in crucial the short viability of a company, significantly its ability to pay bills.

International accounting standard seven (IAS 7) is that the International accounting standard that deals with cash flow statements. "In June 1995, the Securities And Exchange Board Of india (SEBI) amended clause 32 of the Listing Agreement requiring each listed company to give beside the balance sheet and Profit and Loss Account, a cash flow statement ready within the prescribed format, showing individually cash flows from operating activities, investing activities and financing activities."

(7. Gupta, Shashi K. and Sharma, R.K., "Financial Management- Theory and Practice" Kalyani Publishers, New Delhi, 2006, P. 7.2.)

3.4.1 Cash flow from operating activities:

Cash flows from operating activities primarily accrue from the foremost revenue manufacturing activities (i.e., goods and rendering of services) of the company. Therefore, they typically result from the transactions and different events that enter into the determination of net profit or loss. Table 5 shows the industry average of cash from operating activity is Rs 2517.5 million. In which participation of Cipla Ltd. Is largest on an average of Rs 6125.0 million and lowest by Piramal Enterprises Ltd. During the study period the maximum cash inflow from operating activity is registered by Cipla Ltd. in the year 2013 of Rs 17851.90 million followed by Lupin Ltd. with Rs 15262.10 million in the year 2012. The maximum cash used in the operating activity by Piramal Enterprises Ltd. in the year 2010 i.e. Rs 47241.10 million. Cash from operating activities of Indian pharmaceutical companies is moving between Rs 63.86 million to Rs 2517.5 million on an average.

Table: 4 Cash Turnover Ratio (in Times)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	219.92	46.34	35.98	35.86	84.19	10.39	3.98	10.07	33.19	727.98	34.58	309.89	47.32	745.59	167.52
Cadila Healthcare Ltd.	11.60	97.28	109.56	30.56	43.64	582.17	124.06	92.55	69.60	69.67	55.65	23.22	33.78	41.29	98.90
Cipla Ltd.	182.77	89.96	119.89	329.43	214.39	69.78	27.82	54.18	100.17	93.34	76.21	127.98	78.74	204.49	126.37
Divi'S Laboratories Ltd.	45.84	45.41	57.97	44.55	82.01	38.80	43.00	83.07	93.54	73.39	103.83	85.37	61.83	70.81	66.39
Dr. Reddy'S Laboratories Ltd.	51.30	3.30	2.33	4.30	1.84	3.31	2.88	6.74	11.79	12.27	87.28	7.99	8.93	14.73	15.64
Glaxosmithkline Pharmaceuticals Ltd.	58.55	19.74	8.31	20.36	23.52	33.53	48.84	11.36	1.98	1.18	1.13	1.24	1.34	1.31	16.60
Glenmark Pharmaceuticals Ltd.	26.94	57.57	82.18	56.34	4.92	6.96	73.70	126.00	74.75	204.05	39.47	34.38	12.21	22.48	58.71
Lupin Ltd.	53.00	39.54	68.19	79.61	68.54	3.81	5.89	12.51	248.87	99.74	120.18	281.80	355.41	61.37	107.03
Piramal Enterprises Ltd.	16.93	41.70	72.17	93.37	174.85	138.14	77.50	58.74	136.64	173.39	0.47	87.87	55.00	48.45	83.94
Sun Pharmaceutical Inds. Ltd.	52.98	47.06	10.04	11.79	1.17	1.10	1.43	2.50	2.24	21.03	1.60	1.87	5.69	21.18	12.98
Industry Average	71.98	48.79	56.66	70.62	69.91	88.80	40.91	45.77	77.28	147.60	52.04	96.16	66.03	123.17	75.41

Table: 5 Cash from operating Activity (Rs in millions)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	219.3	898.4	1074.7	455.2	832	275.1	475.3	1035.4	33.1	3463.8	2445.7	1841.9	6249.2	3280.3	1612.8
Cadila Healthcare Ltd.	442.9	-842	1706	2039	1331	636	2205	629	3132	5766	5470	3571	4237	8426	2767.8
Cipla Ltd.	667.8	664.1	656.9	2435.7	1882.4	2624.4	3126.2	2002.8	3491.7	11102.6	9500	16190.4	13552.9	17851.9	6125
Divi'S Laboratories Ltd.	263.3	272.2	491.8	260	365.7	484.6	1859.5	3021.2	2955.6	3581.5	3261	3444.7	4828.3	5581.3	2339
Dr. Reddy'S Laboratories Ltd.	1204.5	4540.2	4097.9	3593.7	2505.3	796.8	8884.2	5435	4706	12354	2463	14030	2888	9055	5468.1
Glaxosmithkline Pharmaceuticals Ltd.	381.9	599.3	1408	1602.4	2078	3168.1	2172.4	2701.3	2676	4487.8	4274.4	2682.8	2353.6	1995	2327.2
Glenmark Pharmaceuticals Ltd.	28.5	320.8	93.3	230	89	-280.2	-102.6	2437.7	940.6	9814.6	4210.6	1946.4	2530.1	1142.4	1671.5
Lupin Ltd.	678.6	1412.3	1772.1	4364.6	1216.5	1086.8	1575.6	2530.7	3998.8	5148	4390	4561	9850.4	15262.1	4132
Piramal Enterprises Ltd.	465.4	2673.2	957.8	2549.5	2291.4	1489.4	1520.2	1311.5	-1069	5491.6	-47241.1	-5441.5	-11216	-10925.1	-4082
Sun Pharmaceutical Inds. Ltd.	690.7	1426.9	1607.3	3245.6	2125.8	3010.4	4477.6	6258.9	12272.3	5976	11865	12820	350.8	-24930.6	2942.6
Industry Average	531.07	1196.5	1386.58	2077.6	1471.71	1329.14	2619.34	2736.35	3313.71	6718.59	63.86	5564.67	3562.45	2673.83	2517.5

3.4.2 Cash flow from investment activities:

The investment activities relate to the acquisition and disposal of long term assets and other investments not included in cash-equivalents. Their separate disclosure is important as they represent the extent to which expenditures have been made for resources intended to generate future income and cash flows. Table 6 shows the industry average of cash used in investing activities is Rs 2138.12 million. The maximum average cash used in investing activities Rs 6292.61 million of Cipla Ltd. and average cash from investing activities is Rs 6252.75 million of Dr. Reddy'S Laboratories Ltd. In the year 2010 due to huge used of cash in operating activities Piramal Enterprises Ltd. has collected Rs 93875.30 million, but in remaining study period Piramal Enterprises Ltd. has used cash in investing activities and the maximum cash used in investing activities is Rs 15554.9 million in the year 2011. The Indian pharmaceutical companies have used average cash in investing companies between Rs 4477.64 million to (5500.35) million. Cipla Ltd. has used average cash in investing activities Rs 6292.61.80 million during the study period. In Glaxosmithkline Pharmaceuticals Ltd. cash generated from investing activities is more than other companies. Except 2000, 2002, 2003, 2004 and 2012, Glaxosmithkline Pharmaceuticals Ltd. has generated cash in remaining study period.

Table :6 Net Cash flow Cash from Investing Activity (Rs in millions)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	-501	-1506.8	-2359.2	-2469	-2613.7	-2506.5	-4035	-1829.7	-3239.2	-4149.8	-5697.4	-5338.2	-2949.6	-4014.4	-3086
Cadila Healthcare Ltd.	-1759	-1349	-1732	-703	-525	-916	-1605	-2599	-2574	-2486	-3676	-8174	-7092	-3920	-2794
Cipla Ltd.	-511	-374.1	-853.4	-2081.4	-662.8	-3892.3	-4859.7	-5337.5	-5807.9	-6572.3	11362.6	-10468	-20642	-14672.1	-6293
Divi'S Laboratories Ltd.	-90.2	-93	-590.1	-356.7	-261.9	-1116.6	-1582.5	-2354.9	-2173.9	-3171.7	-2221.2	-2147.6	-2544.9	-3050.6	-1667
Dr. Reddy'S Laboratories Ltd.	-548.2	-1383.8	-1788	-6271.5	693.6	-9139.4	-3973.2	-15149	-7436	-11111	-6130	-11305	-5189	-8808	-6253
Glaxosmithkline Pharmaceuticals Ltd.	-89.5	278.7	-45.1	-1880.3	-1320.7	841	59.6	1115.5	7873.1	6548.1	1020	3684.8	-925.8	1979.8	1367.1
Glenmark Pharmaceuticals Ltd.	-915.9	-234.6	-391.8	-426	-2038.8	-2390.8	-2379.2	-157	-5891.7	10002.1	-6547.2	6015.4	-1132.4	2165.5	-1738
Lupin Ltd.	-503.9	-510.5	-593.3	-814.6	-1281.7	-753.7	-1511.1	-4985.3	-4922.3	-6841.1	-3753	-3979.3	-3719.2	-4465.1	-2760
Piramal Enterprises Ltd.	-309.5	512.9	742.7	-982.4	-1785.6	-2238.4	-1605.9	-1135.5	-701	-303.2	93875.3	-15555	-14707	9619.7	4673.4
Sun Pharmaceutical Inds. Ltd.	-189.1	-756.7	-643.4	-5316.9	-8634.2	1607.6	-1423.9	-7434.9	-6603.7	-1587.6	10731.5	-7736.9	4605.4	5191.4	-2832
Industry Average	-591.9	-541.69	-825.36	-2130.2	1843.08	-2050.5	-2291.6	-3986.7	-3147.7	3967.67	4477.64	-5500.4	-5429.6	-1997.38	-2138

3.4.3 Cash flow from financing activities:

The financing activities report the changes in the size and composition of the share/ owner's capital and debt of the company. This separate disclosure is useful in predicting claims on future cash flows by providers of funds (both capital and borrowings) to the company.

Table :7 Net Cash flow Cash from financing activity (Rs in millions)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	180.7	786.9	1392.4	2058.3	1544.2	3501.5	7139.7	-1813.2	1682.3	-137.8	4431.2	2414.3	-2294	-314.4	1469.4
Cadila Healthcare Ltd.	-2052	1828	-387	-803	-914	39	-499	2036	-492	-3254	-1652	5362	2717	-4257	-166.3
Cipla Ltd.	-141.4	-192.5	172	-423.1	-1170.1	1600.7	2603.6	2812.6	2053.4	-4451.9	2094	-6011.8	7588.8	-3770	197.45
Divi'S Laboratories Ltd.		-180.3	102.5	128.1	-130.8	688.7	-308.9	-650.8	-779.1	-409.8	-1041.8	-1311.1	-2307.6	-2485	-668.1
Dr. Reddy'S Laboratories Ltd.	-757.4	1534.9	-311.5	-125.4	1637.5	5934.8	3146.7	514	1207	-1407	610	-1948	1518	282	845.4
Glaxosmithkline Pharmaceuticals Ltd.	-328.3	-769.2	-546.8	-532.7	-886.7	-4166.4	-2358.7	-2616.9	-3034.9	-3372.5	-2539.8	-3385.4	-3787.9	-4221.6	-2325
Glenmark Pharmaceuticals Ltd.	654.9	-112.6	293.7	223.2	2974.9	2469.8	1704.1	-2282.8	4956.2	121.4	2594	-7797.2	-137.7	-3846.7	129.66
Lupin Ltd.	-177.1	-832.7	-1253	-3547.5	92.6	4047.1	-1094.7	1077.6	-1106	1946	-644.4	-758	-6118.4	-8425.5	-1200
Piramal Enterprises Ltd.	-314.1	-3576.4	-1776.8	-1650.9	-585.6	783.3	197	-55.8	1604	-5206.7	-30133	4453.9	26011.9	1366.2	-634.5
Sun Pharmaceutical Inds. Ltd.	-439.5	-628	-423	2042	14651.2	-1208.5	-3278.7	-58.2	-2787	-2789.4	-2642.8	-3630.3	-4375.9	18301	909.49
Industry Average	-374.9	-214.19	-273.75	-263.1	1721.32	1369	725.11	-103.75	330.39	1896.17	2892.46	-1261.2	1881.42	-737.1	-142.1

Table 7 shows the average cash from financing activities of Indian pharmaceutical companies is Rs (142.09) million. Maximum average cash generated from financing activities is Rs 1469.44 million of Aurobindo Pharma Ltd. and maximum average cash used in financing activities is Rs 2324.84 million of Glaxosmithkline Pharmaceuticals Ltd. The maximum cash used in financing activities is Rs 30133.0 million of Piramal Enterprises Ltd. in the year 2010. The maximum cash generated from financing activities is Rs 26011.9 million in the year 2012 of Piramal Enterprises Ltd. Average cash generated from financing activities of Cipla Ltd. is Rs 197.45 million, which is moving between Rs 7588.8 million to Rs (6011.8) million.

3.4.4 Net cash increase/decrease

The difference of opening and closing balances affects the increase or decrease in net cash of Indian pharmaceutical companies. Table 8 shows the average decrease of cash in Indian pharmaceutical companies is Rs (245.3) million. The maximum cash increase or decrease is of Piramal Enterprises Ltd. i.e. Rs 16542.5 million increase in 2011 and decrease of Rs 16501.20 million in 2010. But the average change in cash of Piramal Enterprises Ltd. as increase of Rs 42.71 million. On an average Cadila Healthcare Ltd. has maximum average increase of cash is 209.9 million and maximum average decrease in cash is Rs 1369 million of Glaxosmithkline Pharmaceuticals Ltd.

Cipla Ltd. has an average decrease of cash is Rs 29.82 million which is moving between the increase of Rs 590.30 million to decrease of Rs 870.1 million during the study period.

Table: 8 Change in Cash (Rs in millions)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	101	-178.5	-107.9	-44.5	237.5	-1270.1	-3580	2607.5	1523.8	823.8	-1182.3	1082	-1005.6	1048.5	3.9429
Cadila Healthcare Ltd.	3367.9	363	413	-283	108	241	-101	-66	-66	-26	-142	-759	138	-249	209.92
Cipla Ltd.	-15.4	-97.5	24.5	68.8	-49.5	-332.8	-870.1	522.1	262.8	-78.4	-231.4	289.2	-500.1	590.3	-29.82
Divi'S Laboratories Ltd.	0	1.1	-4.2	-31.4	27	-56.7	31.9	-15.5	-2.6	0	2	14	24.2	-45.7	-3.993
Dr. Reddy'S Laboratories Ltd.	101.1	-4691.3	-1998.4	2803.2	-4836.4	2407.8	-8057.7	9200	1523	164	3018	-759	839	-595	-62.98
Glaxosmithkline Pharmaceuticals Ltd.	35.9	-108.8	-816.1	810.6	129.4	157.3	126.7	-1199.9	-7514.2	-7663.4	-2754.6	-2982.2	2360.1	246.8	-1369
Glenmark Pharmaceuticals Ltd.	232.5	26.4	4.8	-27.2	-1025.1	201.2	777.7	2.1	-5.1	66.1	-257.4	-164.6	-1199.5	596.8	-55.09
Lupin Ltd.	2.4	-69.1	74.2	-2.5	-27.4	-4380.2	1030.2	1377	2029.5	-252.9	7.4	176.3	-12.8	-2371.5	-172.8
Piramal Enterprises Ltd.	158.2	390.3	76.3	83.8	79.8	-34.3	-111.3	-120.2	166	18.3	16501.2	16542.5	-89.5	-60.8	42.707
Sun Pharmaceutical Inds. Ltd.	-62.1	-42.2	-540.9	29.3	-8142.8	-3409.5	225	1234.2	-2881.6	-1599	1528.7	-1483.4	-530.9	1454.9	-1016
Industry Average	392.15	-440.66	-287.47	340.71	1349.95	-647.63	-1052.9	1354.13	-496.44	-854.75	1651.28	1195.58	2.29	61.53	-245.3

Table: 9 Quality Income (in times)

Company Name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average
Aurobindo Pharma Ltd.	0.112	0.123	0.168	0.193	0.055	0.090	0.174	0.217	0.088	0.331	0.301	-0.055	0.155	0.375	0.166
Cadila Healthcare Ltd.	0.323	0.297	0.244	0.354	0.304	0.335	0.355	0.400	0.426	0.602	0.643	0.555	0.374	0.603	0.415
Cipla Ltd.	0.436	0.389	0.371	0.375	0.416	0.436	0.439	0.380	0.346	0.463	0.352	0.460	0.558	0.443	0.419
Divi'S Laboratories Ltd.	0.209	0.351	0.469	0.514	0.484	0.512	0.655	0.809	0.754	0.851	0.839	0.782	0.742	0.825	0.628
Dr. Reddy'S Laboratories Ltd.	0.456	1.069	0.836	0.480	0.073	0.320	1.048	0.386	0.399	0.574	0.473	0.547	0.574	0.815	0.575
Glaxosmithkline Pharmaceuticals Ltd.	0.197	0.173	0.309	0.530	0.791	1.028	1.103	1.174	1.192	1.017	1.027	0.610	0.790	0.590	0.752
Glenmark Pharmaceuticals Ltd.	0.254	0.334	0.397	0.399	0.458	0.422	0.580	0.960	0.989	0.408	0.732	0.622	0.673	0.775	0.572
Lupin Ltd.	0.155	0.249	0.180	0.224	0.126	0.252	0.359	0.383	0.319	0.408	0.399	0.381	0.534	0.898	0.348
Piramal Enterprises Ltd.	0.276	0.177	0.251	0.320	0.314	0.341	0.327	0.409	0.296	0.401	34.199	0.180	-0.424	-0.428	2.617
Sun Pharmaceutical Inds. Ltd.	0.709	0.670	0.918	0.662	0.561	0.527	0.514	0.657	0.644	1.025	1.491	1.382	0.629	-2.223	0.583
Industry Average	0.31	0.38	0.41	0.41	0.36	0.43	0.56	0.58	0.55	0.61	4.05	0.55	0.46	0.27	0.708

3.5 Analysis of Quality Income of Indian Pharmaceutical Companies.

The quality of income ratio measures the portion of income that was generated in cash. The quality of income ratio which divides the cash flow from operating activities by net income is a quick test to screen

earnings quality. A ratio less than one reveals a low earnings quality; that is, the company may be overstating its true earnings. A ratio greater than 1 is indicative of the company's strong ability to finance its business activities through its operating cash flow. Table 4.9 shows the average quality ratio of Indian pharmaceutical companies is 0.708 which is near to ideal ratio 1. The highest quality income ratio is 34.199 times in the year 2010 of Piramal Enterprises Ltd. Due to high quality income ratio in 2010, Piramal Enterprises Ltd. also maximum in average quality income ratio by 2.62 times and the minimum average quality income ratio 0.166 times of Aurobindo Pharma Ltd. during the study period. Few Indian pharmaceutical companies have negative quality income ratio during the study period which show the cash used in operating activities more than cash generate from the operating activities. The average quality income ratio of Cipla Ltd. is 0.419 times. The maximum quality income ratio of Cipla Ltd. is 0.56 times in the year 2012 and minimum is 0.35 times in the year 2008. If we ignore the quality income ratio of Piramal Enterprises Ltd. in 2010 than the overall result of quality is not satisfactory.

IV. IMPACT OF CASH MANAGEMENT ON PROFITABILITY:

Regression Analysis

To investigate the impact of CCC (Cash Conversion Cycle) on profitability, the model used for the regressions analysis is expressed within the general type as given in equation:

$$ROTA = f(\ln sales, gear, cata, clta, turnca, cccdays) \quad \text{Equation}$$

$$ROTA = \beta_0 + \beta_1 \ln sales_{it} + \beta_2 gear_{it} + \beta_3 cata_{it} + \beta_4 clta_{it} + \beta_5 turnca_{it} + \beta_6 ccc_{it} + \varepsilon_{it} \quad \text{[model]}$$

Where i denoting firms (cross-section dimension) starting from one to ten and t denoting years (time-series dimension) starting from one to fourteen.

The model specifies on top of is calculable using the regression-based framework (Fixed Effects and Pooled OLS) as used by Deloof (2003). Our model differs, initial by using ROTA as a comprehensive measure of profitability and also the model includes asset-management and funding policy as management variables. the information set used for this half is pooled across companies and years, given associate balanced panel data set of one hundred forty firm-year observations.

A classical check for panel information is one among mounted effects model (FEM) versus Random Effects Model (REM). In the REM, it's assumed that there's one common intercept term, however that the intercepts for individual companies vary from this common intercept in a very random manner. to see that of those estimators are a lot of applicable to use, each a fixed effects and a random effects expert was used to estimate the coefficients in model one. The Hausman check, that may be a check for the null hypothesis of no correlation, rejects this null hypothesis then the choice is taken to employ a fixed effects framework..

The Table 4.10 represents the results of regression two, applying a fixed effects methodology, wherever the intercept term is allowed to vary across companies. It's immediately obvious from the adjusted R-squared values that the utilization of a firm specific intercept improves the informative power of those models. In Regression, the adjusted R-squared justify 33.42% of the variation in profitability

Table : 4.10 Regression Analysis

	Coefficient	Std. Error	t-ratio	p-value	
const	-0.258845	0.148439	-1.7438	0.08368	*
GEAR	-0.115471	0.221166	-0.5221	0.60253	
CATA	0.606047	0.114192	5.3073	<0.00001	***
CATURN	0.0488038	0.0156307	3.1223	0.00223	***
CLTA	-0.680593	0.284094	-2.3957	0.01809	**
LNSales	0.0188447	0.0127596	1.4769	0.14224	
CCCDays	-5.30208e-05	0.000241939	-0.2191	0.82689	
R-squared	0.334283				

In this regression, the coefficient of CCCdays variable is negative in this regression, but the coefficient is not statistically significantly. The coefficients of the other variables included in the model are significant, except for GEAR and LNSales. Also the coefficient of GEAR and CLTA variables are negative in this regression. The explanatory variables explain 33.4 percent variation in return on total assets. One percent change in ROTA increases CATA, CATURN and LNSales by 0.606 percent, 0.0488 percent and 0.0188 percent respectively. One percent change in ROTA decrease GEAR, CLTA and CCCdays by 0.115 percent, 0.681 percent and 5.302 percent respectively, which is statistically significant at 5 percent level.

V. CONCLUSION

The different analyses have known vital management practices and are expected to help managers in distinctive areas wherever they could improve the monetary performance of their operation. The results have provided to

managers with data concerning the essential monetary management practices utilized by their peers and their peers attitudes toward these practices. The capital desires of a company modification over time as will its internal money generation rate. As such, the pharmaceutical companies ought to guarantee an honest synchronization of its assets and liabilities.

This study has shown that the thesis and Cipla Ltd. has been able to attain high scores on the varied elements of capital and this has completely impact on its profitability. On this premise this trade is also referred because the 'hidden champions' and will so be used as best apply among the Indian Pharmaceutical trade.

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