DOI:10.26524.jms.2016.13

Dr. Ashok Kumar Panigrahi

Associate Professor in Finance,

NarseeMonjee Institute of Management Studies,

NMIMS University, Shirpur.

Mail ID – panigrahi.ak@gmail.com

M - 8888810975

Dr. Anita Sharma

Reader, Dept. of Business Administration

Maharaja Surajmal Institute,

New Delhi.

E-Mail ID – anita.icfai@gmail.com

M - 9871141470

Working capital structure and liquidity analysis: an empirical research on indian pharmaceutical industry

Liquidity plays a significant role in the successful functioning of a business firm. A firm should ensure that it does not suffer from lack-of or excess liquidity to meet its short-term compulsions. A study of liquidity is of major importance to both the internal and the external analysts because of its close relationship with day-to-day operations of a business. The crucial part in managing working capital is required maintaining its liquidity in day-to-day operation to ensure its smooth running and meets its obligation.Hence, it is of utmost important to keep a constant eye on liquidity position of the company as without it the company cannot survive. In this paper a comparative study on the liquidity position of five leading Indian pharmaceutical companies has been done to know the liquidity position of the companies. The study covers a period of 10 years viz, 2005-2006 to 2014-2015. For the purpose of investigation purely secondary data is used. The techniques of mean, standard deviation, coefficient of variation, ratio analysis, and Motaal's ultimate rank test has been applied to analyze the data. It has been found that the liquidity position of small companies is better as compared to big ones. Moreover, low or negative working capital in some cases indicates the aggressive working capital management policy of the firms which implies minimal investment in current assets by the companies so as to derive a higher rate of return. But it has to be remembered that risk of default and bankruptcy increases when a firm adopts more aggressive working capital policies. One should remember that a negative working capital is a sign of managerial efficiency in a business with low inventory and accounts receivable (which means they operate on an almost strictly cash basis). In any other situation, it is a sign that a company may be facing bankruptcy or serious financial trouble.

Key Words: Liquidity, Working Capital, Pharmaceutical Industry, Profitability.

Introduction

Liquidity is the ability to meet expected and unexpected demands for cash through ongoing cash flow or the sale of an asset at fair market value. Liquidity risk is the risk which at some time an entity will not have enough cash or liquid assets to meet its cash obligations. A firm in order to remain in existence and sustain its activities as a going concern must remain liquid and meet its obligations as and when they become due. Even though firms traditionally are focused on long term capital budgeting and capital structure, the recent trend is that many companies across different industries focus on working capital management efficiency **(Barad Mahesh M., 2010).** When there is a poor management of working capital, funds may be unnecessarily tied up in idle assets. This will reduce liquidity of the company and also the company will not be in a position to invest in productive assets like plant and machinery. It will also affect profitability of the company **(Panigrahi, A.K., 2013)**. The existence of an adequate liquidity and its careful management can make substantial difference between the success and failure of an enterprise.

Normally, when we analyse working capital, it always refers to normal or positive working capital (excess or current assets over current liabilities). However, there are certain situations in which working capital is in negative form (excess of current liabilities over current assets). Now the question arises how can a company manage liquidity with the negative working capital? Earlier negative working capital is considered as a risk of insolvency of the organizations but at present negative working capital is a sign of managerial efficiency in a business. Earlier it was considered that the companies should avoid under-investment in working capital if they wanted higher profits margins. In the present scenario some companies are using negative working capital and getting a good amount of profits and good return on capital also. Negative working capital indicates lower cost of working capital (another way is higher profitability), but at the same time, it indicates poor liquidity (worried situation for the creditors, etc.) or we can say company is overburdened with current liabilities, which is not good for any situation (specially in a period of recession, etc). But negative Working capital doesn't always mean bad financial condition; it indicates that most of the day to day activities are funded by customers rather than company's own working capital. Some latest examples are movie theaters - customers are paying first and distributors are normally paid later on; Schools/ educational institutions- fees paid in advance by the students annually, whereas faculties are getting salary after one month. When an organisation uses supplier's credit and customers' advance to fulfill their day to day needs, it leads to a situation of lower or negative working capital. Banks, financial institutions, distributors, retailers with cash business or advance payment contract have negative working capital **(Panigrahi, A.K., 2013)**.

It is often observed that whenever a financial analysis of companies is done, more emphasis is given on the profitability of the business rather than on its liquidity. Of course, this is quite obvious, as the most important financial objective of any business is to earn profit. So, the managers lay more emphasis towards profitability. But another significant variable is liquidity which means the ability of a company to honour short term financial obligations. If the company which is not able to honour its short-term financial obligations, it moves a step ahead towards its

bankruptcy. Liquidity management, therefore, involves the amount of investments in liquid assets to meet the short-term maturing obligation of creditors and others.
Liquidity is having enough money in the form of cash, or near-cash assets, to meet the financial obligations. In business, cash is king, particularly during tough economic times or when the markets are turbulent. Without cash, company cannot pay its bills nor carry out growth plans, and it may find it difficult to get credit or take advantage of business opportunities. A company that cannot pay its creditors on time and continue not to honour its obligations to the suppliers of credit, services, and goods can be declared a sick company or bankrupt company.

Current assets are liquid so holding more current assets refer to high liquidity but on the other hand current assets include such items which diminish firm's profitability. It must be remembered that different items of current assets have different degree of liquidity. Cash is the most liquid asset. For other types of current assets, liquidity concept has two dimensions, i.e., Time and Risk. The speed with which current assets other than cash can be converted into cash is known as time dimension of liquidity consideration. More quickly and rapidly current assets are converted into cash, more liquid those current assets shall be. The greater the relative proportion of liquid assets, the lesser the risk of running out of cash, all other things being equal. All individual components of working capital including cash, marketable securities, account receivables and inventory management play a vital role in the performance of any firm **(Panigrahi, A.K., 2012)**. Probably due to this factor, liquid assets are also called quick assets.

For the business owners, one of the most important tasks is to estimate and evaluate cash flows of the business, to well identify the long run and short run cash inflows and outflows to timely sort out the cash shortages and excess to formulate financing and investing strategies respectively. It also helps in planning the payments to creditors on time to avoid losing reputation and trust of the customers and to avoid potential bankruptcy **(Panigrahi, A.K., 2013)**. If all the current obligations are met without any delay as and when these become due, creditors and all others will have a feeling of confidence in the financial strength of the organization and this will sustain the credit standing of the organization. But failure to meet such obligations on continuous basis would cause an adversely affect on the credit standing and market reputation resulting in more difficult to finance the level of current assets from the short-term sources. Keeping liquidity is usually costly, but helps avoiding negative effects of unexpected cash-flow shocks.

Liquidity plays a significant role in the successful functioning of a business firm. A firm should ensure that it does not suffer from lack-of or excess liquidity to meet its short-term compulsions. A study of liquidity is of major importance to both the internal and the external analysts because of its close relationship with day-to-day operations of a business **(Bhunia, 2010)**. Liquidity requirement of a firm depends on the peculiar nature of the firm and there is no specific rule on determining the optimal level of liquidity that a firm can maintain in order to ensure positive impact on its profitability.

One should try neither to maximize nor minimize the liquidity ratios; one should try to optimize them in relation to the objective, which in case of a commercial company is probably the maximization of profit on capital employed. The lower the liquidity ratios are, the more vulnerable the company is to pressure from creditors which it unable to meet and vice versa.

Therefore, one should seek to have as little working capital as is consistent with not being unduly vulnerable to pressure from creditors.

Review of Literature

A brief review of the different researches in the field is attempted in the following paragraphs.

Agarwal (1988) devised the working capital decision as a goal programming problem, giving primary importance to liquidity, by targeting the current ratio and quick ratio. The model included three liquidity goals, two profitability goals, and, at a lower priority level, four current asset sub-goals and a current liability sub-goal (for each component of working capital). In particular, the profitability constraints were designed to capture the opportunity cost of excess liquidity (in terms of reduced profitability).

Reddy (1995) in his study on "Management of working capital", studies various issues related to working capital management among selected (six companies) private large – scale companies in the state of Andhra Pradesh during the period from 1977 to 1986 . The study revealed that investment in current assets was more than that of fixed assets and inventories constituted highest percentage of total current assets. Study also pointed out that the liquidity and solvency position of sample units was found to be highly unsatisfactory. The study is based on his findings, suggested the direct need for improvement of liquidity and solvency position of sample companies failing which the situation would lead to serious liquidity crunch.

Richard (1995) in the study on "Invest working capital for better returns" felt that the investment in working capital has to be capitalized. They said that the goals of investment in working capital were threefold: to find income producing opportunities for cash that is temporarily idle, to maximize yield and to maintain the liquidity of the investment. With his experience as associate financial consultant with Merrill Lynch's Private client group in Arlington Mr. Romero felt that the firms have to have concrete formula of optimum investment in working capital.

Hrishikes (1995) in his book on "*Total Management by Ratios*" says that problem of liquidity management is more acute for companies which are growing at a fast rate. The rising cash flow (profit) curves gives a euphoric feeling of "all being well everywhere'', which makes the managers to press the growth button faster. What they lose sight of is the real cash position of the company which might be showing a downward trend and hence, pushing the company the slowly and then vigorously towards a severe liquidity crisis despite the company making high profit. Unfortunately, once an enterprise-manager presses the growth buttons, it is difficult for them to retract the steps. The continuous erosion of liquidity ultimately makes a high-growth company sick. There is nothing wrong in making profit, in fact, that is the purpose of business, but unless there is cash coming through profit, an enterprise will soon be dead.

Ghosh and Maji (2003) attempted to examine the efficiency of working capital management of Indian cement companies during 1993 to 2002. They calculated three index values-performance index, utilization index and overall efficiency index to measure the efficiency of working capital management, instead of using working capital management ratios. By using regression analysis and industry norms as a target efficiency level of individual firms, they tested the speed of

achieving target level of efficiency by individual firms during the period of study and found that some of the sample firms successfully improved efficiency during these years.

Elijelly (2004) in the study on "Liquidity – profitability tradeoff: An empirical investigation in an emerging market" empirically examined the relation between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia. The study found significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio."

Singh and Pandey (2008) suggested that, for the successful working of any business organization, fixed and current assets play a vital role, and that the management of working capital is essential as it has a direct impact on profitability and liquidity. They studied the working capital components and found a significant impact of working capital management on profitability for Hindalco Industries Limited.

Chakraborty (2008), in the study on "Working Capital and Profitability: An Empirical Analysis of Their Relationship with Reference to Selected Companies in the Indian Pharmaceutical Industry" evaluated the relationship between working capital and profitability of Indian pharmaceutical companies. He pointed out that there were two distinct schools of thought on this issue: according to one school of thought, working capital is not a factor of improving profitability and there may be a negative relationship between them, while according to the other school of thought, investment in working capital plays a vital role to improve corporate profitability, and unless there is a minimum level of investment of working capital, output and sales cannot be maintained - in fact, the inadequacy of working capital would keep fixed asset inoperative.

Kevin and Young (2009) in their article, "Need Cash? Look Inside Your Company" had taken a hard look at the way company manages its working capital. He identified that a lot of capital tied up in receivables and inventory could be turned into cash by challenging the working capital practices and policies of the company. He had explored six common mistakes that companies make in managing working capital. He says that the simple act of correcting them could free up enough cash to make the difference between failure and survival in the current recession.

Sherin (2010) in her article on "Liquidity v/s profitability - Striking the right balance" writes about the implications of liquidity and profitability in a pharmaceutical company. A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations. Investments in current assets are inevitable to ensure delivery of goods or services tothe ultimate customers. A proper management of the same could result in the desired impact on either profitability or liquidity.

Chandrabai et al. (2011) in their paper on "Working Capital Management of Indian Electrical Equipment Manufacturers-A Comparative study" found that the companies in the electrical equipment industry have performed fairly well for financial year 2010. The sales of most of the companies have increased. The management of Working Capital is one of the most important and challenging aspect of the overall performance of the organization. Merely more effective and efficient management of working capital can ensure survival of a business enterprise. Working

Capital Management is concerned with the problems that arise in attempting to manage the Current Assets, Current Liabilities and the interrelation that exists between them. This study analyses the comparative study of working capital management in Indian Electrical Equipment Industry and it is limited to the companies BHEL and ABB Ltd represent public and private sector enterprises respectively. Relevant data has been extracted from the consecutive annual reports between financial years 2005-06 to 2009-10 of both the companies

Brahma (2011) conducted a study to examine and evaluate the importance of liquidity management on profitability as a factor accountable for poor financial performance in the private sector steel Industry in India.

Nandi Chandra Kartik (2012) in his paper on "Trends in Liquidity Management and Their Impact on Profitability: A Case Study" makes an attempt to assess the trends in liquidity management and their impact on profitability. An attempt has been made to establish the linear relationship between liquidity and profitability with the help of a multiple regression model. On the basis of overall analysis, it is therefore important to state that the selected company always tries to maintain adequate amount of net working capital in relation to current liabilities so as to keep a good amount of liquidity throughout the study period.

Profile of Indian Pharmaceutical Industry

The Indian Pharmaceutical industry has been witnessing phenomenal growth in recent years, driven by rising consumption levels in the country and strong demand from export markets. The pharmaceutical industry in India is estimated to be worth about US$ 10 bn, growing at an annual rate of 9%. In world rankings, the domestic industry stands fourth in terms of volume and 13th in value terms. The ranking in value terms may also be a reflection of the low prices at which medicines are sold in the country.

The industry has seen tremendous progress in terms of infrastructure development, technology base and the wide range of products manufactured. Demand from the exports market has been growing rapidly due to the capability of Indian players to produce cost-effective drugs with world class manufacturing facilities. Bulk drugs of all major therapeutic groups, requiring complicated manufacturing processes are now being produced in India. Pharma companies have developed Good Manufacturing Practices (GMP) compliant facilities for the production of different dosage forms.

In addition to having GMP, WHO, several Indian companies have also been getting plant approvals from international regulatory agencies like US FDA, MCA (UK), TGA (Australia), MCC (South Africa). India possesses the highest number of US FDA approved manufacturing facilities outside the USA and currently tops in filing the drug master files (DMF) with the US FDA. This has also facilitated the domestic industry to attract contract manufacturing opportunities in the rapidly growing generics market.

A paradigm shift occurred in the Indian pharmaceutical industry with India becoming a signatory to the WTO order, ushering in the Product Patent Regime. Earlier, with the enactment of The Patent Act, 1970, only process patent was applicable for pharmaceuticals.

Profile of Companies under Study

Sun Pharmaceuticals

Sun Pharmaceutical Industries Limited is an India-based generic and pharmaceutical company. The Company's business segments include US Business, which includes Western Europe, Canada, Australia, New Zealand and Other Markets; Indian Branded Generics Business, including Global Consumer Healthcare Business, and Emerging Markets, which include Active Pharmaceutical Ingredients (APIs). The Company's manufacturing operations are focused on producing generics, branded generics, specialty products, over-the-counter products, anti-retroviral and active pharmaceutical ingredients (APIs). The Company caters various therapy areas, such as dermatology, psychiatry, neurology, cardiology, nephrology, gastroenterology, orthopedics and ophthalmology. It also produces a range of dosage forms, including tablets, capsules, injectable, ointments, creams and liquids. The Company also manufactures various specialty APIs, including controlled substances, steroids, peptides and anti-cancer products.

Lupin Ltd.

Lupin Limited is an India-based transnational pharmaceutical company. The Company is engaged in the producing, developing and marketing of branded and generic formulations, and active pharmaceutical ingredients (APIs). The Company's brands include Gluconorm, Tonact, Rablet, Budamate, Telekast, Rcinex, Clopitab, Telista, Ramistar and Akt. The Company manufactures products in the therapy areas, such as anti-TB, cardiovascular, anti-asthma, diabetology, central nervous system, gynecology, gastro-intestinal (GI), anti-infective and others. The Company's subsidiaries include Lupin Pharmaceuticals Inc., Kyowa Pharmaceutical Industry Co., Ltd., Pharma Dynamics (Proprietary) Ltd., HormosanPharma GmbH, Multicare Pharmaceuticals Philippines, Inc., Generic Health Pty Ltd., Kyowa CritiCare Co., Ltd., Lupin Holdings B.V., Lupin Atlantis Holdings SA and LupinPharma Canada Ltd., among others.

Dr. Reddy’s Labratories Ltd.

Dr. Reddy's Laboratories Limited is an integrated global pharmaceutical company that is engaged in providing medicines. The Company operates in three segments: Global Generics, Pharmaceutical Services and Active Ingredients (PSAI), and Proprietary Products. Global Generics segment consists of its business of manufacturing and marketing prescription and over-the-counter finished pharmaceutical products, marketed under a brand name (branded formulations) or as generic finished dosages with therapeutic equivalence to branded formulations (generics). PSAI segment includes the Company's business of manufacturing and marketing active pharmaceutical ingredients and intermediates, also known as API or bulk drugs. Proprietary Products segment consists of its differentiated formulations business, its new chemical entities (NCEs) business, and its dermatology focused specialty business operated through PromiusPharma.

Cipla Ltd.

Cipla Limited is a pharmaceutical company. The Company's business units include Active Pharmaceutical Ingredients (APIs), Respiratory and Cipla Global Access. The Company offers APIs, formulations and veterinary products. As of March 31, 2015, the Company offered its services across five continents across the world. It offers its services in India, South Africa, Europe and North America, among others. The Company offers over 1,000 products across about 120 countries. It offers its products for the therapeutic areas, including cardiovascular, children's health, dermatology and cosmetology, diabetes, human immunodeficiency virus/acquired immuno deficiency syndrome (HIV/AIDS), infectious diseases and critical care, malaria, neurosciences, oncology, ophthalmology, osteoporosis, respiratory, urology and women's health. It offers veterinary products in the categories, including companion, equine, general care, livestock and poultry.

AurobindaPharma

AurobindoPharma Limited (Aurobindo) is an India-based pharmaceutical company. The Company is engaged in producing oral and injectable generic formulations and active pharmaceutical. Aurobindo also manufactures and commercializes active pharmaceutical ingredients (APIs) and generic finished dosages for various markets. The Company's product portfolio is spread over six therapeutic/product areas, including antibiotics, anti-retrovirals, chorionic villus sampling (CVS), central nervous system (CNS), gastroenterologicals and anti-allergics. It has presence in various therapeutic segments, such as semi-synthetic penicillin's, antibiotics, neurosciences, cardio vasculars, anti-retrovirals, diabetics and gastroenterology, among others. The Company operates across various divisions, including API manufacturing, formulation manufacturing, chemical research and development, formulation research and development, and overseas operations.

Objectives of the Study

Keeping in view the importance of Cement sector in Indi’s economic growth scenario, the study aims at evaluating the liquidity management of five leading Pharmaceutical companies over a period of 10 years (2005-06 to 2014-15). More specifically the emphasis will be on the following issues:

1. To assess the management of working capital and its adequacy;
2. To study and compare the liquidity position of the companies under study;
3. To find out the areas of weakness in liquidity management and offer suggestions for improvement, if any.

Data set and Sample

A sample size of five Indian pharmaceutical companies listed in BSE has been purposefully selected for the study purpose. The data for the study period 2005-2006 to 2014-15 have been collected from secondary sources i.e. Annual reports of the company as well as from the website www.moneycontrol.com. Keeping in view the scope of the study, it was decided to select five large companies on the basis of total assets and whose financial information is available for the

entire study period so as to meet our requirements. Editing, classification and tabulation of the financial data collected from the above mentioned-sources have been done as per requirements of the study.

Limitations

We would like to make it clear that, mainly there are three limitations of this study, which are as under:

- The study is confined to ten years data only, i. e. from 2005–2014, therefore, a detailed analysis covering a lengthy period, which may give slightly different results has not been made.
- The study is based on secondary data collected from the website ***www.moneycontrol.com*** and the websites of sample companies; therefore the quality of the study depends purely upon the accuracy, reliability and quality of the secondary data source. Approximation, and relative measures with respect to the data source might impact the results.
- The study is based on five companies of the Pharmaceutical Industry in India that are also drawn from the companies listed in BSE. Therefore, the accuracy of results is purely based on the data of sample units. If one takes more sample units the results may go slightly differently.

Research Methodology

The samples selected for the study are the top five pharmaceutical companies of Indian Pharmaceutical Industry namely, Sun Pharma, Lupin, Dr.Reddy, Cipla and AurobindoPharma. This study is based on secondary data. The data required for this study have been collected from the published annual reports of the selected companies and the website, moneycontrol.com. The study covered a period of ten years starting from 2005 to 2014. The techniques applied in the study are Percentage method, mean, standard deviation, coefficient of variation, Ratio Analysis, Motaal's Ultimate Rank Test.

Data Analysis and Findings

In order to study the liquidity position of all the companies, we have calculated the liquid ratios, amount invested in liquid assets, working capital and other related ratios which is depicted in the following tables:

TABLE - 1

Sun Pharmaceutical Industries

Year	Current Assets	Current Liabilities	Working Capital (CA-CL)	Inventory	Quick Assets (C.A. - Inv.)	Current Ratio	Quick Ratio	Working Capital to Current Assets (%)	Stock/Inventory to Current Assets (%)	Quick Assets/Liquid Resources to Current Assets (%)
2006	531.14	273.3	257.84	263.41	267.73	1.943432	0.979619466	48.54463983	49.59333	50.40667
2007	679.07	345.23	333.84	333.38	345.69	1.967008	1.001332445	49.16135303	49.09361	50.90639
2008	1,468.36	845.73	622.63	389.63	1078.73	1.736204	1.275501638	42.40308916	26.53505	73.46495
2009	1,186.94	696.34	490.6	486.74	700.2	1.704541	1.005543269	41.33317607	41.00797	58.99203
2010	1,149.54	388.45	761.09	570.14	579.4	2.9593	1.491569057	66.20822242	49.59723	50.40277
2011	2,411.79	442.44	1969.35	618.26	1793.53	5.451112	4.053724799	81.65511923	25.6349	74.3651
2012	2,681.26	598.67	2082.59	640.07	2041.19	4.478694	3.40954115	77.67206463	23.87199	76.12801
2013	2,037.41	674.84	1362.57	868.76	1168.65	3.019101	1.731743821	66.87755533	42.64041	57.35959
2014	1,512.61	807.89	704.72	918.38	594.23	1.872297	0.735533303	46.58966951	60.71492	39.28508
2015	4,408.53	4,746.95	-338.42	2,189.25	2219.28	0.928708	0.467517037	-7.67648173	49.65941	50.34059
Mean	1806.67	981.98	824.68	727.80	1078.86	2.61	1.62	51.28	41.83	58.17
Growth	3,877.39	4,473.65	-596.26	1,925.84	1,951.55	-1.01	-0.51	-56.22	0.07	-0.07
Growth Rate (%)	730.01	1636.90	-231.25	731.12	728.92	-52.21	-52.28	-115.81	0.13	-0.13
S.D	1148.39	1337.40	765.06	555.81	712.48	1.40	1.18	25.33	12.52	12.52
C.V.(%)	63.56	136.19	92.77	76.37	66.04	53.76	73.12	49.39	29.93	21.53

TABLE - 2

Lupin

Year	Current Assets	Current Liabilities	Working Capital (CA-CL)	Inventory	Quick Assets (C.A. - Inv.)	Current Ratio	Quick Ratio	Working Capital to Current Assets (%)	Stock/Inventory to Current Assets (%)	Quick Assets/Liquid Resources to Current Assets (%)
2006	670.3	402.27	268.03	310.29	360.01	1.666294	0.89494618	39.98657318	46.29121	53.70879
2007	899.15	464.96	434.19	402.07	497.08	1.933822	1.069081211	48.28893955	44.71668	55.28332
2008	1,269.56	567.28	702.28	625.85	643.71	2.237978	1.134730644	55.31680267	49.29661	50.70339
2009	1,434.30	923.58	510.72	715.88	718.42	1.552979	0.777864397	35.60761347	49.91146	50.08854
2010	1,666.82	785.62	881.2	713.7	953.12	2.121662	1.213207403	52.86713622	42.81806	57.18194
2011	3,225.22	1,332.67	1892.55	1,330.83	1894.39	2.420119	1.421499696	58.67971797	41.26323	58.73677
2012	2,633.56	1,193.81	1439.75	1,123.56	1510	2.206013	1.264857892	54.66934492	42.66316	57.33684
2013	3,225.22	1,332.67	1892.55	1,330.83	1894.39	2.420119	1.421499696	58.67971797	41.26323	58.73677
2014	4,378.44	1,367.80	3010.64	1,372.24	3006.2	3.201082	2.197835941	68.76056312	31.34084	68.65916
2015	4,314.02	1,341.24	2972.78	1,739.51	2574.51	3.216442	1.919499866	68.9097408	40.32225	59.67775
Mean	2371.66	971.19	1400.47	966.48	1405.18	2.30	1.33	54.18	42.99	57.01
Growth	3643.72	938.97	2704.75	1429.22	2214.50	1.55	1.02	28.92	-5.97	5.97
Growth Rate (%)	543.60	233.42	1009.12	460.61	615.12	93.03	114.48	72.33	-12.89	11.11
S.D	1373.50	392.27	1017.38	476.59	918.52	0.56	0.44	10.82	5.28	5.28
C.V.(%)	57.91	40.39	72.65	49.31	65.37	24.36	32.98	19.98	12.27	9.25

TABLE - 3

Dr Reddys Laboratories

Year	Current Assets	Current Liabilities	Working Capital (CA-CL)	Inventory	Quick Assets (C.A. - Inv.)	Current Ratio	Quick Ratio	Working Capital to Current Assets (%)	Stock/Inventory to Current Assets (%)	Quick Assets/Liquid Resources to Current Assets (%)
2006	1,049.82	624.25	425.57	443.1	606.72	1.68173	0.971918302	40.53742546	42.20724	57.79276
2007	1,691.88	731.96	959.92	487.58	1,204.30	2.311438	1.645308487	56.73688441	28.81883	71.18117
2008	1,605.83	786.36	819.47	640.93	964.90	2.042105	1.227046137	51.03093105	39.91269	60.08731
2009	2,239.10	1,163.30	1,075.80	735.1	1,504.00	1.924783	1.292873721	48.04608995	32.83015	67.16985
2010	2,005.80	1,543.80	462.00	897.4	1,108.40	1.299262	0.717968649	23.03320371	44.74025	55.25975
2011	2,899.90	1,502.60	1,397.30	1,063.20	1,836.70	1.929921	1.22234793	48.18442015	36.66333	63.33667
2012	4,119.20	1,744.10	2,375.10	1,326.70	2,792.50	2.361791	1.601112322	57.65925422	32.20771	67.79229
2013	5,409.50	2,165.40	3,244.10	1,526.50	3,883.00	2.498153	1.79320218	59.97042241	28.21887	71.78113
2014	6,818.70	2,001.60	4,817.10	1,592.10	5,226.60	3.406625	2.611211031	70.64543095	23.34903	76.65097
2015	7,336.40	2,107.90	5,228.50	1,723.30	5,613.10	3.480431	2.662887234	71.26792432	23.48972	76.51028
Mean	3,517.61	1,437.13	2,080.49	1,043.59	2,474.02	2.29	1.57	52.71	33.24	66.76
Growth	6,286.58	1,483.65	4,802.93	1,280.20	5,006.38	1.80	1.69	30.73	-18.72	18.72
Growth Rate (%)	598.82	237.67	1,128.59	288.92	825.15	106.96	173.98	75.81	-44.35	32.39
S.D	2,280.39	583.61	1,780.14	474.34	1,828.95	0.70	0.64	14.27	7.51	7.51
C.V.(%)	64.83	40.61	85.56	45.45	73.93	30.45	40.91	27.08	22.60	11.25

TABLE - 4

Cipla

Year	Current Assets	Current Liabilities	Working Capital (CA-CL)	Inventory	Quick Assets (C.A. - Inv.)	Current Ratio	Quick Ratio	Working Capital to Current Assets (%)	Stock/Inventory to Current Assets (%)	Quick Assets/Liquid Resources to Current Assets (%)
2006	1,877.41	733.84	1143.57	957	920.41	2.558337	1.254237981	60.91210764	50.97448	49.02552
2007	2,063.71	643.78	1419.93	978.6	1,085.11	3.205614	1.685529218	68.80472547	47.41945	52.58055
2008	2,593.52	980.05	1613.47	1,120.49	1,473.03	2.646314	1.503015152	62.21158888	43.20345	56.79655
2009	3,288.31	1,177.00	2111.31	1,398.32	1,889.99	2.793806	1.605768904	64.2065377	42.52397	57.47603
2010	3,125.61	1,177.11	1948.50	1,512.58	1,613.03	2.655325	1.370330725	62.33983126	48.39311	51.60689
2011	3,464.18	1,174.52	2289.66	1,883.16	1,581.02	2.949443	1.346098832	66.09529528	54.36092	45.63908
2012	3,398.87	1,190.78	2208.09	1,824.50	1,574.37	2.854322	1.322133392	64.96541498	53.67961	46.32039
2013	4,093.66	1,380.91	2712.75	2,343.37	1,750.29	2.964465	1.267490278	66.26710572	57.24388	42.75612
2014	4,285.30	1,636.96	2648.34	2,511.16	1,774.14	2.61784	1.083801681	61.80057406	58.5994	41.4006
2015	5,430.87	2,219.61	3211.26	3,289.20	2,141.67	2.446768	0.964885723	59.12975269	60.56488	39.43512
Mean	3362.14	1231.46	2130.69	1781.84	1580.31	2.77	1.34	63.67	51.70	48.30
Growth	3,553.46	1,485.77	2,067.69	2,332.20	1,221.26	-0.11	-0.29	-1.78	9.59	-9.59
Growth Rate (%)	189.274586	202.465115	180.8101	243.6990596	132.68652	-4.36101	-23.06996457	-2.926109464	18.81412	-19.5621
S.D	1065.69	450.95	631.25	753.80	360.68	0.23	0.22	2.92	6.27	6.27
C.V.(%)	31.70	36.62	29.63	42.30	22.82	8.24	16.44	4.58	12.13	12.99

TABLE - 5

Aurobindo Pharma

Year	Current Assets	Current Liabilities	Working Capital (CA-CL)	Inventory	Quick Assets (C.A. - Inv.)	Current Ratio	Quick Ratio	Working Capital to Current Assets (%)	Stock/Inventory to Current Assets (%)	Quick Assets/Liquid Resources to Current Assets (%)
2006	993.42	378.96	614.46	383.44	609.98	2.621438	1.609615791	61.85299269	38.59797	61.40203
2007	1,186.64	409.64	777	547.28	639.36	2.896787	1.56078508	65.47899953	46.12014	53.87986
2008	1,453.62	506.06	947.56	651.23	802.39	2.872426	1.585562977	65.18622474	44.80057	55.19943
2009	1,920.22	595.02	1325.2	735.52	1184.7	3.227152	1.991025512	69.0129256	38.30394	61.69606
2010	2,100.19	719.94	1380.25	944.82	1155.37	2.917174	1.60481429	65.72024436	44.98736	55.01264
2011	2,863.52	1,518.29	1345.23	1,261.02	1602.5	1.886017	1.055463712	46.97819467	44.03741	55.96259
2012	2,659.55	994.42	1665.13	1,219.26	1440.29	2.674474	1.448371915	62.60946401	45.8446	54.1554
2013	3,276.89	1,037.26	2239.63	1,431.73	1845.16	3.159179	1.77887897	68.34620631	43.69173	56.30827
2014	4,691.65	1,633.80	3057.85	1,711.81	2979.84	2.871618	1.823870731	65.17643047	36.48631	63.51369
2015	5,865.12	1,861.14	4003.98	2,145.05	3720.07	3.151359	1.998812556	68.26765693	36.57299	63.42701
Mean	2701.08	965.45	1735.63	1103.12	1597.97	2.83	1.65	63.86	41.94	58.06
Growth	4871.70	1482.18	3389.52	1761.61	3110.09	0.53	0.39	6.41	-2.02	2.02
Growth Rate (%)	490.40	391.12	551.63	459.42	509.87	20.21	24.18	10.37	-5.25	3.30
S.D	1565.95	539.75	1074.81	557.16	1021.63	0.39	0.28	6.38	3.95	3.95
C.V.(%)	57.97	55.91	61.93	50.51	63.93	13.66	16.88	9.99	9.42	6.81

Motaal'sComprehensiveTest of Liquidity

Motaal prescribes a comprehensive test for determining the soundness of a firm asregards liquidity position. According to him, a process of ranking is used to arrive at a more comprehensive measure of liquidity in which the following three ratios are combined in a point score:

i) Working Capital (WC) to Current Asset Ratio = Working Capital x100 / Current Assets

ii) Stock to Current Asset Ratio = Inventory or Stock x100 / Current Assets

iii) Liquid Resources (LR) to Current Asset Ratio = Liquid Resources or Quick Assets x100 / Current Assets

The higher the value of both working capitals to current asset ratio and liquid resourcesto current asset ratio, relatively the more favorable will be the liquidity position of a firm and vice-versa. On the other hand, lower the value of stock to current assets ratio, relatively the more favorable will be the liquidity position of the firm. The ranking of the above three ratios of a firm over a period of time is done in their order of preferences. Finally, the ultimate ranking is done on the basis of the principle that the lower the points score, the more favorable will be the liquidity position and vice-versa.

Motaal's Comprehensive Test of Liquidity

Sl. No.	Company	Capital to Current Assets Ratio (%)	Rank	Stock to Current Assets Ratio (%)	Rank	Liquid Resources to Current Assets Ratio (%)	Rank	Total Rank	Ultimate Rank
1	Sun Pharma	51.28	5	41.83	4	58.17	2	11	5
2	Lupin	54.18	3	42.99	2	57.01	3	8	2
3	Dr.Reddy's	52.71	4	33.24	5	66.76	1	10	4
4	Cipla	63.67	2	51.70	1	48.30	5	8	2
5	Aurobindo Pharma	63.86	1	41.94	3	58.06	4	8	2

Above table shows Motaal's Comprehensive Test of Liquidity reveals that on the basis of Motaal's ultimate rank test of LiquidityLupin, Cipla and AurobindoPharma is awarded Rank – 2 each indicating the most liquid company among the five. Dr. Reddy has ranked - 4, and Sun Pharma - 5, indicates the most unfavorable liquidity position.

Conclusion

In conclusion we can say that:

- In some cases we have come across with negative working capital. No doubt, in these days many companies are using negative working capital and getting a good amount of

profits and goodreturn on capital also. Negative working capital indicates lower cost of working capital (another way is higher profitability), but at thesame time, it indicates poor liquidity (worried situation for the creditors, etc.) or we can say company is overburdened with current liabilities, which is not good for any situation (especially in a period of recession, etc).

- Companies should always see that they maintain the ideal current and liquid ratio, which is not there in case with the companies we have studied.
- Last but not the least, companies should ensure that the percentage of inventories in current assets is as low as possible.

References

1. Mishra, R.K., (1975), "Problems of working capital- with reference to selected public undertakings in India," Somaiya Publications, Bombay.
2. Vijayasaradhi, S.P and K. Rajeswara Rao, (1978), "Working capital investment and financing in public enterprises," *The management accountant, 391-400*
3. Banerjee, Bhabathosh, (1979), "Working capital turnover ratios and cash management", *The Management Accountant,* January 1979, pp21-22.
4. Ghosh, S. P., (1983), "Working capital in crane manufacture- a case study", *The Management Accountant,* 218-221
5. Oppedahl& Richard (December 1990). Working capital management, *Business Review,* vol. *49 No.(2),*pp 1-4
6. Rao, K.V. and N. Chinta Rao, (1991), "Evaluating efficiency of working capital management- are the conventional techniques adequate", *Decision,* vol. 18 No. (2), pp 81-89
7. Suk, H, Seung Kim H and Rowland, (1992), "Working capital practice of Japanese firms in the U.S.", *Financial practice and education,* Spring-Summer, Vol. 2, No. 1, pp 89-92.
8. Siddharth, M.R. & Das, G., (March 1994). "Working capital turnover in Pharmaceutical companies", *The management accountant,* 151-153
9. Panigrahi A.K. and Sharma, A, " Working Capital Management and Firms' Performance: An Analysis of selected Indian Cement Companies", Asian Journal of Research in Business Economics and Management , published by Asian Research Consortium, Issue – 8, Volume – III, Sept. - 2013, Page 115 – 130. Available at SSRN: http://ssrn.com/abstract=2342085.

10. Romero, R. Richard, (September 1995). "Invest working capital for better returns", *Business Press,* Vol. 8, No. 21.
11. Indrasena, Reddy P. and K. Someswar, (1996), "Working capital management in public sector undertakings- a case study," *The management accountant,* 643-645
12. Rafuse, M.E. (1996). "Working capital management: an urgent need to refocus", *Management Decision,* Vol. 34, Issue 2.
13. Sur, Debashish, (November 1997). "Working capital management in Colgate Palmolive-India Ltd.- A case study", *The management accountant,*828-833
14. Shanmugam, R. and S. Poornima, (2001), "Working capital is still most crucial," *Indian Mannagement,* April 2001, pp 62-65.
15. Sathyamoorthi, C.R., (2002), "Management of working capital in selected co-operatives in Botswana", *Finance India,* Vol. 16, No. 3, September 2002, pp 105-125, New Delhi.
16. Panigrahi A.K., "Relationship between Inventory Management and Profitability – An Empirical Analysis of Indian Cement Companies", Asia Pacific Journal of Marketing and Management Review, published by Indian Research Journals, Issue – 7, Volume – II, July-2013,Page 107 – 120. Available at SSRN: http://ssrn.com/abstract=2342455.
17. Singh, P.K., (July 2004). Working capital management in Lupin laboratories Ltd.- A case study, *The management accountant,* pp 534-539
18. Parasuraman, N.R., (December 2004). Working capital practices in leading pharmaceutical companies- A view of the credit policy & profitability, *The management accountant, 39(12),* 998-1005
19. Abuzar, M.A., Elijelly, (2004). Liquidity – profitability tradeoff: An empirical investigation in an emerging market, *International journal of commerce and management, 14(2),* 48-61
20. Dr. Ahmad Rais& Dr. Ghufran Ali (2005). An analytical study of working capital management of marketing cooperative societies, *Monthly public opinion surveys,* May 2005, 18-28
21. Panigrahi A.K., "Negative Working Capital and Profitability – An Empirical Analysis of Indian Cement Companies", International Journal of Research in Commerce and Management, published by IJRCM, Issue – 6, Volume – IV, June - 2013, Page 41 – 45. Available at SSRN: http://ssrn.com/abstract=2342457.
22. Vishnani, Sushma& Shah, Kr., Bhupesh, (2007). Impact of working capital management policies on corporate performance- An empirical study, *Global business review, 8(2),* 267-281
23. Lazaridis, IoannisandTryfonidis, Dimitrios (2006). Relationship Between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange, *Journal of Financial Management and Analysis*, Vol. 19, No. 1, January-June 2006
24. Garcia-Teruel, P.J. and Martinez-Solano, P. (2007). Effects of working capital management on SME profitability, *International Journal of Managerial Finance*, Vol.3, Issue 2.
25. GanesanVedinayagam (2007). An analysis of working capital management efficiency in telecommunication equipment industry, *Riviver Academic Journal,* Vol.3 , No.2
26. Adolphusj. Toby, (2008). Liquidity performance in Nigerian manufacturing companies, *Finance India, 22(1),* 117-131

27. Das, P.K., (2008). A study on liquidity management in Ranbaxy laboratories ltd., *The journal of accounting and finance, 22(1),* 135-149
28. Chakraborty, K. (2008). Working Capital and Profitability: An Empirical Analysis of Their Relationship with Reference to Selected Companies in the Indian Pharmaceutical Industry, *TheIcfai Journal of Management Research*, Vol. 34.
29. Singh, J.P. and Pandey, S. (2008). Impact of Working Capital Management in the Profitability of Hindalco Industries Limited, *TheIcfai University Journal of Financial Economics*, Vol. 36.
30. Mathuva D, (2009). "The influence of working capital management components on corporate profitability: a survey on Kenyan listed firms", Research Journal of Business Management, 3: 1-11.
31. Panigrahi A.K., "Cash Conversion Cycle and Firms' Profitability – A Study of Cement Manufacturing Companies of India", International Journal of Current Research, published by IJCR, Issue – 6, Volume – V, June - 2013, Page 1484 – 1488. Available at SSRN: http://ssrn.com/abstract=2342460.
32. Clausen, James. (2009). "Accounting 101 – Financial Statement Analysis in Accounting: Liquidity Ratio Analysis Balance Sheet Assets and Liabilities", *Journal of financial statement.*
33. Thachappilly, Gopinathan. (2009). "Financial Ratio Analysis for Performance Check: Financial Statement Analysis with Ratios Can Reveal Problem Areas". *Journal of financial ratio analysis for performance evaluation.*
34. Kaiser Kevin and Young David S., (2009), Need Cash? Look Inside Your Company, *Harvard Business Review,* May 2009, pp 44-51.
35. Dr. Palaniappan, A. &Velusamy, P. (2009), Capital structure, liquidity and profitability of chemical industry in India, *Prabandhan: Indian journal of management,* 44-53
36. Chandrabai T., raoJanardhanVenkata K., Dr. (2011), Working capital management of Indian Electrical Equipment Manufacturers- A comparative study, *International Journal of Multidisciplinary Research,* Zenith Vol.1 Issue 8, December 2011, ISSN 2231 5780
37. Nandi Chandra Kartik (2012), Trends in liquidity management and their impact on profitability- a case study, *Great Lakes Herald* ,Vol 6, No 1, pp 16-30
38. Panigrahi A.K., "Impact of Working Capital Management on Profitability: A Case Study of ACC Ltd.", Asian Journal of Management, published by A and V Publications, Issue – 4, Volume – III, Oct. - Dec. 2012, Page 210 – 218. Available at SSRN: http://ssrn.com/abstract=2342485.
39. Banerjee, B. (1973). Operating Cycle Concept ofWorking Capital. *Indian Journal of Accounting,* December, 46-53.
40. Bhattacharya, H. (1997). *Total Management By Ratios,* Sage Publication India Pvt. Ltd.,NewDelhi.
41. Fees, P.E. (1978). *The Working Capital Concept,* Accounting Theory: Text and Readings L.D Mac cullers&R.G. Schroeder (Ed.), JohnWiley&Sons, 200-205.
42. Kumar, A.V., and Venkatachalam, A. (1995). Working Capital & Profitability–An EmpiricalAnalysis. The *Management Accountant,* 30(10), 748-750.
43. Luther, C.T.R. (2007). Liquidity, Risk and Profitability Analysis: A Case Study of Madras Cements Ltd. *The Management Accountant,* 42(10), 784-789.
44. Yadav, R.A. (1986). Working Capital Management – A Parametric Approach. May, 952.

45. Kumar, D, Agrawal, C (2012), Liquidity Management in Indian Electrical EquipmentCompanies, *International Journal of Trade and Commerce-IIARTC July-December 2012, Volume 1, No. 2, pp. 367-389*
46. Mandal, N, Suvarun, G, (2010),IMPACT OF WORKING CAPITAL MANAGEMENT ON LIQUIDITY, PROFITABILITY AND NON-INSURABLE RISK AND UNCERTAINTY BEARING: A CASE STUDY OF OILAND NATURAL GAS COMMISSION (ONGC), Great Lakes Herald,Vol 4, No 2, September 2010
47. Bhunia, A, LIQUIDITY MANAGEMENT OF PUBLIC SECTOR IRON AND STEEL ENTERPRISES IN INDIA, *Vidyasagar University Journal of Commerce, Vol. 12, March 2007*
48. Barad, Mahesh M. (2010) *A Study of Liquidity Management of Indian Steel Industry*. PhD thesis, Saurashtra University.