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A RESEARCH PAPER ON “THE IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY” OF PHARMACEUTICALS SECTOR IN BANGLA

NAIMULBARI, KAZI

INDEPENDENT UNIVERSITY, BANGLADESH

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A RESEARCH PAPER ON "THE IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY" OF PHARMACEUTICALS SECTOR IN BANGLADESH

By

MD. KAZI NAIMULBARI
ID: 0820081

An Internship Report Presented in Partial Fulfillment
Of the Requirements for the Degree Bachelor of Business Administration (BBA)

INDEPENDENT UNIVERSITY, BANGLADESH
May, 2012

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Has been approved
May, 2012

Shawgat S. Kutubi
Lecturer, Finance
School of Business
Independent University, Bangladesh.

LETTER OF TRANSMITTAL

10th May, 2012

To

Shawgat S. Kutubi

Lecturer, Finance,

Independent University, Bangladesh.

Subject: Submission of Internship Research Paper.

Dear Madam,

Here is my internship Research paper on **the impact of working capital management on profitability of pharmaceuticals sector in Bangladesh**. I am submitting the report as the part of my internship (BBA-499A) in **Incepta pharmaceuticals Ltd**. While preparing this paper, I tried my level best to follow your directions and the instructions that have given to me by my organization supervisor.

The entire report is based the impact of working capital management on profitability. I have tried my level best to provide what I have learned during the internship program at Incepta pharmaceuticals Ltd.

I shall be highly encouraged if you are kind enough to receive this report. If you have any further enquiry concerning any additional information, I would be very pleased to clarify that.

Thanking you.

Sincerely yours,

_____

MD. Kazi Naimul Bari

ID# 0820081

ACKNOWLEDGEMENT

First of all I would like to express my satisfaction to the almighty Allah for rendering me the ability and knowledge to prepare this internship paper “The impact of working capital management on profitability in pharmaceuticals industry in Bangladesh.

I would like to offer my earnest thanks and gratitude to my respectable teacher Shawgat S. Kutubi Lecturer of faculty of business studies who has been my supervisor for this report since the beginning. Her instructive advice and guidance has emerged as stepping-stone in making this reports a fruitful one. This report has smelt the scent of my creativity only as she entrusted her every belief on my capability and analytical ability in preparing the report. This report was only possible because of her relentless effort to make it credible one. It was my honor to work under her supervision.

Great thanks go to Md. Alimul Razi, officer, Incepta pharmaceuticals Ltd. He was my company supervisor. He helped me much with great care and compassion.

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Organization Overview of Incepta Pharmaceuticals Ltd.

1.1 Introduction

Incepta Pharmaceuticals Ltd. is a leading pharmaceutical company in Bangladesh established in the year 1999. The company has a very big manufacturing facility located at Savar, 35 kilometer away from the center of the capital city Dhaka. The company produces various types of dosage forms which include tablets, capsules, oral liquids, ampoules, dry powder vials; powder for suspension, nasal sprays etc. Since its inception, Incepta has been launching new and innovative products in order to fulfill unmet demand of the medical community. The focus was to bring more new technologically advanced molecules to this country. The company specializes in value added high technology dosage form like sustained release tablets, quick mouth dissolving tablets, barrier coated delayed release tablets etc. It has established a modern research and development laboratory for the development of new advanced dosage forms for various drugs and devices like poorly soluble drugs, dry powder inhalers, coated pellets, modified release products, taste masked preparation etc.

Incepta quickly developed a very competent sales team, which promotes the specialties throughout the country. The company virtually covers every single corner of the rural as well as urban area of Bangladesh. It has its own large distribution network having 13 depots all over the country. The company has a clear vision to become a leading research based dosage form manufacturing company with global presence within a short period of time.

The Research and Development department for various dosage forms has been very well developed. Incepta intends to bring newer products of advanced technology through research hitherto unknown in this country. Such activities will not only benefit the company but also the total pharmaceutical sector of the country. In the post 2005 era, the company also intends to embark into the production of Active Pharmaceutical Ingredient (API). Plans are underway to get into reverse engineering and analogue research in order to produce new API.

1.2.1 Vision

To become a research based global pharmaceutical company in addition to being a highly efficient generic manufacturer. To discover and develop innovative, value-added products that improves the quality of life of people around the world and significantly contributes towards the growth of Bangladesh.

1.2.2 Mission

Provide people globally with high quality health care products at affordable prices in order to improve access to medicine and to improve employees an enabling environment that facilities realization of their full potential.

1.3 Ownership Pattern

Incepta Pharmaceuticals Limited is the sister concern of the renowned Impress Group and the business is running as fully private limited company. Directors of Incepta Pharmaceuticals Limited own the majority shares. Incepta is not DSE listed in capital market yet, so it is controlled by the internal board of director's .So any kind of significant decision is taken by the management.

1.4 Market Position of IPL

According to IMS health survey which is a US-based and the world's number one market research organization and has been providing pharmaceuticals market intelligence to more than 100 countries over the past 50 years, the market position of the top ten pharmaceuticals companies in Bangladesh in 2010.

Top ten pharmaceuticals companies in Bangladesh in 2010	
Companies	**Market Position Of the Companies (Total 100%)**
Square	19.48%
Incepta	8.24%
Beximco	7.72%
Acme Laboratories	4.81%
Opsonin Pharma Ltd	4.76%
Eskayef	4.59%
Reneta Pharma	4.54%
ACI	4.48%
Aristopharma	4.07%
Drug Int.	3.00%
Others	33.43%

SOURCE: IMS Health Survey

Sales of Incepta Pharmaceuticals Ltd., established in 1999, stood at Tk 4.52 billion in last year and it grabbed a market share of 8.24 per cent during the period. In 2010, IPL stood 2nd position in terms of market share n the pharmaceuticals industry in Bangladesh.

The Impact of Working Capital Management on Profitability of Pharmaceuticals Sector in Bangladesh

Abstract

Companies can use working capital management as an approach to influence their profitability. This paper studies the impact of working capital management and its components upon the profitability of Bangladeshi pharmaceuticals companies. Cash Conversion Cycle, Average days of collection period, Inventory turnover period, Deferred payables Period are used as a proxy measure for working capital management and Gross Operating Profitability used as a measure for profitability.

The purpose of this study is to analyze the impact of working capital management on companies' profitability from Bangladesh Country. The relation between the components of the working capital management and profitability is examined using Pearson correlation analyses and using a sample of 14 annual financial statements of companies covering period 2009-2010. The conclusion of the study is that there are positive relationship between deferred payables period and corporate profitability. There are also positive relationship between inventory turnover period and profitability. On the other hand, there are negative relationship between cash conversion cycle and corporate profitability. The results from research also show that there are negative relationship between average days of collection periods and profitability.

Keywords: Working Capital Management, Corporate Profitability, Cash Conversion Cycle, Average days of collection period, Inventory turnover period, Deferred payables Period, Liquidity.

Problem Statement

2.1 Introduction

In Bangladesh the pharmaceutical sector is one of the most developed hi-tech sectors within the country's economy. After the declaration of Drug Control Ordinance - 1982, the development of this sector was accelerated. The professional knowledge, thoughts and innovative ideas of the pharmaceutical professionals are the key factors for these developments. Due to recent development of this sector, it is exporting medicines to global market including European market. This sector is also providing 97% of the total medicine requirement of the local market. Leading pharmaceutical companies are expanding their business with the aim to expand export market. Recently few new industries have been established with high tech-equipment and professionals which will enhance the strength of this sector.

In every organization, corporate finance deals with three decisions: capital structure decisions, capital budgeting decisions, and working capital management decisions. Among these three decisions, working capital management is recognized as an important concern of the financial manager due to many reasons. For one thing, a typical manufacturing firm’s current assets account for over half of its total assets. Working capital is also an important issue during financial decision making since its being a part of investment in asset that requires appropriate financing investment. However, working capital always being disregard in financial decision making since it involve investment and financing in short term period.

Working capital management is the functional area of finance that covers all the current accounts of the firm. Working capital management also involves the relationship between a firm's short-term assets and its short-term liabilities. So, the goal of working capital management is to ensure

that a firm is able to continue its operations and that it has sufficient ability to satisfy both maturing short-term debt and upcoming operational expenses. The management of working capital involves managing inventories, accounts receivable, accounts payable and cash.

In the present day context of rising capital cost and scarce funds, the importance of working capital needs special emphasis. It has been widely accepted that the profitability of a business concern likely depends upon the manner in which its working capital is managed. The inefficient management of working capital not only reduces profitability but ultimately may also lead a concern to financial crisis. On the other hand, proper management of working capital leads to a material savings and ensures financial returns at the optimum level even on the minimum level of capital employed.

Both excessive and inadequate working capital is harmful for a firm. Excessive working capital leads to un-remunerative use of scarce funds. On the other hand inadequate working capital usually interrupts the normal operations of a business and impairs profitability. There are many instances of business failure for inadequate working capital.

Further, working capital has to play a vital role to keep pace with the scientific and technological developments that are taking place in the concerned area of pharmaceutical industry. If new ideas, methods and techniques are not injected or brought into practice for want of working capital, the concern will certainly not be able to face competition and survive. In this context, working capital management has a special relevance and a thorough investigation regarding working capital practice in the pharmaceutical industry is of utmost importance.

2.2 Problem of the Study

Every organization irrespective of size and nature of business requires necessary amount of working capital. Working capital is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business. The impact of working capital management on profitability is highly important because firms required a balance between risk and efficiency to achieve an optimal level of working capital. The management of working capital involves managing inventories, accounts receivable, accounts payable and cash. On the other hand efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on one hand and avoids excessive investment in these assets.

In a manufacturing firm, the amounts invested in working capital are often high in proportion to the total assets employed and so it is vital that these amounts are used in an efficient and effective way. Here excessive levels of current assets can result in a substandard return on investment and firms with few current assets may incur shortage. Excessive working capital also implies excessive debtors and defective credit policy which may cause higher incidence of bad debts. When there is a redundant working capital, it may lead to unnecessary purchasing and accumulation of inventories causing more chances of theft, waste and losses. On the other hand for inadequate working capital, the firm cannot pay day-to-day expenses of its operations and it creates inefficiencies, increases costs and reduces the profits of the business.

Working capital management efficiency directly affects the profitability and liquidity of firms. Therefore, efficient management of working capital is a fundamental part of the overall corporate strategy to create shareholder value. In general, companies try to keep an optimal level of working capital that maximizes their value. Some firms try to increase their profits at the cost of

liquidity which can bring serious problems to the firm. Therefore, there must be a trade-off between these two objectives of the firms. If we do not care about profit, we cannot survive for a longer period. On the other hand, if we do not care about liquidity, we may face the problem of insolvency or bankruptcy. For these reasons working capital management should be given proper consideration and will ultimately affect the profitability of the firm.

2.3 Objectives of the study

The purpose of the studies are-

- To establish a relationship between Working Capital Management and Profitability over a period of two years from 2009-10.
- To find out the effects of different components of working capital management on profitability.
- To Study a relationship between the objectives of liquidity and profitability of pharmaceuticals industries in Bangladesh.
- To provide a general framework to researchers, policy makers, professionals and managers to guide future researches as well as reappraise current business practices.

Literature Review

Working capital is considered as the life blood of business. It has significant importance to internal and external analysis because of its close relationship with the current day-to-day operations of a business. Organization needs funds for two purposes- long term funds for creating production facilities through purchase of fixed assets like plants, machineries, lands, buildings etc. and short term funds are used to purchase of raw materials, payment of wages, and other day-to-day expenses. The term "working capital" is often referred to "circulating capital" which is frequently used to denote those assets which are changed with relative speed from one form to another, starting from cash, changing to raw materials, converting into work-in-progress and finished products, sale of finished products and ending with realization of cash from debtors.

The variables that are used in this research based on the previous research are mentioned bellow:

- Gross Operating Profitability
- Receivables Collection Period
- Inventory Conversion Period
- Payable Deferral Period
- Cash Conversion Cycle
- Liquidity

Gross Operating Profitability has considered as dependent variable and the components of working capital are considered as independent variables.

Receivables collection period used as proxy for the collection policy is an independent variable. It is used to appraise accounts receivable (AR). This ratio measures the length of time it takes to convert the average sales into cash. This measurement defines the relationship between accounts

receivable and cash flow. A longer average collection period requires a higher investment in accounts receivable. A higher investment in accounts receivable means less cash is available to cover cash outflows, such as paying bills.

Inventory conversion period is the length of time on average needed to convert raw materials into finished goods and selling these goods. Inventory conversion period used as proxy for the inventory policy is an independent variable.

Payable deferral period is the average length of time purchase of goods and the payments for them. Payable deferral period used as proxy for the payment to suppliers is an independent variable.

Cash conversion cycle is the time duration in which a firm is able to convert its resources into cash. It is actually the total time period required to first convert resources into inventories, then inventories into finished goods, and then goods into sales. In other words it can be defined as the time taken to collect cash from sale of the after making payments for resources acquired by the firm. Cash Conversion Cycle is used as a comprehensive measure for working capital management.

A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations. Liquidity is a precondition to ensure that firms are able to meet its short-term obligations and its continued flow can be guaranteed from a profitable venture. The importance of cash as an indicator of continuing financial health should not be surprising in view of its crucial role within the business. Current ratio is used as proxy to measure the liquidity of firm.

Gross operating profitability that is a measure of profitability of firm is used as dependent variable.

3.2 Relationship between independent variables with dependent variable

The payment policies of the business have significant effect on the firm's profitability as well as their working capital management. Larger inventory and flexible trade credit policy may increase sales of the business, because flexible trade credit policy allows firm to access product before payment. N. Hill, W. Sartoris and D. Ferguson et.al (1983) surveyed about firm's decision regarding two methods of obtaining finance from accounts payable; skipping the discount and stretching accounts payable. Their survey revealed that most of the firms generally took the discount. In deciding whether to take the discount, the primary criterion of most firms was the amount of the discount. This makes good financial sense, since the amount of discount (along with the delay period from the discount date to the due date) determines the cost of skipping as a source of financing. Raheman and Nasr **(**2007**)** stated that delaying payment of accounts payable to suppliers allows firms to access the quality of branch products and could be inexpensive and flexible source of financing. On the other hand, delaying of such payables can be expensive if a firm is offered a discount for the early payment. So, there exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and profitability.

Managers can increase corporate profitability by reducing the number of day's accounts receivable and inventories (Deloof, 2003). Here, the longer the number of day's accounts receivable outstanding, the more the firm chance may lose the profitability of business. If firm don't manage debtors, firm will gradually lose control due to reduced cash flow and firm could experience an increased rate of bad debts. So the longer someone owes firm's money, the greater the chance the firm will never get paid. As a result, profit may only be called real profit after the

receivables are turn into cash. Therefore, the management of accounts receivable is inevitable and largely influence by the credit policy and collection procedure. A credit policy specifies requirements to value the worthiness of customers and a collection procedure provides guidelines to collect unpaid invoices that will reduce delays in outstanding receivables (Hill & Sartoris, 1992; Richards & Laughlin, 1980). So, there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers (receivables collection period) and profitability.

Since inventory determines the level of activities in a company, managing it strategically contributes to profitability (Hill & Sartoris, 1992). The key to manage inventory of a business is to know how quickly firm's overall stock is moving, how long each item of stock sits on shelves before being sold. Managing inventory is a juggling act. Excessive stocks can place a heavy burden on the cash resources of a business. Insufficient stocks can result in lost sales, delays for customers etc. The key issue for a business is to identify the fast and slow stock movers with the objectives of establishing optimum stock levels for each category and, thereby, minimize the cash tied up in stocks. The stock sitting on shelves for long periods of time ties up money which may reduce the profitability of firms. So, we can say that there exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability.

The interaction between cash conversion cycle and profitability suggests that relatively long cash conversion periods tend to decrease profitability. Here the trade activities of a firm are considered as a process in circulation where cash is converted into assets and assets into cash. So, cash available for trade activities of the firm has multiplier effect on its turnover ratio. Higher cash turnover ratios enable managers to minimize short-term investments whose rates of return are

relatively lower compared to long-term investments and consequently increase profitability. However, corporate profitability might also decrease with the cash conversion cycle, if the costs of higher investment in working capital rise faster than the benefits of holding more inventories and/or granting more trade credit to customers. In other study, (Lyroudi & Lazaridis, 2000) use food industry of Greek to examined the cash conversion cycle (CCC) as a liquidity indicator of the firms and tries to determine its relationship with the current and the quick ratios, with its component variables, and investigates the implications of the CCC in terms of profitability, debt and firm size. The results of their study indicated that there was a significant positive relationship between the cash conversion cycle and the traditional liquidity measures of current and quick ratios. Therefore longer cash conversion cycle might increase profitability because it leads to higher sales.

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. Yet, this is not a simple task since managers must make sure that business operation is running in efficient and profitable manner. There are the possibilities of mismatch of current asset and current liability during this process. If this happens and firm's manager cannot manage it properly then it will affect firm's growth and profitability. Eljelly, (2004) empirically examined the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of 929 joint stock companies in Saudi Arabia. Using correlation and regression analysis, Eljelly found significant negative relationship between the firm's profitability and its liquidity level, as measured by current ratio. This relationship is more noticeable for firms with high current ratios and long cash conversion cycles. Because the greater the investment in current assets, the lower the risk, but also the lower the profitability obtained. At the industry level,

however, he found that the cash conversion cycle or the cash gap is of more importance as a measure of liquidity than current ratio that affects profitability.

3.3 Policies in Working Capital Management

In connection with the tradeoff between liquidity, risk and profitability a company may adopt three types of working capital strategies:

- Conservative Strategy
- Aggressive Strategy
- Moderate Strategy

The firm following conservative working capital strategy combines a high level of current assets in relation to sales with a low level of short term financing. Excess amount of current assets enable the firm to absorb sudden fluctuations in sales, production plans and procurement time without disturbing the continuity in production. The higher level of current assets reduces the risk of insolvency. But at the same time lower risk translates into lower profit.

The firm following aggressive working capital strategies would combine low level of current assets with a high level of short term financing. This firm will have high profitability and greater risk of insolvency.

The moderate firm would like to combine moderate level of current assets in relation to sales with moderate level of short term financing to maintain a well balance between the risk of insolvency and profitability. Thus, the considerations of assets and financial mixes are very much crucial to the working capital management of a firm. From table-7 we can see the percentage of current asset over total assets of different pharmaceuticals companies in Bangladesh.

3.4 Previous Research's Literature Review

While searching for previous research works, many research reports were found in the internet and other publications. But no research has been made on the issue of impact of working capital management on profitability in context of pharmaceuticals industry in Bangladesh. Many researchers have studied working capital from different views and in different environments. The following are very useful for this research:

Shin and Soenen researched the relationship between working capital management and value creation for shareholders. The standard measure for working capital management is the cash conversion cycle (CCC). In their study, Shin and Soenen used net-trade cycle (NTC) as a measure of working capital management. NTC is basically equal to the cash conversion cycle (CCC) where all three components are expressed as a percentage of sales. NTC may be a proxy for additional working capital needs as a function of the projected sales growth. They examined this relationship by using correlation and regression analysis, by industry, and working capital intensity. Using a sample of 58,985 firm years covering the period 1975-1994, they found a strong negative relationship between the length of the firm's net-trade cycle and its profitability. Based on the findings, they suggest that one possible way to create shareholder value is to reduce firm's NTC.

Singh and Pandey, (2008) had an attempt to study the working capital components and the impact of working capital management on profitability of Hindalco Industries Limited for period from 1990 to 2007. Results of the study showed that current ratio, liquid ratio, receivables turnover ratio and working capital to total assets ratio had statistically significant impact on the profitability of Hindalco Industries Limited.

Ghosh and Maji attempted to examine the efficiency of working capital management of Indian cement companies during 1992 - 93 to 2001 - 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 some common working capital management ratios. By using regression analysis and industry norms as a target efficiency level of individual firms, Ghosh and Maji found that target level of efficiency achieved by individual firms during the period of study and some of the sample firms successfully improved efficiency during these years.

Weinraub and Visscher, (1998) discussed the issue of aggressive and conservative working capital management policies by using quarterly data for the period 1984-93 of the US firms. Their study considered 10 diverse industry groups to examine the relative relationship between their aggressive/conservative working capital policies. Their study concluded that the industries had distinctive and significantly different working capital management policies. Moreover, the relative nature of the working capital management policies exhibited remarkable stability over the 10-year study period. The study also showed a high and significant negative correlation between industry asset and liability policies and found that when relatively aggressive working capital asset policies are followed, they are balanced by relatively conservative working capital financial policies.

Garcia-Teruel and Martinez-Solano, (2007) collected a panel of 8,872 small to medium sized enterprises (SMEs) from Spain covering the period 1996 - 2002. They tested the effects of working capital management on SME profitability using the panel data methodology. The results, which are robust to the presence of endogeneity, demonstrated that managers could create value

by reducing their inventories and the number of days for which their accounts are outstanding. Moreover, shortening the cash conversion cycle also improves the firm's profitability.

To test the relationship between working capital management and corporate profitability, Deloof (2003) used a sample of 1,009 large Belgian non-financial firms for a period of 1992-1996. By using correlation and regression tests, he found significant negative relationship between gross operating income and the number of days accounts receivable, inventories, and accounts payable of Belgian firms.

There are few studies with reference to working capital management in Pakistan like Afza and Nazir, (2008) who studied the factors determining the working capital requirements for a large sample of 204 firms in sixteen manufacturing sub sectors during 1998-2006. Another study by Afza and Nazir, (2007) investigated the relationship between aggressive and conservative working capital policies for a large sample of 205 firms in 17 sectors listed on Karachi Stock Exchange during 1998-2005. They found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies. Raheman and Nasr, (2007) studied the relationship between working capital management and corporate profitability for 94 firms listed on Karachi Stock Exchange using static measure of liquidity and ongoing operating measure of working capital management during 1999-2004. The findings of study suggested that there exist a negative relationship between working capital management measures and profitability.

The relationship of cash conversion cycle with firm size and profitability for firms listed at Istanbul Stock Exchange was studied by Uyar, (2009) using ANOVA and correlation analysis. The results showed retail/wholesale industry has shorter Cash Conversion Cycle (CCC) than

manufacturing industries. Furthermore, study found significant negative correlation between CCC and profitability as well as between CCC and firm size.

Lazaridis and Tryfonidis, (2006) investigated the relationship of corporate profitability and working capital management for firms listed at Athens Stock Exchange. They reported that there is statistically significant relationship between profitability measured by gross operating profit and the Cash Conversion Cycle. Furthermore, Managers can create profit by correctly handling the individual components of working capital to an optimal level.

Padachi, (2006) has examined the trends in working capital management and its impact on firm's performance for 58 Mauritian small manufacturing firms during 1998 to 2003. He explained that a well designed and implemented working capital management is expected to contribute positively to the creation of firm's value. The results indicated that high investment in inventories and receivables is associated with low profitability and also showed an increasing trend in the short term component of working capital financing.

In summary, the literature review indicates that working capital management impacts on the profitability of the firm but there still is ambiguity regarding the appropriate variables that might serve as proxies for working capital management. The present study investigates the relationship between a set of such variables and the profitability of a sample of pharmaceuticals companies in Bangladesh.

3.5 Hypothesis

If the firm can able to defer the bill from the creditors within discount period, the firm can use it money for few more days. So, this hypothesis will help to identify the impact of deferring the payment on the profitability of the firm.

Null hypothesis: There is a significant impact of payable deferral period on profitability in the pharmaceuticals industry in Bangladesh.

Alternative hypothesis: There is no impact of payable deferral period on profitability in the pharmaceuticals industry in Bangladesh.

Every firm wants to convert its inventory on sales in short time. But due to various reasons, they may not be able to do so. So, it is very important to know, if the companies take too much time in this conversion, what will be the impact of it on the profitability of the company. Thus, it will help to identify the impact of inventory conversion period (in days) on the profitability.

Null hypothesis: There is a significant impact of inventory conversion period on profitability in the pharmaceuticals industry in Bangladesh.

Alternative hypothesis*:* There is no impact of inventory conversion period on profitability in the pharmaceuticals industry in Bangladesh.

The collection periods for sold products need to short, because it has a strong effect on the overall performance of the firm. There are many organizations that follow various techniques to collect the due in short period of time. So, it is very important to know what will be the effect of receivables collection period on the profitability.

Null hypothesis: There is a significant impact of receivables collection period on profitability in the pharmaceuticals industry in Bangladesh.

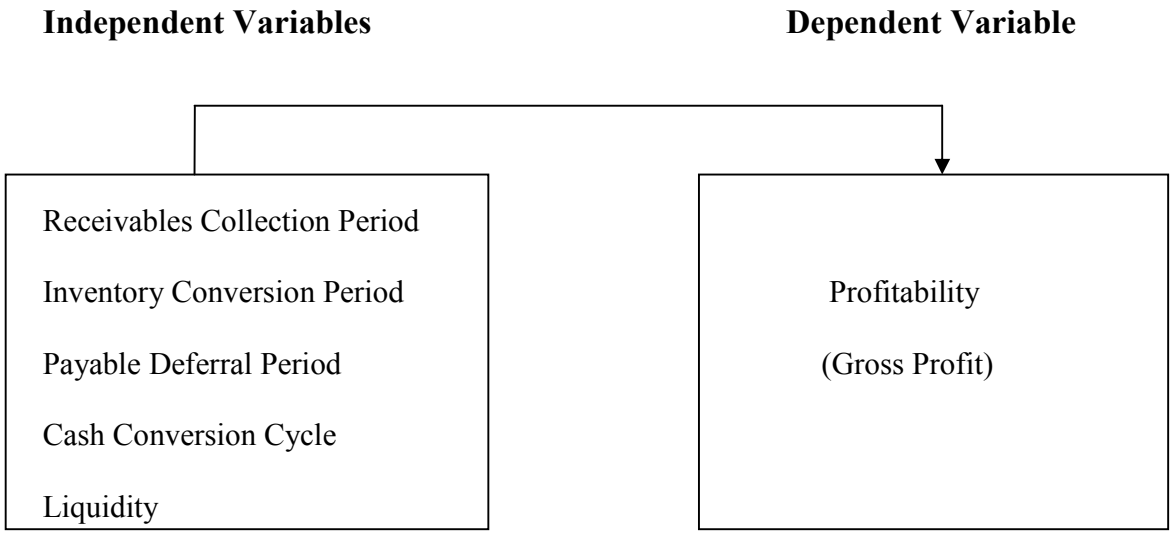
Alternative hypothesis: There is no impact of receivables collection period on profitability in the pharmaceuticals industry in Bangladesh.

The cash conversion cycle is the days between disbursing cash and collecting cash in connection with undertaking a discrete unit of operations. The Cash Conversion Cycle (CCC) measures how long a firm will be deprived of cash if it increases its investment in resources in order to expand customer sales. It is thus a measure of the liquidity risk entailed by growth. So, this will help to find out the impact of cash conversion cycle on the profitability.

Null hypothesis: There is a significant impact of cash conversion cycle on profitability in the pharmaceuticals industry in Bangladesh.

Alternative hypothesis: There is no impact of cash conversion cycle on profitability in the pharmaceuticals industry in Bangladesh.

3.6 Conceptual Framework



3.7 Formula

$$GrossPr = \beta_0 + \beta_1 (AR_{it}) + \beta_1 (AP_{it}) + \beta_1 (INV_{it}) + \beta_1 (CCC_{it}) + \beta_1 (CA_{it}) + \beta_1 (DR_{it}) + \varepsilon.$$

Methodology

4.1 Research Design

Since the research's broad objective is to find out whether working capital management has any significant impact on profitability or not in the perspective of pharmaceuticals industry in Bangladesh, this is a causal research. The study applied co-relational research. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships.

4.2 Sampling Plan

Sampling is almost to do a complete census of most population. A properly designed sample is more efficiently managed, less costly and can provide the level of information necessary for the desired objectives. In this research, the steps followed in the sampling design are briefly discussed in the subsequent sections.

4.2.1 Target Population

Sampling design begins by specifying target population. The broad objective of this research is to find out whether there is any relationship exists between working capital management and firms' profitability in the pharmaceuticals industry in Bangladesh. For this purpose, the target population of this research is all the small, medium and large local and multinational pharmaceuticals companies in Bangladesh. According to Bangladesh Association of Pharmaceutical Industries (BAPI), there are 149 pharmaceuticals companies in Bangladesh.

4.2.2 Sampling Frame

A sampling frame is a representation of the elements of the target population. It consists of a list or set of directions for identifying the target population. Though the population includes all the

pharmaceuticals companies in Bangladesh; but the sampling frame mainly in this research includes the companies located in Dhaka city.

4.2.3 Sampling Technique

To avoid misclassification of firms the research has concentrated only on the pharmaceutical firms in Bangladesh. The research is based on probability sampling method. Out of the probability sampling methods, random sampling has been used. Because in case of knowing the impact of working capital management on profitability there is an equal and known chance of being selected for each member of the populations.

4.3 Sources and Method of Data Collection

Data were mainly collected from secondary sources. The secondary data was collected from company annual report, different publications, and websites. In conducting the research, some private limited companies were chosen.

4.4 Measurement and Analysis Plan

In this research I have provided two types of data analysis; descriptive and quantitative

4.4.1 Descriptive Analysis

Descriptive analysis is the first step in this research. It helped to describe relevant aspects of phenomena of cash conversion cycle and provide detailed information about each relevant variable. SPSS software has been used for analysis of the different variables in this study. SPSS for Windows is probably the most widely used computer software for analysis of quantitative data for social scientists. SPSS, which originally was short for Statistical Package for the Social Sciences, has been in existence since the mid-1960.

4.4.2 Causal Analysis

In this analysis two methods were applied. Firstly correlation models, specifically Pearson correlation to measure the degree of association between different variables under consideration. Secondly, to account for the effects of other construct, multivariate linear regression is applied for the hypotheses. These measures provided more information on the correlation structure between constructs and therefore facilitate a further step in hypotheses testing.

Analysis and Interpretations

5.1 Descriptive Statistics

Descriptive statistics shows the average, and standard deviation of the different variables of interest in the study. It also presents the minimum and maximum values of the variables, which help in getting a picture about the maximum and minimum values of a variable.

Table-3 provides descriptive statistics of the collected variables. All variables were calculated using balance sheet (book) values. The book value was used because the companies did not provide any market value related to the variables that we used in this study. In addition, the measurement of profitability could only be based on income statement values, not on so-called market values. The explanatory variables are all firm specific quantities and there is no way to measure these variables in terms of their 'market value.' Furthermore, when market values are considered in such studies, there is always a rather legitimate question of the date for which the 'market values' refer. This is rather arbitrary. Hence, 'book values' as of the date of the financial reports is considered.

Table-3 gives descriptive statistics for seven Pharmaceuticals Companies in Bangladesh for a period of two years from 2009 to 2010 and for a total 14 firms- year observations.

Looking at table-3, it is seen that the average value of net gross operating profitability is 25.64% of total sales, and standard deviation is 20.72%. This figure means that the value of profitability can deviate from mean to both sides by 20.72%. The maximum and minimum values of gross operating profitability are 74.73% and 3.43% respectively.

Information from descriptive statistics also indicates that the mean of cash conversion cycle that used as a comprehensive measurement of managing working capital is 166 days and standard deviation is 102 days. The maximum and minimum values of cash conversion cycle are 288 days and 20 days respectively.

The average number of day's accounts receivable is 42 days with standard deviation 63 days. Minimum time taken by a company to collect cash from customers is 1 day while the maximum time for this goal is 252 days.

The average time of paying to suppliers is 31 days and the standard deviation is 37 days. Maximum time taken from firm to pay for their suppliers is 147 days while minimum time taken for this purpose is 5 days.

Moreover, it takes an average 155 days in order to sell inventory with standard deviation of 80 days. Maximum time taken by a firm is 268 days, while minimum time to convert inventory into sales is 29 day.

From Table-3 it is seen that the mean of current ratio is 1.35 times and standard deviation is .70. The maximum value of current ratio for a firm in a year is 2.98 times while the minimum value is .67 times.

Debt ratio is used to check the relationship between debt financing and the profitability. The result of descriptive statistics indicates that the average of debt ratio is 30.74% with standard deviation of 19.60%. The maximum debt ratio financing used by a firm is 73.72%. While the

minimum of debt ratio is 13.12%, this means that there is a company that uses a little debt in its operation.

5.2 Correlation Analysis

The descriptive statistics show the working capital measures and its variations among the firms in sample industry. The correlation analysis is done to analyze the association between the working capital management components and profitability. To examine the relationship among these variables, Pearson correlation coefficients are calculated.

From table-2 first, starting with the analysis of correlation results between the average collection periods (ARTO) and operating profitability and the result of correlation analysis shows a negative coefficient -.179, with p value of .541. It shows that there is a significant at $\alpha = 5\%$. This means that if number of days accounts receivable increase, it will make operating profitability decrease.

Correlation result between inventory turnover in days (INVTO) and the operating profitability indicate a positive relationship. The correlation coefficient is .112 and p-value is .703. It has significant at $\alpha = 5\%$. It explains when the firm takes less time to convert inventory into sales will positively affect its profitability of the firm.

Correlation result between number of days accounts payable (DPP) and the gross operating profitability is also positive. The correlations coefficient is .127 and p value is .664. It means as early as firm pays to suppliers within discount period, the firms profitability will increase.

The cash conversion cycle that is used as a comprehensive measure of working capital management has a negative correlation with the gross operating profitability with coefficient -.068 and p value is .817. It also shows a significant at $\alpha = 5\%$. This demonstrates that paying suppliers timely and collecting payments from customers earlier, and keeping products in stock less time, are all associated with an increase in the firm's profitability.

Result from analysis also shows a positive correlation between gross operating profitability and current ratio that is used to measure liquidity of the firm. Its coefficient correlation is .104 with p value .723. This shows that as the firm's current ratio increases, the gross operating profitability will also increase.

Result from the analysis also shows a negative correlation between debt ratio that is used to measure the leverage of firm and the operating profitability. Its coefficient correlation is -.293 with p value .310. This shows that as the debt ratio increases, it will significantly affect the profitability.

5.3 Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.818[a]	.669	.385	.1625132

a. Predictors: (Constant), Debt Ratio, Inventory Turnover Period, Deferred Payables Period, Accounts Receivables Turnover, Current Ratio.

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.373	6	.062	2.356	.143[a]
	Residual	.185	7	.026		
	Total	.558	13			

a. Predictors: (Constant), Debt Ratio, Inventory Turnover Period, Deferred Payables Period, Accounts Receivables Turnover, Current Ratio

b. Dependent Variable: Gross Profit Margin

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.042	.248		.169	.870
	Accounts Receivables Turnover	-.004	.002	-1.235	-2.250	.059
	Inventory Turnover Period	.001	.001	.482	.967	.366
	Deferred Payables Period	.008	.003	1.446	2.986	.020
	Current Ratio	.201	.365	.675	.551	.599
	Debt Ratio	-.299	.433	-.283	-.689	.513

a. Dependent Variable: Gross Profit Margin

In the SPSS linear regression the coefficient of determination is 0.669; therefore, about 67% of the variation in data is explained by Inventory Turnover Period, Deferred Payables Period, Debt Ratio, Accounts Receivables Turnover, and Current Ratio. The regression equation appears to be useful for making predictions since the value of R Square is close to 1. Std. error is 16.25% is the possibility of having error. In the ANOVA table $\alpha = 0.05$ and Reject the null hypothesis if p value ≤ 0.05. Here the p-value is greater than ≥ 0.05 which is 0.143. So there is a relationship between GPM with ARTO, INVTO, DPP, CCC, CR, and DR.

So At $\alpha = 0.05$ level of significance, there exists enough evidence to conclude that the slope of the population regression line is not zero and, hence, that ARTO, INVTO, DPP, CCC, CR, and DR are useful as a predictor of GPM.

5.4 Limitation of the Study

- This report covers only pharmaceuticals companies in Bangladesh. The report has not covered the working capital management and profitability of any other sectors like banking, mobile phone operators, Insurance etc.
- However through secondary sources mainly annual reports of the companies, financial performance of two years are analyzed from sampled the companies.
- For non-availability of secondary data, it was not possible to work on the basis of board data.
- The delimitation of the study is that there may be a dozen of overriding factors that affect a firm's profitability. With working capital, there is the possibility of seasonal factors being associated with profitability; credit requirements, business expansion, and firms' credit policy are other important considerations.

5.5 Significance of the Study

This study will contribute to the body of knowledge by identifying how pharmaceuticals companies in Bangladesh in managing their working capital. This study will provide a general framework to researchers, policy makers, professionals and managers to guide future researches, reappraise current business practices, and provide basic guidelines for policy makers in rapid changing of business environment of Bangladesh.

Summary of Findings

6.1.1 Receivable Collection Period

An interesting data is found in case of a firm while conducting this research which is the minimum days to collect the payment from the customers is 0.2469. It indicates that this firm is so effective in collection the payments. From Pearson Correlation Matrix it was found that there is a negative relationship between average collection period and the profitability of the firm. If number of days accounts receivable increase, it will make operating profitability decrease. This concludes that there is a negative impact of receivables collection period on profitability in the pharmaceuticals industry in Bangladesh.

6.1.2 Payable Deferral Period

There is a vast difference between the minimum level and maximum level of Payable Deferral Period in pharmaceuticals industry in Bangladesh. Maximum time taken from firm to pay for their suppliers is 147 days while minimum time taken for this purpose is 5 days. It indicates that there is a firm which takes much time to pay the vendors and there is a firm which pays the vendors in shorter period of time.

6.1.3 Inventory Conversion Period

Like number of day's accounts payable, there is a massive difference between the minimum and maximum level of inventory conversion period in pharmaceuticals industry in Bangladesh. It indicates that there is a firm which takes much time in stock out the inventory. The Pearson Correlation indicates when the firm takes more in selling inventory will adversely affect its profitability of the firm.

6.1.4 Cash Conversion Cycle

Cash conversion cycle that used as a proxy to check the efficiency in managing working capital is 166 days and standard deviation is 102 days which is too long for an industry. This shows the lack of efficiency. There is a negative effect of cash conversion cycle on profitability in the pharmaceuticals industry in Bangladesh which is found from the Pearson.

Conclusion

Working capital management is important part in firm financial management decision. The ability of the firm to operate continuously for longer period depends on how they deal with working capital. The optimal level of working capital management is could be achieve by firm that manage the tradeoff between profitability and liquidity.

From the research, it is found that all the components of working capital have a significant effect on the profitability in the pharmaceuticals industry in Bangladesh. The negative relationship between corporate profitability and cash conversion cycle shows that the cash conversion cycle is longer, profitability is smaller. As the cash conversion cycle has the negative relationship with the profitability, this cycle should be short as much as possible without hurting the operations. This would improve profits, because the longer the cash conversion cycle, the greater the need for external financing, and that financing has a cost.

Result from analysis of relationship between working capital management and profitability on pharmaceuticals industry in Bangladesh also indicates that there is a negative relationship between number of day's accounts receivable and profitability. So it can be concluded that if the firms properly manage their cash, accounts receivables and inventories in a proper way, this will ultimately increase the profitability. From the analysis, it is also found that there are positive relationships among profitability and deferred payables periods. Moreover, the study only refers to internal factors but not consider external factors as industry dummy, level of economic activity. Future research could further explore in order to overcome these limits.

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Appendix

Table-2

Correlation Matrix

		ARTO	INVTO	DPP	CCC	CR	DR	GPM
ARTO	Pearson Correlation	1	.164	.840**	.440	-.047	.219	-.179
	Sig. (2-tailed)		.576	.000	.115	.874	.452	.541
INVTO	Pearson Correlation	.164	1	-.155	.943**	.296	.308	.112
	Sig. (2-tailed)	.576		.596	.000	.304	.284	.703
DPP	Pearson Correlation	.840**	-.155	1	.033	-.120	.050	.127
	Sig. (2-tailed)	.000	.596		.911	.683	.865	.664
CCC	Pearson Correlation	.440	.943**	.033	1	.247	.359	-.068
	Sig. (2-tailed)	.115	.000	.911		.394	.208	.817
CR	Pearson Correlation	-.047	.296	-.120	.247	1	-.573*	.104
	Sig. (2-tailed)	.874	.304	.683	.394		.032	.723
DR	Pearson Correlation	.219	.308	.050	.359	-.573*	1	-.293
	Sig. (2-tailed)	.452	.284	.865	.208	.032		.310
	Sig. (2-tailed)	.556	.819	.649	.707	.000	.063	.817
GPM	Pearson Correlation	-.179	.112	.127	-.068	.104	-.293	1
	Sig. (2-tailed)	.541	.703	.664	.817	.723	.310	

Table-3

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Accounts Receivables Turnover	14	.2469	251.5895	42.451893	62.9439885
Inventory Turnover Period	14	28.9185	267.7441	154.513686	80.2983886
Deferred Payables Period	14	4.8182	147.0223	31.136221	37.0318666
Cash Conversion Cycle	14	20.0289	287.9031	165.829357	102.1946456
Current Ratio	14	.6719	2.9795	1.351586	.6957633
Debt Ratio	14	.1312	.7372	.307379	.1960043
Gross Profit Margin	14	.0344	.7473	.256371	.2072220
Valid N (list wise)	14				

Table-7 Percentage of Current Assets over Total Assets

Company Name	% of Current Assets
Square Pharmaceuticals Ltd.	30.39%
Incepta Pharmaceuticals Ltd.	60.90%
Beximco Pharmaceuticals Ltd.	31.87%
Reneta Pharmaceuticals Ltd.	41.51%
Ambee Pharmaceuticals Ltd.	79.11%
Beacon Pharmaceuticals Ltd.	14.17%
IBN Sinha Pharmaceuticals Ltd.	38.03%

Table-8 Reliability of Data**:**

Case Processing Summary

		N	%
Cases	Valid	14	100.0
	Excluded[a]	0	.0
	Total	14	100.0

a. List wise deletion based on all variables in the procedure.

Case Processing Summary

		N	%
Cases	Valid	14	100.0
	Excluded[a]	0	.0
	Total	14	100.0

a. List wise deletion based on all variables in the procedure.