United International University

Project report

On

Relationship between Liquidity and Profitability of Pharmaceuticals and Chemical Companies

Prepared For

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Letter of Transmittal

Date: 15/05/2020

Rana Mazumder
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Subject: Submission of project report on "Relationship between Liquidity and Profitability of Pharmaceuticals and Chemical Companies".

Sir,

I am pleased to inform you that I have fully completed my project report on **"Relationship between Liquidity and Profitability of Pharmaceuticals and Chemical Companies"** Which you assigned me to get a clear understanding of the financial position of the pharmaceutical and chemical companies listed. I have tried my best to gather all kinds of relevant information that could give this report the overall concept. I hope it will meet expected standard. I gained essential knowledge of the topic while I was preparing the report.

Therefore I hope the report will be satisfactory and appealing in your view. I strongly believe that I have gained adequate knowledge to help me develop my skills and personality in the specific subject. I am thankful that you have guided me and provided me with the necessary details and suggestions to complete this study. I am offering this report for your kind consideration and I thank you for your continued support and guidance.

Sincerely yours,

Syed Mahadi Hasan
ID: 114 161 038
School of Business & Economics
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……..

Supervisor's Certification

This is to certify that the project report on **"Relationship between Liquidity and Profitability of Pharmaceuticals and Chemical Companies"** is prepared by Syed Mahadi Hasan, ID No.: 114 161 038 as a partial requirement of Bachelor of Business Administration in AIS (BBA-AIS) degree from the School of Business & Economics, United International University.

The report can be accepted in terms of quality and form as directed by the university authority.

.....
Rana Mazumder
Assistant Professor of AIS
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Acknowledgements

First of all, I would like to take this opportunity to express my sincere gratitude to Almighty Allah for having given me the opportunity to complete the report within the time allotted.

I am expressing my cordial thanks to my honorable supervisor, **Rana Mazumder**, Assistant Professor of AIS, School of Business & Economics, United International University, for assigning me such an interesting topic. I express my humble gratitude for providing me valuable advice and guideline.

Last but not least I would also like to express my gratitude to all the faculties of United International University, who have helped and assisted me through their wealth of knowledge and experience.

Abstract

The most prominent questions in the literature on corporate finance are Profitability and liquidity. Profit maximization is ultimate goal of the any company. However, excessive concentration on profitability could sway the company in peril by reducing the liquidity position. Accordingly this study is conducted to determine the cause and effect of the liquidity profitability relationship. The study covered 22 listed pharmaceuticals and chemicals companies in Bangladesh over a period of past 5 years from 2014 to 2019. Correlation analysis and descriptive statistics were used in the analysis and to find the relationship between liquidity and profitability within the listed companies in Bangladesh.

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INTRODUCTION

1.1 Background

Management of liquidity and profitability is one of the most integral issues of corporate finance. Liquidity management ensures the company is able to meet its existing liabilities and profitability management ensures the company is able to receive income that meets its costs. These are seen as the two corners of a straight line, as advancing to one triggers another's decline. Companies with high liquidity may face low liquidity risk, but due to holding more assets in liquid form good investment plans may face a shortage of funds, therefore the companies must accept low profit. Conversely, companies may face difficulties in managing day-to-day operations if they invest all of their funds in projects that generate income. But, both are important to operate a firm in a sustainable manner. For this purpose, a company needs to try an optimum level of liquidity and profitability and sustain its position at that level to ensure long-term business performance.

1.2 Study Objective

The objective of the study is to identify the relationship between profitability and liquidity of pharmaceuticals and chemical manufacturing companies.

1.3 Limitations of the Study

The study is conducted over a period of 5 years covering 2015 to 2019. This time may not be adequate to draw conclusions, as significant economic changes may have an effect on the economic output of the company and therefore inconclusive result may have been drawn during

this analysis. Few times due to new rule adaptation 18 month annual report was published, instead of 12 month. Those 18months data have been ignored.

The study was performed in Bangladesh only and the findings are therefore limited to Bangladesh and do not apply to other countries with a different operating environment. The operating environment's uniqueness can complicate the application of those findings in other countries where the environment is different.

So to land on a more stable relationship between the variables being evaluated, the data source needs to go outside the Bangladesh territory to include countries from a wider area. The results cannot be applied to the entire pharmaceutical and chemical sector in Bangladesh unless attention is also extended to the non-listed firms. The private sector has been left out from the present review.

1.4 Value of the Study

The findings on this research will contribute to finance theory as liquid assets generally have relatively low returns, a cost of opportunity on a firm is required keeping them. The study would help to empirically determine whether liquid asset holdings by companies have a direct effect on their profitability.

If so, such essential empirical knowledge is critical for proper evaluation in the sense of domestic and foreign liquidity regulation. The study results will direct companies finance managers to make investment decisions that will fulfill stakeholders' interest in investors' liquidity and profitability needs. Managers can optimize profit by getting helps from Identifying liquidity rates to update and follow correct strategies. In addition, the study contributes to the financial

knowledge base as well as empirical information about how pharmaceutical and chemical manufacturing companies are operated.

INSIGHTS OF THE RESEARCH

2.1 Pharmaceutical & Chemical Companies in Bangladesh

Bangladesh's one of the most advanced technology sectors is Pharmaceutical industry. Insulin, hormones, and cancer drugs are manufactured by manufacturers. This sector supplies 97 per cent of the local market's overall medicinal demand. The industry also exports medicinal goods to world markets like Europe. Pharmaceutical companies are developing their business with the goal of expanding the export market.

Since the early 80s, the pharmaceutical industry has been developing and changing. Over the last 4 decades the sector has evolved from good to great. As it's a technology and knowledge-based sector; the journey wasn't an easy one for an LDC nation facing major economic challenges. Now, proudly Bangladesh stands alone as the only LDC with a well-developed pharmaceutical industry.

In Bangladesh's post-independence period, there was a limited number of multinational companies in the pharmaceutical industry. However, the industry has been expanded 65 times, from BDT 1730 million in export volume to BDT 113 billion. The industry is contributing about 1 percent of GDP overall. People are now becoming more aware of the health problems that have increased the market for pharmaceutical products produced in Bangladesh.

There were only 173 approved allopathic drug-producing companies in 2000, but now it has grown into a total of 300. Currently, Bangladesh's pharmaceutical companies manufacture about

1500 different types of medicines under 22,000 different drug brands. It has become an industry that is self-sufficient to meet 97 per cent of local demand. The main reasons for the growth of this sector include the qualified think tank, quality control, new ideas, policy funding. This industry also has made a major contribution to raising the issue of unemployment in Bangladesh.

2.1.1 Profitability of Pharmaceutical & Chemical Companies

Ogbru (2009) stated that however, in the coming years, the pharmaceutical industry will need massive capital investment for the discovery of medicine compounds. That could hamper the pharmaceutical industries' profitability situation.

Nsiah and Aidoo (2015) globally some attention has been paid to the pharmaceutical companies' financial performance trend to provide a great deal of insight into their annual reports; according to the U.S. and India study. But even the industry's financial success is not well established.

Sheila and Karthikeyan (2012) In terms of productivity they researched Indian pharmaceutical companies. They also considered ROE & ROI to be the most thorough indicator for a company's profitability. Bhunia and Sarkar (2011) noticed the few financial ratios that can be used to estimate the pharmaceutical firms' financial soundness in India.

2.1.2 Liquidity of Pharmaceutical & Chemical Companies

A company while running its regular operations must maintain a balance between liquidity and profitability. Current asset purchases are necessary to ensure goods or services are provided to the ultimate customers. Proper management of the same may result in either profitability or liquidity impacts desired.

LITERATURE REVIEW

3.1 Introduction

Two vital aspects of business life at the company Liquidity and profitability. The two corners of a straight line are liquidity and profitability. If you're on the line and step towards one, you're moving away from the other automatically. Profitability and liquidity are the most important problems that need to be balanced one against the other.

Mainly the research carried out in the field of corporate finance concentrate on the main decisions such as capital structure and capital budgeting and these problems include the analysis of a company's long-term funding decision so much that the liquidity is overlooked. Due to the management's inability to identify what the company's needs are, how big its size is and scope and how much would be the requirement of liquidity, problems such as insolvency and other financial risks may arise. The key objective of financial management is maximizing wealth of shareholders and this is only possible if the company makes ample profits to be paid as dividends. Now, the amount of income depends primarily on sales, but sales are not automatically translated into cash, and there is a time lag between sales of products and cash recovery. However, most businesses do not retain the required amount of liquidity and this has become a significant obstacle to their overall productivity.

Therefore it can be assumed that the two key goals of profitability and liquidity must be coordinated. High liquidity level which decreases the company's operating risk of running, results in a decline in profitability. There need to be a balance between liquidity and profitability.

3.2 Theoretical Review

Two of the most dominant indicators that are covered in the world-wide financial literature are Liquidity and profitability. Liquidity is the capacity to provide continuous cash flow to meet anticipated and unforeseen demands for cash. An item that can easily convert to cash that item said to be have liquidity characteristic. A company's liquidity concern rely upon the distinct nature of the company. There is no clear rule for assessing the optimum amount of liquidity that a company can retain to ensure its productivity is positively affected. In the efficient operation of a business liquidity plays a significant role. To satisfy its short-term obligation a company should make sure it does not suffer from inadequate or excessive liquidity.

A company must remain solvent and satisfy its responsibilities as and when they become due in order to remain in operation and continue its operations as a continuing concern. While companies are generally focused on long-term budgeting of resources and capital structure, they have to remain focused on liquidity. Current assets are liquid so having more current assets leads to high liquidity. On the contrary current asset contain items that decrease the profitability of the business. Making sure all other factors being equal the higher the relative proportion of liquid assets, the lower the probability that cash will run out. All specific working capital components including cash, marketable securities, account receivables and inventory management play a critical role in any firm's success. Liquid assets are often called quick assets possibly because of this aspect. It should be pointed out that various types of current assets have varying liquidity degree. The most liquid asset is cash. The definition of liquidity has two dimensions for certain types of current assets, e.g. Time and Risk. The pace at which current assets other than cash can be transformed to cash is known as time factor in liquidity calculation. The more quickly the current assets are converted to cash, the more liquid those current assets would be. Therefore

liquidity management is a critical element for the sustainability and competitiveness of companies. Liquidity management is adaptation of techniques and policies to the use of the current assets and liabilities of the company in such a way as to preserve an optimal amount of liquidity. Liquidity management has become so important in the current business world that it helps businesses to prevent shortages or unnecessary retention of cash resources. Problem that arises from handling existing assets, current liabilities and the interrelationship between them, liquidity management deals with those issues. Liquidity management allows the managers to reduce their firm's liquidity risk exposure. Inadequate Working capital management is detrimental to a company. Because if not examined, inevitably it can lead to varying extents of financial instability, excessive and insufficient liquidity, business failure and bankruptcy. Liquidity risk is the chances that the company may not be able to meet its payments to creditors. So liquidity management makes sure that cash is available in business operations as and when needed since cash is the “enterprise lifeblood”. Managing liquidity is a very critical concern in assessing the ability of companies to resolve current obligations without any interruption in an organization's daily operations. When all of the existing liabilities are fulfilled without interruption when and when they are due, investors and all others will have a sense of trust in the organization's financial ability. By doing this will maintain the organization's credit rating. But failure to meet these commitments on a continuous basis will adversely affect the credit rating and business reputation. This results in more challenging find short-term sources to fund the amount of current assets. Maintaining liquidity helps prevent negative effects of unforeseen cash-flow shocks even it is typically expensive.

Liquidity management includes the arrangement of the different sources of funds of the company so the company can use these funds to ensure that current obligations are fulfilled as and when

necessary without suffering any loss or adverse impact on the financial status of the company. Effective and efficient liquidity management can establish the continuity of the business. In the line of financial management liquidity management is recognized a delicate area. Since it includes the decision on the volume and nature of current assets and the funding of those assets. A good liquidity management ensures a stable liquidity for long-term economic development and profit-generating processes. Albeit long-term capital decisions are vital to a firm's ongoing concern, successful liquidity management has direct implications for a firm's liquidity position and ultimate profitability. Sufficient liquidity and its careful management will make a major difference between a company's success and failure. Because of its direct impact on a corporate entity's profitability and liquidity, Liquidity management is important. It plays a significant part in the profitability and potential of the company and in its value. The liquidity management's objective is to facilitate a sufficient profitability and maximization of the interest of the shareholders. The choices that companies make about their liquidity policies affect profitability.

If company is unable to sustain an optimal amount liquidity or failed to manage the liquidity position, the company is likely to become insolvent and may even be driven into bankruptcy. So there is need for proper liquidity management to efficiently conduct day-to-day business. The funds can be unnecessarily tied up in idle cash due to weak liquidity management. Rather than investing it in productive assets, holding extra cash is uneconomical. This would diminish the company's liquidity thus the company will not be able to invest in productive assets such as plant and machinery. It will also affect the company's profitability. The significance of liquidity management calls for special attention. Many analysts suggest the manner in which an organization handles its liquidity helps to assess its profitability. Since liquidity management has effects on profitability and liquidity, it allows the company manager to effectively achieve

adequate liquidity position by managing the trade-off between productivity maximization and liquidity. Company profitability may have an inverse or negative relationship with high liquidity which supports the profitability-liquidity trade-off point backed by accounting literature. The higher degree of liquidity businesses had the poorer profitability they obtain and the other way around. A firm with high liquidity and low profitability points that the business does not generate required own resources. High liquidity indicates while the company has more than adequate cash or liquid asset to pay of current liability the company is not investing sufficiently. Company immensely focused on liquidity of the company rather proper investing of capital or business expansion. Thus not efficiently using capital to increase company's performance could result in low profitability.

According to Agarwal & Mishra (2007) Firms which do not make profit may be treated as under par but not having liquidity may cease to operate over a period. This is why Liquidity more important than profitability. Liquidity is more important according to some scholar since businesses with low profitability or no profitability at all will provide more to the economy than companies without liquidity's High profitability firm cannot operate smoothly if it does not have required cash and cash equivalent to pay its daily due obligations and bills. It may generate huge margins from business but without improving liquidity it may fail functioning properly in short run of the business. Disproportionate levels of current assets can have a negative impact on the profitability of the company, while a low level of current assets can result in a lower level of liquidity and stock-outs, resulting in difficulties in holding smooth operations. For a sample of food companies Marques and Braga (1995) verified the inverse relationship between liquidity and profitability. Although it is believed by Puneet & Parmil (2012) there is an exchange between liquidity and profitability. Now the key issue for owners is to find the most favorable

combination that allows for smooth performance of the company while producing suitable profits. Company must meet halfway between profitability and liquidity. So the company could have enough to meet daily obligation and make required investment. Liquidity management must be adopted to manage company's liquidity as well as investment management. As agreement with Raheman & Nasr (2007) Liquidity management attempts to achieve a harmony between profitability and liquidity. Raheman & Nasr (2007) also concluded that liquidity and profitability of a company is directly affected by working capital Management.

Various ratios which are actually financial tool used to measure business profitability and liquidity. These ratios presents business performance and position by analyzing various element taken from balance sheet and income statement to show. In the opinion of Reimers (2011) Ratios are calculated by comparing different financial statement items in order to give financial report users an insight into the position and performance of the company.

3.3 Liquidity

According to the International Accounting Standards (IFRS, 2006) liquidity point out the at hand cash for the upcoming future, following taking into account financial liability correlating to that time period. Liquidity is usability to a business or company of liquid assets. Mayo (2003) defined liquidity as the Convenience with which assets may be converted to cash, with a low risk of principal loss. Liquidity of an asset depend mostly on how speedily the asset can be converted to cash or how much cash it can generate and cheaply it can generate. According to Bodie & Merton (2000) liquidity is characterized by the comparative ease, value and quickly turning of an asset into cash. According to Reimers (2011) how easily a company turns its short-term investments into cash to pay off maturing liabilities.

Liquidity is the ability to sell and convert the asset to cash at current market value. Tangible assets such as furniture, building, manufacturing plant, land are all relatively illiquid. Other financial assets such as marketable share, debt, bond, equity is more liquid. It also can be cash or emergency savings account that can be used in case of any financial difficulty or accidental scenario. As stated by Kester, Ruback & Tufano (2005) Liquidity determines an entity's ability to meet financial obligations upon maturing. According to Shim and Siegel (2000) accounting liquidity of the company is the capacity to liquidate the maturing short term liability within one year. Sufficient liquidity maintaining is not only a corporate objective but also a prerequisite in which a business sustainability is at risk. Poor liquidity could also mean the company is not generating enough with its asset to fulfill its current obligation. The ongoing firm's liquidity does not depend on the liquidation value of its assets, it depends on the operating cash flows produced by those assets.

Liquidity is necessary for the firm to survive. Liquidity compared with profitability, liquidity is given greater priority. Maintaining orthodox liquidity shows that funds confined to liquid asset are not available for operational maneuver or investment objectives for high returns. As a result there’s an opportunity cost correlated to continuation of the liquid assets and this can determine the general profitability of the company. Nevertheless improving profits at the expense of liquidity could cause the firm significant trouble and this issue could result financial insolvency of the company. Most business failures are attributed to their inability to pay their debts, while companies will make profits and have a long-term financial strength. Liquidity of the company should be moderate. On one side excessive liquidity stipulates collection of inactive funds that does not generate any return for the company. On the other hand inadequate liquidity may impair the goodwill of the company, weaken the credit position which may lead to

involuntary liquidation of the company assets. Later on company may face bankruptcy or insolvency problem. A business which cannot make money may be considered a weak business but a company which has no liquidity will cease to exist.

Management decision and action that impacts the dimension and effectiveness of the liquidity is known as liquidity management. In the opinion of Kishore (2008) liquidity management is overseeing cash, inventories and trade receivable and payable. It highlights the supervision of current asset and liabilities and the relationship between these two. As per Raheman & Nasr (2007) a symmetry between profitability and liquidity could be found in liquidity management. Liquidity lines and funding resource can impact on company's liquidity scheme through assisting help in any short term intricacy occurs by reimbursing short term cash commitments . Liquidity management objective in the opinion of Gallinger & Healey (1991) to supply for sufficient availability and control of corporate funds under various economic situation to help firm achieve the Corporate goal of optimizing shareholder capital. Liquidity management involves reducing risk of the inefficiency to handle the short term obligations by arranging and managing current assets and current liabilities in proper manner avoids redundant investment. It is exceptionally vital for each organization to give focus to liquidity management for payment of current liabilities of business where the payment obligations include short term yet maturing long term operational and financial expenses. Companies think about improving liquidity management usually after reaching crisis situation or on the edge of bankruptcy.

Liquidity management is cooperative for the company management to intensify the financial situation of the business no matter what the size and nature of the company. Steps must be taken logically and productively if investment in liquid assets is greater than the most of the asset. Therefore profitability and liquidity objectives should be linked together and one's objective

should not interfere with another's. Investment in liquid asset are avoidable since it insures transmission of goods or services to final customer in appropriate time. A stable liquidity management will secure needed profitability and liquidity intensity.

A firm should establish that it does not experience lacking of liquidity or surplus of liquidity to meet its short term obligations. So liquidity need to be managed at optimum degree, that is a level where surplus liquidity is ignored because it shows poor choice of management ideas. Liquidity level also should not lag behind minimum requirement because it results in organizations inability to meet current obligation. Accordingly company's ultimate objective should be boost the profitability of the company through safeguarding the liquidity. Both creditors and investor as well as internal management examines a company's liquidity position. In the opinion of Bhunia (2010) provided close relation between liquidity and daily operations of the business both internal and external user of financial reports evaluates liquidity situation of the company. If circumstances emerge that make it difficult for them to meet short-term obligations such as repaying their loans and paying their workers, a liquidity crisis may arise even at healthy companies.

3.3.1 Measuring of Liquidity

Liquidity ratios operate on one side with a business' cash and near-cash assets (jointly addressed as "current assets"), and on the other side with immediate payment obligations ("current liabilities"). The relatively close-cash assets primarily include company receivables and finished goods and raw material inventories. Supplier fees, operational and financial that must be met in the short term and long-term debt maturing installments costs are the payment commitments. Price et al. (2003) recognized that many profitable companies with long-term financial strength

have failed because of their inability to honor their debts' obligations. In the calculation of an institution's short term power profitability is a crucial element.

The company should find balance between the liquidity ratios rather than maximizing or minimizing them. Company should improve the relation between the objectives which is usually profit maximization or earning a return on capital employed. Company could face pressure from its creditors because of the low liquidity ratio which could make the company vulnerable. Continued liquidity of the company would be affected by the Working cash flows generated by assets. It is not only because of the value of liquidation. Company may have problem carrying on the business operation because of too much current asset. Considering it shows that company's return on investment is not ideal. Horne and Wachowicz stated that (2000) firms with fewer current assets will having problem in continuing their operations while if the current assets are too much, it shows the return on investment is not in perfect condition. Since optimum cash levels are influenced by the factors outside the preventive concept of treasury, the company must think broad and take serious operational decisions on how to the profit opportunities that is available in cash flow process. The liquidity based on firms receivable and inventories could be misrepresenting if the company's sale are seasonal or the company operated on a natural business year.

Ratios are crucial in controlling liquidity because of their aid in detecting the connection between the variables. Liquidity management sustains a liquidity balance that will produce profit for the company rather than targeting to have too much current ratio. Liquidity ratios are crucial type of financial measure used to determine a company's ability to pay off day to day obligations without obtaining external capital and its limit of safety through the calculation of metrics. Liquidity ratios show how immediately a company can convert its current assets into cash so that its

liability is can be paid on a timely base. As well as their long-term liabilities as they turn into current liabilities. These ratios shows a company's cash levels and the ability of the company to turn alternative assets into cash.

Morris and Shin (2010) conceptualized liquidity ratio as measurable cash on the financial statements for short term liabilities. In addition measurable cash is explained as liquid assets and other assets in what a haircut enforced. Liquidity required for each firm depends on the company's balance sheet situation. Liquidity isn't just a reflection of amount of cash a company has. But also a reflection of degree of company's ability to raise needed cash or transformation of asset into cash. In the short term, assets such as accounts receivables, securities trading, and inventory are relatively easy for many companies to convert into cash. Some characteristic of liquid assets are: diverse, easily sold or transformed into cash, Residual maturities related to the unique cash flow needs of company, and minimum risk of credit. For the purpose of liquidity management liquidity ratios are examined by every company.

According to Don (2009) keeping in mind the priority of the two of it, for connection with directly continuity of the company liquidity is more essential. According to Kamath (1989) from different point of view different assets are considered to be relevant. Cash and cash equivalents are more liquid but trade/account receivable, marketable securities is also liquid but they will require time to liquidate fully. Company can figure out liquidity of the company by using ration analysis. Current ratio can found from current asset to current liability. Quick ratio will provide if the company can pay its current debt without selling its inventory. It is critical concern for company because they will need to find a buyer for that inventory also if they sell the inventory.

So current and liquid ratios for calculating the liquidity state were added. Additional two ratio ratios were selected to explain the liquidity position of the company more thoroughly.

I. Current ratio

Current ratio is firm's market liquidity and capacity to fulfill creditor's demands. The current ratio is a financial ratio that shows whether a company within next 12 month has adequate capital to pay its obligations. A stated by Mayo (2003) Current ratio indicates degree with which current liabilities maturing within year are backed by current asset.

Current ratio reveals in what way total assets connected to total current liabilities is extensively employed to assess the liquidity of a company in fulfillment of the company's short term liabilities. This ratio indicates how many times the current assets cover current liabilities. Current ratio is balance-sheet financial performance measure of company liquidity.

Satisfactory current ratio varies industry to industry. If a company's current ratio within this range, then the company regarded to have favorable short-term financial stability. If current liabilities surpasses current assets (the current ratio is lower than 1), then the company have possibility to have complication meeting its short-term obligations. Low values for the current or quick ratios (value lower than 1) is an indication that a firm may not be able to meet its current obligations properly. However the low values do not illustrate a critical dilemma. Company with strong long-term prospects can be able to borrow oppose to those prospects to fulfill current obligations. Many businesses operates with current ratio lower than one. There is possibility of company not properly using currents assets or short term financing resource if the current ratio is excessively high.

According to Bednarski (1994) too much low or too much high value of the ratio could indicate that:

- low value - the company does not have sufficient cash or resources to pay its current liabilities as the company functions day to day.
- Too much high value - High value points out unnecessary freezing of current asset funds which could have invested in substitute project.

Current ratio = Current asset/Current liability.

II. Quick Ratio

Mayo (2003) quick ratio as an measure of the firm's ability to meet its existing liabilities when they become due, which dictates whether a firm has adequate short term assets to pay its current liabilities without selling stock.

This ratio is more traditional than the current ratio. Quick ratio also known as acid-test ratio is to a greater extent concentrated. Inventory and prepaid expenses are incorporated in Current assets which are relatively illiquid compared to cash, short-term investments, and accounts receivable. So to improved test of company's liquidity is the quick ratio/acid test ratio particular for company with hefty inventories or prepaid expense. Quick ratio is similar to the current ratio less the value of inventory or prepaid expense or both in the numerator.

Quick Ratio = (Current Assets – Current Inventory- Prepaid Expense)/Current Liabilities

III. Cash ratio

The cash ratio also known as the cash asset ratio, is a liquidity criterion that displays short-term loan liability payback ability of the company by its cash and cash equivalent. Cash ratio is more

rigorous, more traditional procedure comparison to alternative liquidity ratio in particular to current ratio and quick ratio. Since company's greatest liquid asset cash and cash equivalents are made use of in this ratio. Only cash can be employed in the settlement of short term debt. Cash ratio is the connection among current obligation and cash and it evaluates the sufficiency of cash for the payment of the employees, creditors and alternative current obligations. The cash ratio pinpoints proportion of company's current obligation that can be covered by cash and cash equivalent to the creditors, analyst and investors. A healthy ratio will indicate the company will have funds left after repayment of its current liabilities with cash and cash equivalent.

High cash ratio is favored by the creditors as high ratio demonstrate company's ease of payment of outstanding debts. However there is no perfect number, a generally favored ratio is not beneath than 0.5 to 1. The cash ratio renders the most orthodox understanding of a company's liquidity because solely cash and cash equivalents are used. Although numerous company's ordinarily have lower than one cash ratio which is not an indication that they experience short-term liquidity restriction. In time account receivable can be converted to cash and companies usually have lines of credit incase current obligation payment requires.

Consequently many creditors make use of the cash ratio to see if the company maintains adequate surplus of cash to meet its current debts accordingly as they expected to pay. Cash ratio is also appealing to the creditors for leaving the inventory and account receivable from the cash ratio equation as these above mentioned account are not certain to be convenient for immediate debt payback. It could take month or year to sell inventory or collect receivable. But cash is guaranteed to available for debt payback which makes it sensible to the creditors.

It is necessary to take into account that cash ratio of a company does not thoroughly yields financial analysis since cash and cash equivalent is not retained typically at the same level of current liabilities by the company. Companies often make mistake by hoarding unnecessary amount of idle cash with no return generated in their balance sheet. So excess cash should be reinvested to generate high return for the shareholders.

For company to show a soaring cash ratio to the outside world, it should hoard a huge sum of cash on hand perhaps sensible in action and thought. Another concern to relate of the ratio is that cash ratio only weigh in cash amount during particular period of time, which can differ promptly while receivables are accumulated and supplier are compensated.

An easy and fast way to assess if a company may have possible short-term liquidity issues is the cash ratio. Reserving money in the outline of cash or cash equivalents is liquidity keeping in mind that cash is most liquid asset to meet short term financial obligation. Companies cannot carry out its development plans or even pay its current obligations without cash, this can also result in difficulty to grab new business opportunity as well as getting loans. A company that cannot compensate its creditors or fulfill its obligation to the credit, service, good supplier in due time can be proclaimed that company as bankrupt company.

Cash Ratio = (Cash & Cash Equivalents/Current Liability)

IV. Absolute Liquid Ratio

The relationship between absolute liquid assets and current liabilities is established by this ratio. Absolute liquid assets take under consideration cash and cash equivalents and marketable securities or other temporary investments. Of that ratio, the most desirable and optimal value should be 1:2. It indicates ability of half worth absolute liquid assets are available to pay off the

full worth current liabilities within due time. Absolute liquidity ratios provides precise and specifies liquidity standard, 50% is adequate value for absolute liquidity ratio. If the ratio is under the adequate value it could reflect poor cash management of the company. Which indicates the company runs day to day cash management inefficiently. If the ratios value exceeds adequate value that represent company with sufficient cash to meet its current obligation due time.

Cash and cash equivalent, marketable securities and short term investment are included in absolute liquid ratio. Absolute liquid ratio widen the reasoning further by eliminating less liquid account/trade receivable, sundry debtor, bills receivable too. Nevertheless account/trade receivable is more liquid than inventory but the time and amount of attainment makes them eliminated from the calculation of ratio. So absolute liquid ratio only pertains to cash and cash equivalent, marketable securities and other temporary investment to the short term liabilities.

Absolute Liquid Ratio = (Absolute liquid asset/Current Liability)

3.4 Profitability

Profitability is firm's ability to produce earnings over expenditure of generating such earnings. Profitability indicates complete success of the firm and its necessary survival position. Profitability also estimates sufficiency of generated earnings in specific year of a firm through contrasting the earnings made by the firm in previous year and also one or more other similar-industry firms.

Profitability also measures management efficiency in the use of organizational resources in adding value to the business. Company's effectiveness of producing profits from running its operations. Waściński (2010) in simple term profit produced from company running its operation

is expressed by profitability. Owolabi and Obida (2012) also explained Profitability Company's ability to generate profit from performing activities related to business.

Profitability is a calculation of how much income an organization exceeds its related expenses. Profitability measures financial success of the company. Profitability is the ability of a company to yield a return on an investment based on its capital relative to an alternative investment. It is the variable used for assessment of the scale of the income for a company relative to the size of the company. In other words profitability can refers firm's ability to yield investment return from its assets investment that promised a positive net present value. It can be justified to say that financial asset promising positive net present value is desirable by the shareholders since it will generate wealth. Investment with negative net present value can condoned to drop. Furthermore profit can result from income in working capital variables. So faster income can result to increased profit thus increase the profitability overall.

Saghafi and Aghayie (1994) the investor, manager and financial analyst consistently make use of profitability to be of vital intelligence regarding economic conclusion making. Profitability provided a guideline of payment of dividend, management efficiency measuring mechanism and contraption for anticipating and analyze economic conclusion making. As reported by Walt (2009) profitability is more significant because it's liquidity. Profit can be converted into liquid asset readily.

Businesses success or failure can be measured by profitability as well as efficiency of the business. Pimentel et al, (2005) final measure of a company's economic performance in relation to the capital invested therein can be described as the Profitability. Harward and Upton (1961) profitability is competency to attain investment return. Measuring productivity is the strongest

predictor of the company's performance. Net profit can economic growth of a company. According to Osiegbu and Nwakanma (2008) profitability support and provides guideline in decision making processes and designing up business policies. Investors, creditors and internal management reviews these data to evaluate a company’s performance and future potentiality of the company could achieve for its efficient business operation.

Owolabi & Obida (2012) to thrive and expand over a long period of time a business must earn income. While a company can make a profit, this doesn't necessarily imply the business is profitable. If a company is earning profit but is unprofitable, various technique can be implemented to increase profitability and increase overall company growth. One of first and important step a company can take to improve profitability is to increase sales. Increasing sales requires production increase. Marginal product otherwise known as marginal return concept can come in handy in these situation. Marginal product theory suggests that there is point to which increase of worker will increase the efficient use of the capital, exceeding that point worker will result in negative returns which will ultimately lead to reduced profitability.

Profitability is calculated with income and expenses. Activities of business generates money which is income. Cost of resource usage or absorption for performing business activities is expenses. Various report can be used to find out profitability of the company. Although external users usually relies on numbers disclosed in income statement. So profitability can be found with an income statement which is basically a record of income and expenses occurred during a particular period of time usually a year for the whole business.

3.4.1 Measuring of Profitability

A category of financial metrics is profitability ratios that are used over time to measure the ability of a company to produce profits compared to its sales, operating expenses, balance sheet assets and shareholders' equity, using data from a particular time period. Financial information can be used to forecast, contrast and assess company's earning capabilities and financial stance.

Company's profitability analysis shows if the company utilizing its resource and capital efficiently. Usually for maximum ratios having a higher valuation compared to the ratio of a rival or compared to the same ratio from the previous time shows that the company performs well. When comparing company with other company, related companies, the company's previous history or the average industry ratio for the particular company ratios come in most handy. Ratio analysis is among one of the common way in which financial statement are used to analyze the company and create well explained financial standards. Variation of profitability ratios can be used as decision tool to inspect the financial strength of the company or business. Usually these ratios are calculated with data collected from income statement.

These ratios can be categorized into two categories:
Margin ratios representing company's capability at various degrees of measurement at how it can convert its sales into profits. Net profit after tax is example of margin ratio.
Return ratios indicates the company's competency to produce return for its shareholders. Return on assets, return on equity and return on capital invested are example of return ratio.
According to Damilola (2007) profitability can be assessed properly by ROA (Return on Assets = Net Income /Total Assets) and ROE (Return on Equity = Net Income / Equity), which ultimately represents economic success of the company.

In the opinion of Nowak (2005) different types of profit could be employed to calculate rates of return such as sales profit, operating profit, net/gross profit. Net profit after tax is used in this research. According to some researcher Return on Assets, Return on equity, return on capital employed can be effectively used to determine profitability. Also in agreement with Thachappilly (2009) some outstanding ratios are return on assets (ROA), return on equity (ROE), earning per share (EPS), and return on capital employed (ROCE), operating profit, pre-tax profit and net profit.

I. Net Profit

Net profit is a financial concept used to describe the income of a company after payment of all the taxes. Net profit is total revenues generated from performing business activities or sale of product/services less the cost to perform business activities or cost of production. A company's net of taxes performance over the company's core operations is net profit. Profit or money made from performing business activates after deducting cost from revenue is net profit.

Net profit is very common accounting phrase in quarterly and annual financial reports of the company. Since income statements include plenty of not cash involving expenses for instance amortization and depreciation, Net profit is not only a measure of cash earned by the company.

One of the most significant studied financial statement item of a company is net profit after tax. The recorded amount comes up with profitability indication of a company, whether the company has the ability to pay back its investors and shareholders over dividend and repurchase of share. It is the company's origin of reimbursement to shareholders. If the company cannot originate sufficient profit to payback the owners back, the overall share value will decrease. As the company produces increased net income, there will be more spare cash to reinvest in the

company ensuring favorable future, which could be obtaining new technology or setting up new manufacturing unit or build up company's operation thus increasing its sales.

A business with positive net income growth is in a stronger financial position to pay off debt or make an investment to improve its profitability and increase their competitiveness and overall sales. A business with a negative or below average net profit may indicate a business with a decrease in revenue, poor management of spending, obsolete technology, excessive debt or poor management.

II. Return on Equity (ROE)

Return on equity is concerned with the total shares, additional paid-in capital if present, and earnings retained if present. According to him it calculates the value the company gains from investments made by stockholders. The earnings can be allocated to investor or maintained in the company. Net income after tax, however, does mark their return. The return on equity is after tax net income divided by the equity of the investor.

Return on equity can increase significantly because it can simply benefit from a higher return helped by a greater asset base even without any additional equity. A business increases its asset size and produces stronger returns with higher margins, while equity investors can keep the additional growth in value as additional assets arising from use of debt. Company's equity holders are most concerned with return on equity ratio given that it provided company's return earning ability of their investment. Net income percentage proportionate to investor's equity or Investor rate of return on their invested equity is expressed by return on equity. Stock analyst and investor usually looks for the return on equity ratio most meticulously.

A positive high return on equity ratio always encourage to invest in a company's stock. Companies are less depending on debt funding and can internally generate sufficient cash when the company have high return of equity.

Return on Equity = Profit after Taxes/Equity (Net Worth)

III. Return on Assets (ROA)

Profitability is measured in relation to costs and expenditures and it is evaluated in relation to assets to see effectiveness of an organization is in leveraging assets to produce revenue and thus profit. Net profit or net profits after the sum of sales earnings, all costs, expenditures, taxes typically represents the "Return" word used in the return on assets ratio.

Owolabi & Obida (2012) a company's net profit as in the form of percent of the total assets accessible to the company for use is described by Return on Assets. Therefore return on assets is the profits before any payment to those who supplied the company with funds. Many business that went bankrupt showed profit and were profitable during the time of bankruptcy and many unprofitable businesses not in the verge of bankruptcy is supported by this practice.

Percent of total earning related to total assets of the company is return on asset. The return on assets ratio provides to what extent after tax Profit Company produces from holding each one dollar of assets. Assets Strength is measured by return on assets. The more assest-vigour the company is, the higher the profit earned against per dollar of asset. Huge investment is needed to obtain equipment and machinery is high assest-vigour company. Return on assets identifies a company's management ability of realizing return on the company's investment. Return on assets implies asset-vigour (high amount of asset) company may earn steep income level.

More sales leading to more profit earning may be result of the company holding vast amount of asset. Considering economies of scale influence dropping down the cost and raising the margins, faster rate of return elevated than asset may ultimately increase the return on assets.

Return on Assets = Profit before Taxes/Total Assets

IV. Return on capital employed

Return on capital employed or ROCE is measure of company's efficiently profit earning capacity from its capital invested is compared with net operating profit to capital investment. It is a profitability ratio. Company's profitability and proficiency upon which its capital is invested is return on capital employed (ROCE). It shows the investor how many dollar in profits is earned against one dollar of capital employed. Return on capital invested is also an estimate of generated return from its invested total capital. Earning is contrasted with capital invested in the company in Return on capital employed ratio.

This ratio shows to what extent the company is generating profit from its invested capital. Return on capital employed ratio is acknowledged as a vital profitability ratio. Investors frequently make use of this ratio while screening for competent investment option. Return on capital employed is a convenient metric for differentiating profitability over companies found on the quantity of the capital they invested. Return on the capital employed takes debt and other liabilities into account furthermore. This yields a greater signal of financial performance for companies using outstanding debt.

Return on capital employed is a long lasting profitability indices for the reason that it demonstrates effectiveness of asset performance with factoring long term financing. Return on capital invested trend is vital performance indicator of the company. Higher ratio is favorable

since it indicates additional dollar of profit is generated against each dollar of capital employed. An inflated return on capital employed suggest that further economical capital use keeping in mind that return on capital employed should be steeper than cost of capital. If it is not steeper that may indicate the company's impaired productiveness and incompetently shareholders value building.

ROCE= EBIT/ Capital Employed

EBIT=Earnings before interest and tax

Capital Employed=Total assets − Current liabilities

3.5 Empirical Evidence

Positive Relationship

Ajanthan (2013) studied profitability and liquidity relationship of Sri Lankan companies. Eight listed companies over a span of five year from 2008 to 2012 was covered in the study. For analysis correlation, regression analysis and descriptive statistics were used. Findings conveyed that there is a significant relationship of liquidity and profitability exists in the listed companies of Sri Lanka.

Kahn and Ali (2016) researched the correlation between liquidity and profitability of Pakistan's commercial banks. He concluded that there is positive association between liquidity and profitability exists.

Njure (2014) explored the relation between liquidity and profitability of Nairobi securities exchange's listed non-financial companies. They covered 39 entities and collected data from

annual report covered from 2009 to 2013. They used correlation to find out relationship between liquidity and profitability. Return on assets was profitability indicator and Current ratio, quick ratio, absolute liquid ratio were liquidity indicators. The study concluded a significant positive relationship between profitability and liquidity.

Etale and Bingilar (2016) analysed the liquidity effect on profitability based on five listed food and beverage companies of Nigerian Stock Exchange. They found a significant positive relationship between cash ratio, quick ratio with company's fiscal performance where fiscal performance was determined by return on capital employed.

Egbide's (2013) study on the relationship within liquidity and profitability established an affirmative relationship among current ratio, liquid ratio and economic performance.

Ehiedu (2014) examined the relationship between current ratio and profitability indicated by return on asset, relationship between quick ratio and profitability indicated by return on assets and the correlation between return on assets and return on assets. He used correlation analysis for the study. He concluded a significant positive relationship between current ratio and profitability, no significant relationship between quick ratio and profitability and no significant positive relationship between financial performance and return on capital employed. Furthermore the researcher concluded that companies tend to avoid risky liquidity strategies as the company might jeopardize the profitability arrangement of the company.

Bibi and Amjad (2017) evaluated the relationship between liquidity and fiscal performance of 50 listed companies of Karachi Stock Exchange. They examined the data from annual report covering period during 2007-2011. Current ratio showed a considerable positive relationship with profitability.

Vieira (2010) in his study investigated the short term and long term relationship of liquidity and profitability. The study was based on secondary data for the period of 2005 to 2008 of huge global airline companies. The result concluded existence of a significant positive relationship between liquidity management and short term, long term financial performance. Furthermore Vieira presumed that entitles with high liquidity achieved better than entities with low liquidity during the financial crisis of 2008.

Renato (2010) reported a significant and positive relationship between liquidity and profitability.

Victor et al. (2013) explored the relationship between liquidity and profitability of Ghana's listed banks. They regressed liquidity ratio versus the profitability ratio. The obtained result recommended that relationship between liquidity and profitability was positive but weak.

Podilchuk (2013) checked out the company's liquidity management's effect on financial performance. The study was based on state owned, joint stock and limited liability entities from construction, retail, finance, production and agriculture segments of Ukraine. They concluded a significant but positively declining relationship between current ratio, acid test ratio and financial performance of the company.

Lazaridis and Tryfonidis (2006) figured a positive significant correlation between liquidity and profitability. Liquidity indicated by cash conversion cycle and profitability indicated by return on asset.

Singh and Pandey (2008) probed Hindalco Industries Limited. They expressed working capital management is vital for the company as it play a direct significance on profitability and liquidity. They found significant impact of working capital management on profitability.

Neutral Relationship

Perobelli et al. (2007) asserted the need to obtain a balance between the economic and financial profile. He concluded that liquidity is improved by good profitability and that results in proper growth and future profitability.

Rahemanet all, 2007) pointed out in their research that there is tradeoff between liquidity and profitability and liquidity managements difficulty is finding that preferred tradeoff.

Chakraborty (2008) assessed the correlation between working capital and profitability of Indian listed pharmaceutical companies. There were two prominent philosophy regarding this issue. Accordingly to one philosophy for improving profitability working capital is not a factor and there might be a negative correlation between profitability and working capital. In accordance to another philosophy working capital plays a significant role in improving corporate profitability and there must be minimum degree of working capital investment otherwise sales and output may not be continued. In addition they concluded that insufficient working capital might keep the fixed asset unproductive.

Georgieva Svrtinov, Gjorgieva Trajkovska and Koleva (2017) examined the strength and direction of the correlation within liquidity and profitability in Southeastern Europe. They concluded that liquidity and profitability is only positively related in Bulgaria and Slovenia. They further concluded that there exist e tradeoff within liquidity and profitability.

Negative relationship

Marques and Braga (1995) affirmed a contrary relationship between liquidity and profitability. The sample was from food companies.

Blatt (2001) also established a negative correlation between liquidity and profitability.

Eljelly (2004) explored to find out relationship between liquidity and profitability. He conducted the study on 29 corporation from Saudi Arabia for the period of 1996 to 2000. He concluded negative and inconsiderable relationship between liquidity and profitability.

Shivakumar and Thimmaiah (2016) explored the liquidity and profitability tradeoff of an Indian company name Coal India limited. They covered a period from 2010 to 2015. They concluded existence of an inconsiderable relationship and negative relationship between liquidity and financial performance of the company.

Vintila and Nenu (2016) stated a negative correspondence between liquidity and profitability of the studied companies.

Siame (2012) reviewed the liquidity significance on the fiscal performance of listed companies of South Africa. They studied 120 joint stock company data over a period of 2000 to 2009. They concluded a negative correlation between liquidity and profitability. They further concluded that liquidity management can improve the profitability of the company.

In their studies, Raheman and Nasr (2007) established a significant negative correlation within working capital management and operating profitability.

Sandhar et. al (2013) studied the correlation between liquidity and profitability of listed cement companies of India. They used regression analysis. They concluded that current ratio, liquid ratio and cash turnover ratio are negatively correlated with return on assets and return on investment.

In Bangladesh perspective,

Hamid and Akhi (2016) scrutinized the correlation by examined 10 listed pharmaceuticals and chemical company of Bangladesh stock exchange for the time period of 2005-2014. They used current ratio, quick ratio and working capital ratio to measure liquidity and return on assets, return on equity and return on capital employed for measurement of profitability. They concluded existence of no significant relationship.

Karim et al. (2017) reviewed the correlation for two listed pharmaceuticals company Bangladesh stock exchange. They are Square Pharmaceuticals Limited and Beximco Pharmaceuticals Limited. They concluded that existence of significant correlation between working capital management and profitability for two of them company.

Quayyum (2010) examined 28 listed companies of Bangladesh stock exchange from cement, food, pharmaceuticals and engineering industry for the period of 2005 to 2009. For profitability measurement return on asset, net profit margin and for liquidity measurement current ratio, quick ratio, cash conversion cycle, inventory turnover period was used. He concluded that other than food industry all other industry showed a significant correlation between profitability and liquidity.

Akter and Mahmud (2014) explored the correlation between liquidity and profitability. They conducted their study on 12 listed banks from Bangladesh stock exchange. They choose from 4 different sectors of bank such as government, Islamic, multinational and private commercial bank for the period of 2006 to 2011. They concluded no existence of significant relationship between liquidity and profitability.

No relationship

Ahmad (2016) examined Standard chartered bank of Pakistan for over 10 year financial data for the period of 2004-2013. The researcher evaluated liquidity using current ratio, quick ratio, net working capital as determinant. He concluded that inconsiderable relationship between liquidity and profitability.

Karthika (2013) examined the correlation between liquidity and profitability. She concluded that liquidity has inconsiderable influence on profitability.

Sharma and Kumar (2011) presumed there is no existence of significant correlation between cash conversion cycle and profitability (indicated by return on asset) from studying the correlation between profitability and working capital management.

3.6 Summary of Literature Review

Gaining more of one ordinarily means giving up some of the other Profitability does not translate to liquidity in all cases. A company may be profitable without necessarily being liquid.

One of the major reasons that may cause liquidation is illiquidity and inability to make adequate profit. A profitability analysis is certainly a basis for determining a company's financial status but only with parallel consideration of the level of financial liquidity of the operation performed.

Without proper liquidity management accomplishment of profit planning and entity management is gruesome. Since liquidity is a crucial factor in boosting the profitability of an entity.

Financial liquidity maintaining is a vital function of a company regarding managing the operation continuation, making it one of the core short term goals. Nevertheless in the long term scenarios company decision should aim at developments which is affected by profit earning. On that account profitable activity doings of a firm facilitates survival within competitive environment and capacitates further long term development.

It is frequently observed that in typical financial analysis of a company additional focus is on profitability rather than its liquidity of the company. Naturally it is without exception common as the profit earning is most significant financial objective of any company. So needless to say profitability gets more attention from the manager. But keeping in mind liquidity the ability to meet short term financial obligation, is an important variable. Company could end up bankrupt if short term obligation are not meet properly. Ergo liquidity management is incorporated to maintain the amount of liquid asset investment to meet the short term obligations smoothly.

Therefore it is vital maintain level of liquidity for smooth business operation performance. The optimum point between too much and too little. Too much liquidity exhibits reserve of idle fund which is not earning any profit and too little liquidity affects production process thus resulting in great earning capacity decline. So it can implied that there exists an inverse relationship between profitability and liquidity not for a long time relatively up to a certain degree of liquidity. Exceeding that level of liquidity will result in profitability decline.

So bearing that company ultimate objective of maximizing profit preserving the adequate liquidity is a main objective too. Increasing profit at the liquidity expense can create problem for

the company. One objective should not be at the expense of the other since both are important. Without caring for the profit company cannot survive and without caring for liquidity company may closer to bankruptcy or insolvency.

RESEARCH METHODOLOGY

4.1 Introduction

This section analyze the research design and methodology of the study. Establishment of full definition of the research design, the research variables is also discussed. A distinct point of view of the narrative and choice of the sample and population is provided. The research mechanism, data collection procedure and data analysis method is also been pinpointed.

4.2 Research Design

A descriptive research composition was materialized in this research. A descriptive research describes the characteristics of population, segment, components, surroundings and tries to "describe a word picture" of a given position.

The trait of the variables or their behavior is not within control of the researcher. After comprehending the factors thoroughly descriptive statistics is implemented to explain "what" of the research principal theme instead of the "why" of the research subject matter.

In this proceeding, the correspondence among profitability and liquidity of pharmaceutical and chemical company of Bangladesh registered under SEC will be established. The principal variable is profitability as measured through various component such as ROA, ROE and ROCE while the secondary variable is liquidity as measured through the Current ratio, Quick ratio and other ratio indicating in depth explaining.

4.3 Population

The population of significance in this study was composed of all pharmaceutical and chemical manufacturing companies in Bangladesh between years 2015 and 2019 in that period, 22 companies (Appendix I) satisfied the data compilation benchmark and the research variables were procured from audited financial statements of the companies. This time period was considered appropriate to procure the requisite figures evaluating the data analysis involved.

4.4 Sample and Sampling Procedure

A precise plan to get a sample from a given population is sampling design. This refers to the strategy or method that the researcher will follow when choosing sample objects. This study was a census of all pharmaceutical and chemical manufacturing companies in Bangladesh, for a distinctive company to certify it needed to have regulated throughout the set period of study. Given the population of the content of study all the manufacturing companies were studied due to the accomplishable figures involved and sample distribution was not imperative.

4.5 Data Collection

The study administered secondary fact compilation. The research variables were derived from the audited financial statements pharmaceutical and chemical manufacturing companies in Bangladesh for the financial periods 2015 to 2019. Data was gathered for the manufacturing companies were in operation in this period and this ensured comprehensiveness and certainty of the study factor.

4.6 Data Analysis

The data was extracted from the audited financial statements of these pharmaceutical and chemical manufacturing companies. The research is quantitative in essence. The data is scrutinized over descriptive statistics such as percentages. Then correlation analysis is employed. The analysis was on the liquidity relationship with profitability among pharmaceutical and chemical manufacturing companies. The data analysis is accompanied by data interpretation of the results of the analysis.

DATA ANALYSIS, RESULTS AND DISCUSSION

5.1 Introduction

This chapter deals with the analysis of data and the presentation of the study results as set out in the research methodology. Twenty-two firms were used to collect data on variables over a five-year period from 2015 to 2019.

The collected data were secondary sources such as financial status statements, detailed income statement and financial report disclosure reports. The data was analyzed using correlation statistics and descriptive statistics. The chapter ends with a description of the interpretation of the research results.

5.2 Response Rate

During the five-year study period 2015 to 2019, the target population was listed pharmaceutical and chemical companies in operations. The study obtained data from a total of 22 out of 30 companies and this represents a response rate of 73 per cent that is sufficient to draw conclusions.

5.3 Data Analysis and Interpretation

5.3.1 Descriptive Statistics

Descriptive Statistics							
Variables	N	Range	Minimum	Maximum	Mean	Std. Deviation	Coefficient of variation
Current Ratio	98	23.8380	0.4553	24.2933	2.8085	4.5880	1.63
Quick Ratio	94	81.3715	0.0346	81.4061	5.0558	17.0979	3.38
Absolute Liquid Ratio	99	15.3569	0.0346	15.3915	1.5411	3.1470	2.04
Cash Ratio	99	9.0909	0.0008	9.0918	0.3826	1.0885	2.85
Net Profit	99	11458.8446	-895.9811	10562.8635	916.5081	1893.5083	2.07
Return on Asset	98	0.5649	-0.1228	0.4421	0.0779	0.1002	1.29
Return on Equity	98	1.7984	-0.2445	1.5539	0.1474	0.2417	1.64
Return on Capital Employed	99	15.3103	-1.8141	13.4962	1.4355	2.3183	1.61
Valid N (list wise)	92						

The descriptive statistics show that over the period under study, the criteria used for measuring profitability included Net Profit, Return on Asset, Return on Equity, Return on Capital Employed. For measuring liquidity current ratio, Quick Ratio, Absolute liquid Ratio and Cash Ratio is used.

Average Net Profit is 916.5081, Return on Asset is 0.0779, Return on Equity is 0.1474 and Return on Capital Employed is 1.4355.

Furthermore, Liquidity measures mean are good, especially the mean of quick ratio is extraordinary. But cash ratio mean is in poor condition since it's slightly below the norm.

The coefficients of variation (standard deviation/mean) values of liquidity measures were found to be higher than those of profitability measures. Thus, reveal the high volatility of liquidity measures used in the study.

5.3.2 Correlation Analysis and Interpretation

Correlations								
Variables	Current Ratio	Quick Ratio	Absolute Liquid Ratio	Cash Ratio	Net Profit	Return on Asset	Return on Equity	Return on Capital Employed
Current Ratio	1.							
Quick Ratio	.96**	1.						
Absolute Liquid Ratio	.98**	.95**	1.					
Cash Ratio	.38**	.17	.44**	1.				
Net Profit	.17	-.03	.19	.78**	1.			
Return on Asset	.11	.09	.12	.23*	.39**	1.		
Return on Equity	-.04	-.05	-.06	.04	.21*	.90**	1.	
Return on Capital Employed	-.1	-.14	-.13	.o	.27**	.58**	.58**	1.

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The table above indicates the relation between the different independent and dependent variables used in the analysis. As observed in the table the correlation values between the independent and dependent variables were found to be mixed (both positive and negative).

The R values were found to be negative between Return on equity, Return on capital employed and liquidity variables as measured by current ratio, quick ratio, absolute liquid ratio and cash ratio.

Contrary to the above mentioned associations, large positive association was observed between cash ratio and net profit ratio (R=0.78), Return on asset showed small positive association with all liquidity measures.

It is apparent from the table that, the correlation values were found to be statistically insignificant between all the independent and dependent variables used in the study.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter summarizes the results from chapter five and describes the study's conclusions, limitations and recommendations based on the study's objectives. The objective of the study was to establish the relationship between profitability and liquidity of listed pharmaceuticals and chemical manufacturing companies of Bangladesh.

The study used secondary data from financial statements of the companies for year 2015 to 2019 and measured profitability through Net profit, Return on Assets, Return on Equity, Return on Capital Employed and liquidity through current ratio, Quick Ratio, Absolute liquidity ratio and Cash Ratio.

6.2 Summary of Findings

The correlation analysis has identified that Return on equity, return on capital employed were negatively related with liquidity measures.

Net profit show negative association with quick ratio, but showed large positive association with cash ratio.

Return on asset showed small positive association with each liquidity measures.

6.3 Conclusion

The findings of the data analysis in chapter five show that liquidity is one of the determinants of the profitability of pharmaceutical and chemical manufacturing companies.

6.4 Recommendations

The findings of the study indicate that there is a both positive/negative correlation between the profitability of pharmaceutical and chemical manufacturing companies and their liquidity.

As one of the determinants of profitability, finance managers should be paying attention to the liquidity of pharmaceutical and chemical manufacturing companies. Keeping in mind that liquidity and productivity are mutually reinforcing and therefore finance managers should not regard the two variables as separate.

6.5 Suggestions for Further Studies

This research focuses mainly on pharmaceutical and chemical manufacturing companies so it would be important to perform a analysis in other industries. Doing a study in other industries and establishing the relationship between liquidity and profitability would be of interest.

This research proposes carrying out a cross-border analysis involving other countries in order to assess the effect on the relationship between the two variables of various economic and operating conditions.

In addition, a report on the relationship between the various levels of liquidity sustained by pharmaceutical and chemical manufacturers and the level of profitability will provide an insight as to how the level of liquidity influences the profitability of pharmaceutical and chemical manufacturers.

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APPENDIX 1 – Company Names

Company Names	
1	Acme Global Limited
2	Far Chemical Industry Limited
3	Imam Button Industries Limited
4	Beacon Pharmaceuticals Limited
5	Marico Bangladesh Limited
6	Orion Infusion Limited
7	Active fine Chemical Limited
8	Renata Pharmaceuticals
9	Square Pharmaceuticals Limited
10	Kohinoor Chemical Limited
11	Central Pharmaceuticals Limited
12	JMI Syringes & Medical Devices Limited
13	Salvo Chemical Limited
14	Beximco Limited
15	Beximco Synthetics Limited
16	Ambee Pharmaceuticals Limited
17	Afc Agro Biotech Limited
18	Ibn Sna Pharmaceuticals Limited
19	Wata Chemicals Limited
20	Advanced Chemical Industries Limited
21	ACI Formulations Limited
22	Orion Pharma Limited

APPENDIX 2 – Raw Data

Sl	Company Information		Liquidity				Profitability			
	Name	Year	Current ratio	Quick ratio	Absolute Liquid Ratio	Cash Ratio	Net Profit	Return on Asset	Return on Equity	Return on Capital Employed
1	Acme Global Limited	14-15	1.031039156	0.167431191	0.166411047	0.061909801	921.917143	0.039635691	0.081064554	1.102051428
		15-16	1.354458151	0.240441443	0.238123443	0.134018758	1101.267794	0.038119724	0.067296262	1.047701835
		16-17	1.25295521	0.283666542	0.280187719	0.148456511	1397.849938	0.046677101	0.082438493	1.140515433
		17-18	1.105996207	0.258261901	0.254895084	0.109523655	1426.570996	0.043727324	0.080847059	1.445134122
		18-19	0.933523376	0.231666538	0.22906009	0.105980143	1440.378843	0.040097848	0.078523037	1.627079313
2	Far Chemical Industry Limited	14-15	n/a	81.40608819	14.97640295	0.874221881	298.46113	0.15116112	0.154741723	0.273387454
		15-16	24.08193679	80.30229357	15.39153944	1.611808218	344.511101	0.148493784	0.151547982	0.273387454
		16-17	22.75357255	73.40313323	12.62359072	0.406281341	292.605512	0.114898557	0.117154086	0.252642268
		17-18	22.94715113	72.57098553	13.1023416	0.448490482	266.73027	0.094791434	0.096489578	0.148201407
		18-19	24.29331771	74.70291945	13.7159894	0.927533963	209.159288	0.069216991	0.07034106	0.105889769
3	Imam Button Industires Limited	14-15	1.025128741	n/a	0.27782128	0.038259143	-12.632537	-0.122787247	-0.176303375	-1.814112727
		15-16	0.714249583	n/a	0.167361471	0.026383661	-7.734089	-0.082980267	-0.120999829	-1.11737987
		16-17	0.455290386	0.053809115	0.053809115	0.013355111	-2.89002	-0.030598324	-0.060355429	-0.513656883
		17-18	0.478163664	0.040621599	0.040621599	0.014567541	-3.109312	-0.035592324	-0.069444533	-0.619993247
		18-19	0.507683978	n/a	0.082632228	0.032490702	-3.797954	-0.047328776	-0.092687095	-0.596070519
4	Beacon Pharmacuticals Limited	14-15	2.263677943	0.333089166	0.324635071	0.053897064	38.555691	0.008136348	0.013267042	0.12538724
		15-16	2.227593512	0.373654171	0.371963313	0.091246879	61.402978	0.012244832	0.020453412	0.113865812
		16-17	2.130631345	0.470257487	0.46769034	0.205304916	103.734641	0.020316305	0.034678779	0.113970131
		17-18	1.80092985	0.392646704	0.391324466	0.063533372	126.103008	0.025691209	0.042023915	0.113038129

		18-19	2.025687065	0.748585867	0.747750441	0.214554719	117.700592	0.024163523	0.039507675	0.13719716
5	Marico bangladesh Limited	14-15	1.595201493	0.118889203	0.118889203	0.118889203	1344.769535	0.40095309	0.78541794	5.804815762
		15-16	1.618339369	0.2803767	0.2803767	0.2803767	1414.050307	0.407879028	0.827548999	6.108342105
		16-17	1.419900545	0.078410539	0.078410539	0.078410539	1440.192071	0.383836077	0.911450345	6.117355194
		17-18	1.317596209	0.092505995	0.092505995	0.092505995	1642.627361	0.368433579	1.100523895	7.123000867
		18-19	1.246507282	0.119372228	0.119372228	0.119372228	2023.391822	0.442141103	1.553902361	7.123000867
6	Orion Infusion Limited	14-15	0.534466162	0.505431742	0.250864404	0.01446031	28.251578`	n/a	n/a	0.416446088
		15-16	0.748115225	0.555614409	0.406871963	0.024854581	106.984876	0.151196874	0.404955412	0.849490328
		16-17	0.834759565	0.594758547	0.536284927	0.015383294	31.110152	0.045578103	0.121604091	0.444353514
		17-18	0.886313143	n/a	0.470275328	0.020330009	33.044911	0.046182998	0.129545635	0.415167576
		18-19	0.897543458	n/a	0.512804754	0.019958456	40.087176	0.059212286	0.155556261	0.39443628
7	Active fine Chemical Limited	14-15	4.985778461	4.510542483	3.553166795	1.444603657	359.164323	0.113694545	0.130198203	0.515311801
		15-16	2.677050612	2.348900929	1.823172874	0.899273297	455.678428	0.095593588	0.138117761	0.534547168
		16-17	1.616896837	1.240405197	1.049676852	0.506218971	553.889147	0.09973692	0.141610307	0.521304603
		17-18	1.875734462	1.380255345	1.198060317	0.585445384	825.361921	0.125612635	0.174247426	0.389775726
		18-19	1.46633693	1.081957199	0.898560873	0.256499856	711.895034	0.094477047	0.133150968	0.380896577
8	Renata Pharmacuticals	14-15	1.148032468	0.377913666	0.361552557	0.051507578	2006.641464	0.124344371	0.213339509	5.690589486
		15-16	1.38325136	3.428283704	3.428283704	0.089758156	2217.914298	0.132331051	0.210366886	6.09949379
		16-17	1.751626348	0.5916341	0.5916341	0.139754557	2612.142414	0.144123403	0.209397967	6.389316687
		17-18	2.217033298	0.749807072	0.73511207	0.236263708	3196.950533	0.153613289	0.211338388	6.483208822
		18-19	2.674693462	0.831668745	0.664255378	0.173049304	383.36213	0.015840601	0.020966207	6.661176639
9	Square Pharmacuticals Limited	14-15	3.818007502	2.222808264	1.877871719	1.526935288	5981.636337	0.169975556	0.192377004	1.284894863
		15-16	4.270120724	2.76772306	2.522600172	2.29986239	8322.584657	0.194285092	0.218756553	1.612351904
		16-17	6.35228514	5.459708426	5.099840651	4.47556947	7792.497513	0.170278514	0.189129281	1.511345979
		17-18	4.909316773	3.710521371	3.301780832	3.015269793	8219.525804	0.154127726	0.176147003	1.468032407
		18-19	12.93078045	10.5876298	9.619175889	9.09176108	10562.86353	0.162351552	0.173714009	1.769989341
10	Kohinoor Chemical Limited	14-15	1.343854629	0.300162336	0.152871854	0.12831611	91.457443	0.05521231	0.27832056	1.539964229
		15-16	1.426084836	0.260291382	0.107343625	0.079636289	119.298302	0.069838098	0.285789446	1.829894252
		16-17	1.860943108	0.59046373	0.363700982	0.36037042	146.795605	0.095894089	0.264938818	1.675451906

		17-18	1.847732565	0.421128325	0.210787379	0.208142686	154.496808	7.98792E-08	0.212256599	1.562823991
		18-19	2.45355985	0.647805543	0.371496704	0.364464344	174.349009	0.092274641	0.197754483	1.448124486
11	Central Pharmacuticals Limited	14-15	2.865399266	0.931612608	0.931612608	0.092763709	143.424235	0.071715053	0.093501206	0.280561923
		15-16	3.141656015	1.210047497	1.210047497	0.030241281	97.788692	0.045930507	0.059929899	0.145147832
		16-17	3.245059309	1.32382229	1.32382229	0.022776346	109.08624	0.047626616	0.06266428	0.154201113
		17-18	3.307280104	1.35994882	1.35994882	0.016241198	60.906098	0.025639144	0.033804601	0.082336422
		18-19	2.75779879	1.127502297	1.127502297	0.010614001	57.094683	0.023086209	0.032041123	0.082429714
12	JMI Syringes & Medical Devices Limited	14-15	1.224530269	0.344876433	0.344876433	0.050832034	52.948139	0.026280161	0.079383203	2.402607145
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	2.521476039	0.66377663	0.66377663	0.092057764	74.558127	0.030070279	0.100212225	2.323086145
		17-18	1.962408184	0.429699291	0.429699291	0.0129885	75.497573	0.027139489	0.096298913	2.364638127
		18-19	5.139992414	1.991797044	1.991797044	0.936892125	66.554117	0.021901634	0.025840523	2.992824091
13	Salvo Chemical Limited	14-15	0.835488769	0.428056836	0.428056836	0.069267381	14.712339	0.016755218	0.023212064	0.067786383
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	0.911909117	0.290100145	0.290100145	0.093799909	46.776211	0.047732037	0.066602969	0.139265261
		17-18	0.888213829	0.27680422	0.27680422	0.061066234	48.019538	0.033465153	0.063997573	0.157043437
		18-19	0.603256093	0.181631071	0.181631071	0.04529542	39.851723	0.024966992	0.050433379	0.152032387
14	Beximco Limited	14-15	1.777129982	0.869792779	0.344057941	0.047207129	1954.284516	0.067387899	0.093416214	0.828078461
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	2.680772211	0.97736528	0.71706974	0.080747161	2226.695124	0.065329376	0.088810514	0.956282462
		17-18	1.337866785	0.425529081	0.383611952	0.045586623	2558.971263	0.060689442	0.09441169	0.96204058
		18-19	1.075458682	0.355717504	0.328534528	0.048950363	3023.500974	0.063262562	0.102142393	1.195503122
15	Beximco Synthetics Limited	14-15	2.141080789	1.095832094	1.095832094	0.001583378	-32.438774	-0.009742244	-0.015778507	-0.101100192
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	1.603733451	0.787890826	0.787890826	0.00291467	-227.459244	-0.070181462	-0.126648706	-0.42188742
		17-18	3.238978343	3.225604484	3.225604484	0.000884259	-270.698781	-0.081723347	-0.177474026	-0.528016217
		18-19	1.984915722	1.974565578	1.974565578	0.000820503	-299.673467	-0.099680865	-0.24450899	-0.522200736

16	Ambee Pharmacuticals Limited	14-15	0.774841948	0.373749832	0.23320553	0.031184129	6.511189	0.015121183	0.112467783	0.001058926
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	0.884421988	0.222956361	0.222956361	0.036186652	7.254682	0.016065133	0.119755265	0.001205151
		17-18	0.888652998	0.231382211	0.231382211	0.034374491	8.263981	0.018617385	0.13406149	0.000789029
		18-19	0.875318134	0.210356635	0.210356635	0.016585188	3.367016	0.008354988	0.058242565	0.00087619
17	Afc Agro Biotech Limited	14-15	2.343163857	1.413486449	1.413486449	0.560716181	212.310583	0.196220692	0.223561795	0.366823303
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	2.051437709	1.327292301	1.327292301	0.747229833	264.601358	0.170394824	0.199593076	0.49689753
		17-18	2.387327548	1.670670837	1.670670837	0.372917641	356.775412	0.185166779	0.212038415	0.432153929
		18-19	2.462014808	1.680379501	1.508423417	0.252573698	337.398047	0.144946737	0.167028887	0.394408609
18	Ibn Sna Pharmacuticals Limited	14-15	0.812871033	0.901457418	0.320418455	0.305951489	178.057156	0.110194816	0.213768032	1.063333462
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	0.885820998	0.786081893	0.291857527	0.271705189	233.829346	0.108514465	0.211617309	1.276984317
		17-18	0.809160135	0.181151648	0.17699595	0.160007875	452.296714	0.185235665	0.368557328	2.1028542
		18-19	0.842624651	0.173394698	0.169131563	0.149393936	336.26687	0.118886412	0.227469181	1.49432216
19	Wata Chemicals Limited	14-15	0.924308497	0.063919261	0.063919261	0.015369121	31.642375	0.045672449	0.04894406	0.922741728
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	0.696333757	0.038054028	0.038054028	0.002634031	35.845672	0.041809211	0.053141743	0.836946778
		17-18	0.550763365	0.034632792	0.034632792	0.000901558	52.224093	0.064481103	0.074791925	1.178918112
		18-19	1.004737964	0.10139948	0.10139948	0.001119657	137.966568	0.114764706	0.174032647	2.156708223
20	Advanced Chemical Industries Limited	14-15	1.673739707	0.661952596	0.378124292	0.080280403	3183.531914	0.164450741	0.271744777	13.49619812
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	1.28810968	2.200415827	1.39208757	0.05406206	261.436927	0.051299068	0.106500391	1.083690188
		17-18	1.220453944	2.19886117	1.466654998	0.074981729	115.034985	0.018871378	0.045971097	0.693576467
		18-19	0.800448908	0.225391212	0.166508501	0.05165456	-895.981068	-0.014048543	-0.094220832	6.714284616
21	ACI Formulations Limited	14-15	1.347171647	0.711844319	0.704111902	0.048174029	235.142405	0.054013457	0.100040895	0.816355084
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	1.28810968	0.575239487	0.572477945	0.05406206	261.436927	0.051299068	0.106500391	1.05528308
		17-18	1.220453944	0.471938434	0.461323529	0.074981729	115.034985	0.018871378	0.045971097	0.740712862

		18-19	1.154472487	0.544782459	0.535278747	0.079043877	128.453851	0.020284654	0.051936499	0.902825404
22	Orion Pharma Limited	14-15	2.641656433	0.637337153	0.603263502	0.167418163	1142.18857	0.072300331	0.086481634	0.945734469
		15-16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		16-17	5.441928013	1.992306503	1.569895024	0.053873422	919.089209	0.032634882	0.05535842	0.704273315
		17-18	2.231165707	1.488306287	1.094115717	0.091971005	801.763806	0.026103589	0.047012658	0.7117262
		18-19	3.000720813	2.020715441	1.494264888	0.022534401	882.354974	0.028471864	0.050149899	0.290793282