



**THE IMPACT OF WORKING CAPITAL MANAGEMNT ON
FIRMS' PROFITABILITY**

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Statement of declaration

I, Mulualem Mekonnen Admasu, have carried out independently a research work on “The impacts of working capital management on firms’ profitability in Addis Ababa city manufacturing share companies” in partial fulfillment of the requirement of the M.SC program in Accounting and Finance with the guidance and support of the research advisor.

This study is my own work that has not been submitted for any degree or diploma program in this or any other institution.

Mululalem Mekonnen

June, 2011

Statement of certification

This is to certify that Mulualem Mekonnen Admasu has carried out his research work on the topic entitled “the impacts of working capital management of firms’ profitability of Addis Ababa city manufacturing share companies”. The work is original in nature and is suitable for submission for the reward of the M.Sc. Degree in Accounting and Finance.

Advisor: Wollela Abehodie Yesegat (PHD): W. Aben . 21/06/2011

Abstract

The purpose of this study is to investigate the impact of working capital management on firms' profitability. The study aims to examine the statistical significance between firms' working capital management and profitability.

In light of this objective the study adopted quantitative method of research approaches to test a series research hypothesis. Specifically, the study used survey of documentary analysis of companies' audited financial statements. Stratified sampling design was employed based on nature and turnover of companies. Then companies were selected based on simple random sampling method from each stratum's to avoid biases and represent firms from each sub-classification (stratum's) within manufacturing companies. Consequently, the study selected a sample of thirteen (13) companies for the period of five years (2005-2009) with the total of 65 observations. Data was then analyzed on quantitative basis using Pearson's correlation and OLS regression analysis.

The results showed that there is statistical significance negative relationship between profitability and working capital management. It means that, companies managers can create profits or value for their companies and share holders by handling correctly the cash conversion cycle and keeping each different component of working capital to a possible optimum level. The researcher found that there is a significant negative relationship between liquidity and profitability. Moreover the study finds that there is strongly significance positive relationship between size and firm profitability. Unlike, the study found that there is no statistically significance negative relationship between debt used and firms profitability.

Keywords: *working capital, working capital management, firm size, cash conversion cycle and profitability.*

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Hail Mary, mother of God, pray for us sinners now and at the hour of our death. Bless, protect and intercede for us. AME!

Mulualem Mekonnen

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Acronyms

ACP:	Average Collection Period
APP:	Average Payment Period
CCC:	Cash Conversion Cycle
CLRM:	Classical Linear Regression Model
COGS:	Cost of Goods Sold
CR:	Current Ratio
CSA:	Central Statistics Agency
DR:	Debt Ration
EOQ:	Economic Order Quantity
ERCA:	Ethiopian Revenues and Customs Authority
GOP:	Gross Operation Profit
GWC:	Gross Working Capital
ISIC:	International Standard Industrial Classification
ITID:	Inventory Turnover in day
NPM:	Net Profit Margin
NWC:	Net Working Capital
OLS:	Ordinary Least Square
ROA:	Return on Asset
SG:	Sales Growth
SIZE:	Size of Firms
SPSS:	Statistical Package For Social Science
VIF:	Variance Inflation Factor
WC:	Working Capital

Chapter 1

Introduction

This thesis examines the impacts of working capital management on firm's profitability, in the context of Ethiopia, manufacturing share companies in Addis Ababa city. Working capital refers to the firm's investment in short-term assets like account receivable, account payable, inventory and others including cash or cash equivalent and marketable security. Management of working capital is important to the financial health of businesses of all sizes. This importance is hinged on many reasons, first, 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 way. Second, management of working capital directly affects the liquidity and the profitability of a firm and consequently its net worth. Working capital management therefore aims at maintaining a balance between liquidity and profitability while conducting the day-to-day operations of a business concern.

The purpose of this chapter is to provide background information on the thesis. The remaining parts of the chapter are organized under eight sections. The first section presents an overview of working capital management as a background for the research. The second section indicates statement of the problems. The objectives and hypotheses of the research are presented in section three and four respectively. The fifth section shows the methodology adopted in the study. Following that section six presents delimitation and

limitation of the research. Whereas, significant of the study is discussed in section seven. Finally, the structure of the thesis is presented in section eight.

1.1 Overviews of working capital management

Corporate finance literature has traditionally focused on the study of long-term financial decisions such as the capital structures, investments, dividends and firm valuations. However, finance theories are discussed under three main threads as capital budgeting, capital structure and working capital management. As a result, the first two are mostly related to financing and managing long term investments. Meanwhile, financial decisions about working capital are mostly related to financing and managing short term investments and under both current assets and current liabilities simultaneously (Mueller, 1953; Pinches, 1992; Brealey and Myers, 1996; Damodaran, 2002). Hence, management of working capital refers to management of current assets and current liabilities (Ross et al., 2003, Raheman and Nasr, 2007).

Management of working capital is an important component of corporate financial management because it directly affects the profitability of firms. Smith (1980) concluded that working capital management is important because of its effect on firm's profitability and risk, and consequently its value. Similarly, Deloof (2003) indicated that the way working capital is managed has a significant impact on profitability of firms. The above studies point out that there is a certain level of working capital requirement, which potentially maximizes firm's returns. On the other hand, Kargar and Bluementhal (1994) mentioned that bankruptcy may be likely for firms that put inaccurate working capital management procedures into practice, even though their profitability is constantly

positive. Therefore, firms must to avoid receding from optimal working capital level by bringing the aim of profit maximization in the foreground. Hence, it is indirect contradiction to focus only on liquidity and consequently pass over profitability to working capital management. Because, conservative liquidity policy may goes below optimal level of working capital requirement and treats the day to day operation of a business. Whereas, excessive levels of working capital can easily result in a substandard return on assets; while inconsiderable amount of it may incur shortages and difficulties in maintaining day-to-day operations.

The ultimate objective of any firm is to maximize its profit. However, preserving liquidity of the firm is an important objective as well. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm. Therefore, there must be a tradeoff between these two objectives (liquidity and profitability) of firms. One objective should not be at the cost of the other because both have their own importance. If firms do not care about profit, they cannot survive for a longer period. In other round, if firms do not care about liquidity, they may face the problem of insolvency or bankruptcy. For these reasons managers of firms should give proper consideration for working capital management as it does ultimately affect the profitability of firms. Indeed firms may have an optimal level of working capital that maximizes their value. Large inventory and generous trade credit policy may lead to high sales. Large inventory also reduces the risk of a stock-out. Trade credit may stimulate sales because it allows a firm to access product quality before paying (Long, 1993 and Raheman and Nasr, 2007). Another component of working capital is accounts payables, Raheman and Nasr (2007) indicated that delaying payment of accounts

payable to suppliers allows firms to access the quality of obtaining products and can 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. By the same token, uncollected accounts receivables can lead to cash inflow problems for the firm.

A popular measure of working capital management is the cash conversion cycle, that is, the time span between the expenditure for the purchases of raw materials and the collection of sales of finished goods. Deloof (2003) found that the longer the time lags, the larger the investment in working capital, and also a long cash conversion cycle might increase profitability because it leads to higher sales. However, corporate profitability might decrease with the cash conversion cycle, if the costs of higher investment in working capital rise faster than the benefits of holding more inventories or granting more trade credit to customers.

In general, working capital management is not only improving financial performance in today's cash-strapped and uncertain economy, but it is the question of meeting firm's day to day operation. Hence, it may have both negative and positive impact on firm's profitability, which in turn, has negative and positive impact on the shareholders' wealth. Therefore, it is a critical issue to know and understand the impacts of working capital management and its influence on firm's profitability. Indeed, a lot of research has been conducted on this topic in other countries by using panel data through multiple regressions to show the impacts of working capital components on firm's profitability. However, as per the knowledge of the researcher, it is almost untouched in Ethiopia or only very little research has been done in this area. This limited evidence in the context of Ethiopia along

with the importance of working capital management calls for research on their impacts on firms' profitability. In light of the above points, the general objective of the study will be to examine or assess the impacts of working capital management on the profitability of manufacturing share companies in Addis Ababa city.

1.2 Statement of the problems

Working capital management is an important issue in any organization. This is because without a proper management of working capital components, it's difficult for the firm to run its operations smoothly. That is why Brigham and Houston (2003) mentioned that about 60 percent of a typical financial manager's time is devoted to working capital management. Hence, the crucial part of managing working capital is maintaining the required liquidity in day-to-day operation to ensure firms smooth running and to meet its obligation (Eljelly, 2004).

Further, working capital management has been major issue especially in developed countries. As a result, in order to explain the relationship between working capital management and profitability different researches have been carried out in different parts of the world especially in developed countries. However, despite the above importance this issue failed to attract the attention of researchers in Ethiopia. Thus, while searching on internet, browsing through the books and journals the researcher didn't find directly related research topics carried out in Ethiopia. Therefore, the researcher believed that, the problem is almost untouched and there is a knowledge gap on the area. In its effect most Ethiopian company's managers thought regarding working capital management is, to shorten the cash conversion cycle (traditional views) to increase firm's profitability.

However, if firm has higher level of account receivable due to the generous trade credit policy, it would result to longer cash conversion cycle. In this case, the longer cash conversion cycle will increase profitability and thus, the traditional view of managers cannot be applied to all circumstances. Hence, lack of proper research study on the area gives a chance for Ethiopian company's managers to have limited awareness in relation to working capital management to increase firm's profitability. Therefore, by keeping the above problem in mind, the study tried to find out the impacts of working capital management on firms profitability.

1.3 Objective of the study

This study aims to examine the impacts of working capital management on profitability of firms in Addis Ababa city with a special reference to the manufacturing sector of share companies.

1.4 Hypotheses of the study

Several statements of supposition can be made in view of the impacts of working capital management on firms' profitability. In light of the above research objective the following discussion covers the hypotheses (HP) that this study attempted to test.

HP₁: There is positive relationship between efficient working capital management and profitability of firms'.

HP₂: There is a negative relationship between cash conversion cycle and profitability of firms'.

HP₃: There is a negative relationship between liquidity and profitability of firms.

HP₄: There is a positive relationship between firm size and profitability.

HP₅: There is a negative relationship between debt used by the firms and their profitability.

1.5 Research method adopted

In order to achieve the main research objectives a quantitative method is adopted. The purpose of using such approach is to gather data that help the researcher to investigate cause-effect relationships. In this particular case, the effect is the company's profitability and the research is targeted at identifying significant causes, i.e. determinants on profitability related to working capital management. A brief explanation about the data collection and analysis method adopted is given below.

To gather data on working capital component and profitability, it is apparent to use survey of structured documentary review. Accordingly, to achieve its objective companies audited financial statement especially balance sheet and income statement was reviewed. For the reason that the ultimate data's for the study couldn't be found simply using questioner or face to face interviews with concerned bodies, thoroughly the study was depend on secondary data. On the other hand, once data were found acceptable, data entry and process was made using the SPSS V19.0 and Eviews 6 software programme. Analysis of data was undertaken to show important relationships of variables in the study. To this end, descriptive statistics, regression analysis and Pearson correlation coefficient was used.

HP₄: There is a positive relationship between firm size and profitability.

HP₅: There is a negative relationship between debt used by the firms and their profitability.

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1.6 Delimitation and limitations of the study

The study was delimited in its title to the impacts of working capital management on the profitability of manufacturing share companies located in Addis Ababa city administration. The total sample size of the study was twenty nine manufacturing share companies. Of which, a total of thirteen companies was selected as a sample using simple random sampling method from each stratum to generalize about the population. Finally, the study took only five years data starting from year 2005 – 2009.

On the other hand, the quality of one research is highly depending on the genuine information acquired from concerned populations or companies. So that, lack of willingness and reliability of the data was the main problems face in the study process. and affect its output. Also lack of adequate accounting disclosure and treatment was limited the study output. Moreover, shortage of latest reference books and literature on the area in Ethiopian content was narrowed the study output. Lastly, in general the most important factor that limited the study output was shortage of time.

1.7 Significance of the study

Much has been written and studied about working capital management and profitability of the firm in different country, but this research add some insight about this issue related to Ethiopia literature. Similarly, it benefits the top manager and policy makers of those selected companies regarding decision on optimum level of working capital, ways of managing it and overall policies on working capital management. And also it gives clear understanding about the relation between working capital components and corporate

profitability. Besides, the study helps as a guideline for those who conduct their study on similar topic and it gives brief information for the shareholders, prospective customers and creditors of a firm regarding profitability in relation to efficient working capital management and policy. Finally, the study benefits the researcher to obtain new knowledge about the problem under study and gives clear picture about the discipline called research.

1.8 Organization of the study

The study focuses on examining the impacts of working capital management on profitability of manufacturing share companies found in Addis Ababa city administration. The rest of this study is organized as follows. Chapter 2 introduces the core issues of concern that are connected with working capital management and reviews preceding works that tackled them analytically and empirically. Chapter 3 provides the research design and methodological frameworks employed to accomplish the stated objective of the study. Following this chapter 4 and 5 respectively discussed about results and data analysis of the study. Finally, chapter 6 presents conclusion about the main finding of for the study.

Chapter 2

Literature review

The term working capital implies company's investment in short term assets like cash, short term securities, accounts receivables and inventories (Weston and Brigham, 1977). Precisely, these assets are financed by short-term liabilities like accounts payable and short term borrowings; thus net working capital is defined as the difference between current assets and current liabilities. Working capital management is the decision relating to working capital and short term financing, and this includes managing the relationship between the company's short term assets and its short term liabilities. This enables the company to continue operations and to have enough cash flow at its disposal to satisfy both maturing short-term debts and upcoming operational expenses, which is the major objective of working capital management.

The purpose of this chapter is to review the evidence on working capital management and profitability measures of a firm. Hence, the chapter is arranged into three sections. The first section presents the theoretical review of working capital management while the second section reviews the empirical evidence pertaining to working capital management. Third, the section presents conclusions on the literature review and identifies the knowledge gap that this study attempts to fill in. finally, under section fourth, section present nature of manufacturing companies.

2.1 Theoretical review

The term working capital originated with the old Yankee peddler, who would load up his wagon with goods and then go off on his route to peddle his wares. The merchandise was called working capital because it was what he actually sold, or “turned over,” to produce his profits. The wagon and horse were his fixed assets. He generally owned the horse and wagon, so they were financed with “equity” capital, but he borrowed the funds to buy the merchandise. These borrowings were called working capital loans, and they had to be repaid after each trip to demonstrate to the bank that the credit was sound. If the peddler was able to repay the loan, then the bank would make another loan, and banks that followed this procedure were said to be employing “sound banking practices” (Brigham and Houston, 2003).

The term working capital is commonly used for the capital required for day-to-day working in a business concern, such as for purchasing raw material, for meeting day-to-day expenditure on salaries, wages, rents rates, advertising and the like. But, still there is much disagreement among various financial authorities (Financiers, accountants, businessmen and economists) as to the exact meaning of the term working capital.

Working capital is defined as “the excess of current assets over current liabilities and provisions”. However, as per accounting terminology, it is difference between the inflow and outflow of funds. In Arnold (2008) working capital is defined as it includes “stocks of materials, fuels, semi-finished goods including work-in-progress and finished goods and by-products; cash in hand and bank and the algebraic sum of various creditors as represented by outstanding factory payments e.g. rent, wages, interest and dividend;

purchase of goods and services; short-term loans and advances and sundry debtors comprising amounts due to the factory on account of sale of goods and services and advances towards tax payments”.

On the other hand, 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 i.e., 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 (Weston and Brigham, 1977). Further, Shin and Soenen (1998) defined working capital as a “time lag between the expenditure for the purchase of materials and the collection for the sale of the finished products”.

In summary, working capital means the funds (i.e. capital) available and used for day to day operations of an enterprise. It consists broadly of that portion of assets of a business which are used in or related to its current operations. Further, it refers to funds which are used during an accounting period to generate a current income of a type which is consistent with major purpose of a firm existence. In light of the above definition of working capital the following discussions present components of working capital, types of working capital, factors determining working capital requirement, working capital management, working capital policy, profitability and liquidity measures and trade off between liquidity and profitability in an orderly manner.

2.1.1 Components of working capital

The core concept of working capital has been subjected to considerable change over the years. A few decades ago the concept was viewed as a measure of the debtor's ability to meet his/her obligations in case of liquidation. The prime concern was with whether or not the current assets were immediately realizable and available to pay debts in case of liquidation. In applying this measure a one year period was frequently used to classify assets and liabilities as those due within one year for working capital purposes. In recent years, the focus has shifted from this liquidation point of view and the current emphasize shifted to the ability of the firm to pay its maturity obligations from the funds by current operations. In this sense, working capital is dynamic measure of the margin or buffer for meeting current obligations.

To understand working capital it is better to have basic knowledge about various aspects of working capital. To start with, there are two concepts of working capital known as gross and net.

Gross working capital (GWC): Gross working capital generally deals with overall corporate assets. It is also the total cash, and cash equivalent that a business has on-hand to run the business. Cash equivalents may include inventory, account receivable and investments, on marketable securities, which may be liquidated within the calendar year (Paramasivan and Subramanian, 2009). Generally, gross working capital is simply called as the total current assets of a firm.

Net working capital (NWC): it's the amount of assets or cash that remain after subtracting a company's current liabilities which refers to the claims of outsiders which are expected to mature for payment within an accounting year and include creditors for goods, bills payable, bank overdraft and accrued expenses from its total current asset (Brealey and Myers, 2006). This can be mathematically presented as:

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

In this equation net working capital may be positive or negative. A positive net working capital arises when current assets exceed current liabilities and a negative net working capital arises when current liabilities exceed current assets. According to Brigham and Houston (2003) both (positive or negative NWC) aspects have equal importance for management. Therefore, positive WC focuses the attention on the optimum investment in and financing of the current assets, while negative WC indicates the liquidity position of the firm and suggests the extent to which working capital needs may be financed by permanent sources of funds.

2.1.2 Types of working capital (WC)

Most businesses experience seasonal or cyclical fluctuations. For example, construction firms have peaks in the spring and summer, retailer's peak around Christmas, and manufacturers who supply both construction companies and retailers follow similar patterns. Similarly, all businesses must build up current assets when the economy is strong, but they then sell off inventories and reduce receivables when the economy slacks off. Hence, based on time, working capital may be classified into two important types as

permanent and temporary working capital (Paramasivan and Subramanian, 2009) and briefly discussed below.

Permanent Working Capital: it's also known as fixed working capital and it refers to a minimum amount of investment in all working capital which is required at all times to carry out minimum level of business activities (Brigham and Houston, 2003). In other words, it represents the current assets required on a continuing basis over the entire year. Further, working capital has a limited life and usually not exceeding a year, in actual practice some part of the investment in that is always permanent. Since firms have relatively longer life and production does not stop at the end of a particular accounting period some investment is always locked up in the form of raw materials, work-in-progress, finished stocks, book debts and cash. Investment in these components of working capital is simply carried forward to the next year. This minimum level of investment in current assets that is required to continue the business without interruption is referred to as permanent working capital (Fabozzi and Peterson, 2003 p. 679). It's financed through long term debt and common stock.

Temporary Working Capital: it's also known as the circulating or transitory working capital. This is the amount of investment required to take care of the fluctuations in the business activity. Fabozzi and Peterson (2003 p. 678) they defined as a rises of working capital from seasonal fluctuations in a firm's business. Because firms do not have to maintain this form of working capital throughout in the year, or year after year, it may be better to use short-term (bank credit) rather than long-term sources of capital to satisfy temporary needs. In other words, it represents additional current assets required at

different times during the operating year. For example, extra inventory has to be maintained to support sales during peak sales period (seasonal working capital). Similarly, receivable also increase and must be financed during period of high sales. On the other hand investment in inventories, receivables and the like will decrease in periods of depression (special working capital). Temporary working capital fluctuates over time with seasons and special needs of firm operations, whereas, permanent WC changes as firms sizes increases overtime. Further, temporary WC is financed by short term debt.

2.1.3 Factors determining working capital requirements

The total working capital requirement of a firm is determined by a wide variety of factors. These factors affect different organizations differently and they also vary from time to time. In general factors influencing working capital decisions of a firm may be classified as two groups, such as internal factors and external factors (Paramasivan and Subramanian, 2009). The internal factor includes nature of business, size of business, firm's product policy, credit policy, and growth and expansion of business. The external factors include business fluctuations, changes in the technology, infrastructural facilities, import policy and the taxation policy. These factors are discussed in brief in the following lines:

Internal factors

These are factors that the companies will take in to account while determining the optimal level of working capital needed for the business concern by looking inherent factors related to the business and they are presented as follows:

Nature and size of the business: The working capital requirements of a firm are basically influenced by the nature and size of the business. Size may be measured in terms of the scale of operations. A firm with larger scale of operations will need more working capital than a small firm. Similarly, the nature of the business influences the working capital decisions. Trading and financial firms have less investment in fixed assets. But require a large sum of money to be invested in working capital. Retail stores, business units require larger amount of working capital, whereas, public utilities need less working capital and more funds to invest in fixed assets.

Firm's production policy: The firm's production policy (manufacturing cycle) is an important factor to decide the working capital requirement of a firm. The production cycle starts with the purchase and use of raw material and completes with the production of finished goods. On the other hand production policy is uniform production policy or seasonal production policy, also influences the working capital decisions. If the company maintains continues or uniform production policy, there is a need of regular working capital. If the production policy of the company depends upon the situation or conditions like season, working capital requirement will depend upon the conditions laid down by the company and changing demand.

Firm's credit policy: The credit policy of a firm influences credit policy of working capital. A firm following liberal credit policy to all customers requires funds. On the other hand, the firm adopting strict credit policy and grant credit facilities to few potential customers will require less amount of working capital.

Growth and expansion of business: Working capital requirement of a business firm tend to increase in correspondence with growth in sales volume and fixed assets. A growing firm may need funds to invest in fixed assets in order to sustain its growing production and sales. This will, in turn, increase investment in current assets to support increased scale of operations. Thus, a growing firm needs additional funds continuously.

External factors

Some time firm's working capital requirement can be affected by external factor which will not be controlled through the business internal administration and management process and they are discussed as follows:

Business fluctuations: Most firms experience fluctuations in demand for their products and services. These business variations affect the working capital requirements. When there is an upward swing in the economy, sales will increase, correspondingly, the firm's investment in inventories and book debts will also increase. Under boom, additional investment in fixed assets may be made by some firms to increase their productive capacity. This act of the firm will require additional funds. On the other hand when, there is a decline in economy, sales will come down and consequently the conditions, the firm try to reduce their short-term borrowings. Similarly, the seasonal fluctuations may also affect the requirement of working capital of a firm.

Changes in the technology: The technological changes and developments in the area of production can have immediate effects on the need for working capital. If the firm wish to install a new machine in the place of old system, the new system can utilize less expensive

raw materials, the inventory needs may be reduced there by working capital needs may be affected.

Taxation policy: The amount of tax to be paid is determined by the prevailing tax regulations and very often taxes have to be paid in advance. Hence, the tax policies of the Government will influence the working capital decisions. If the Government follows regressive taxation policy, i.e. imposing heavy tax burdens on business firms, they are left with very little profits for distribution and retention purpose. Consequently the firm has to borrow additional funds to meet their increased working capital needs. When there is a liberalized tax policy, the pressure on working capital requirement is minimized. In general, if tax liability increases, it will lead to an increase in the level of working capital and vice versa.

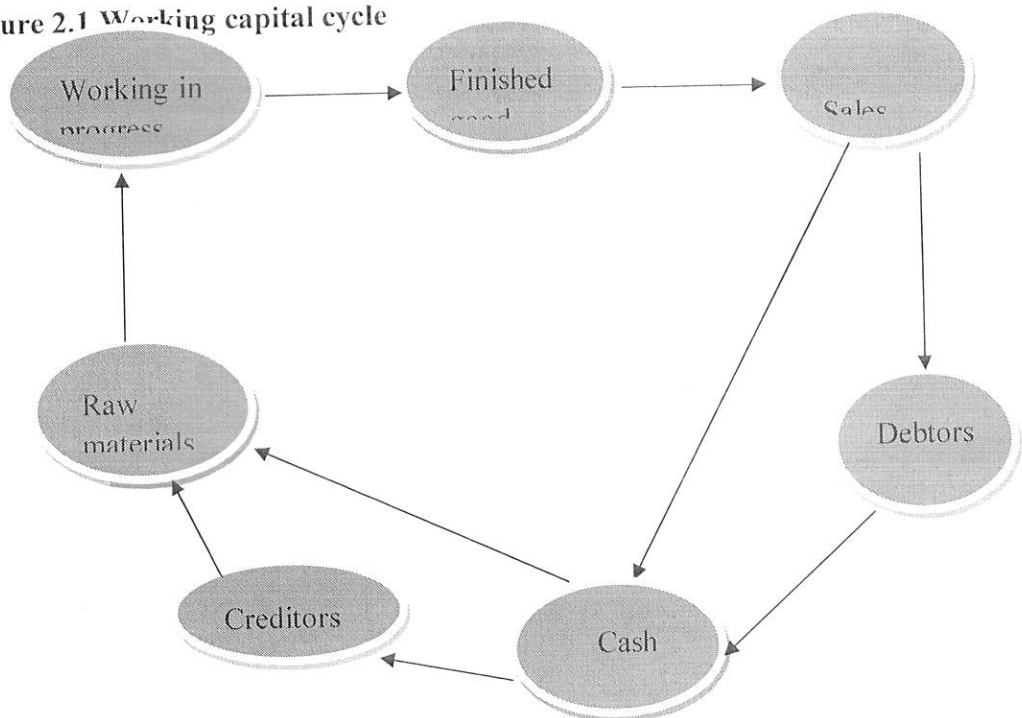
In summary, firm's financial manager should have to take in to account the above determinants while deciding on the optimal level of working capital needed and the timing for day to day activities of the business operations.

2.1.4 Working capital management

In order to understand the importance of working capital one has to understand the working capital cycle which is described as the core for working capital management. Arnold (2008, p.529-530) said that working capital cycle includes all the major dimensions of business operations. It is quite clear that a bad management of a single account in this cycle might cause a big trouble for the non living entity which might leads to its death. Therefore, the management of working capital and balance between

components of working capital is extremely important for the smooth running of business. Similarly, the basic aim of financial management is to maximize the wealth of the share holders and in order to achieve this; it is necessary to generate sufficient sales and profit. However, sales do not convert in to cash instantly. The time between purchase of inventory items (raw material or merchandise) for the production and their conversion into cash is known as operating cycle or working capital cycle. Therefore, the following chart shows the framework of firm's working capital cycle:

Figure 2.1 Working capital cycle



Source: Arnold (2008, p.530)

The above working capital cycle reveals that funds invested in operations or activities are re-cycled back into cash. The cycle, of course, takes some time to complete. The longer the period of this conversion the longer is the operating cycle. A standard operating cycle

may be for any time period but does not generally exceed a financial year. However, if it were possible to complete the sequence (working capital cycle) instantly, there would be no need for current assets (working capital). But, since it is not possible, the firm is forced to have current assets, because, cash inflows and outflows do not match in the business operations, the firm has to keep cash for meeting short term obligations through proper management of working capital components.

Therefore, working capital management deals with the act of planning, organizing and controlling the components of working capital (current asset and liability) like cash, bank balance, inventory, receivables, payables, overdraft and short-term loans (Paramasivan and Subramanian, 2009). Weston and Brigham (1977) defined working capital management as it is concerned with the problems that arise in attempting to manage the current asset, current liabilities and the interrelationship that exists between them. Whereas, Smith (1980) noted that working capital management is the administration of the whole aspects of both current assets and current liabilities.

Generally, working capital management involves two basic questions: first, what is the appropriate amount of current assets, both in total and for each specific account, and second, how should those current assets be financed? Therefore, a brief description regarding the various issues involved in the management of each of working capital components is discussed as follows:

2.1.4.1 Receivable management

Businesses have either products or services to sell to their customers; they also want to maximize their sales. So, in order to increase the level of their sales they use different policies to attract customers and one of them is offering a trade credit. Trade credit basically refers to a situation where a company sells its product now to receive the payment at a specified date in the future. Fabozzi and Peterson (2003 p. 651) mentioned that when a firm allows customers to pay for goods and services at a later date, it creates accounts receivable or refers to trade credit. Account receivables (trade credit) also have opportunity cost associated with them, because company can't invest this money elsewhere until and unless it collects its receivables. More account receivables can raise the profit by increasing the sale but it is also possible that because of high opportunity cost of invested money in account receivables and bad debts the effect of this change might turn difficult to realize. Hence, it calls for careful analysis and proper management is compulsory task of company's credit managers.

Therefore, the goal of receivables management is to maximize the value of the firm by achieving a tradeoff between risk and profitability. For this purpose, the finance manager has to obtain optimum (non-maximum) value of sales, control the cost of receivables, cost of collection, administrative expenses, bad debts and opportunity cost of funds blocked in the receivables. Further, financial manager has to maintain the debtors at minimum according to the credit policy offered to customers, offer cash discounts suitably depending on the cost of receivables and opportunity cost of funds blocked in the receivables (Gallagher and Joseph, 2000). Indeed trade credit management has to look

through cost and benefit analysis including credit and collection policies of companies in maintaining receivable.

Monitoring account receivable

Companies can monitor how well accounts receivable are managed using aging schedules and financial ratios. In aging analysis, a company's account receivables are classified into different categories based on number of days they are past due after sales such as 1 to 30 days, 31 to 40 days, 41 to 50 days and so on and it helps managers to get a more detailed picture of collection efforts. The schedule can represent the receivables according to how many there are in each age group or according to the total dollars the receivables represent in each age group. Hence, the higher the number of accounts or dollars in the shortest term groups, the faster the collection or efforts are made (Fabozzi and Peterson, 2003 p. 660). Whereas, financial ratio can be used to get an overall picture of how fast credit manager collect accounts receivable. Therefore, the average collection period (ACP) represents the average number of days for which a firm has to wait before its debtors are converted into cash. It is calculated by dividing accounts payable by purchases and multiplying the result by 365 and written as:

$$\text{Average collection period (ACP)} = \text{Receivables} / (\text{Sales}/365)$$

This ratio measures the quality of debtors. A short collection period implies prompt payment by debtors. It reduces the chances of bad debts. Similarly, a longer collection period implies too liberal and inefficient credit collection performance. It is difficult to provide a standard collection period of debtors (Brigham and Houston, 2003, p. 691).

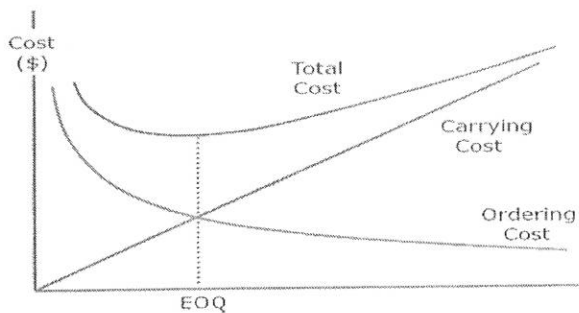
2.1.4.2 Inventory management

Inventory is an important component of current assets. It is the stock of physical goods for eventual sale. It consists of raw material, work-in-process, and finished goods available for sale. As is the case with accounts receivable, inventory levels depend heavily upon sales. However, whereas receivables build up after sales have been made, inventory must be acquired ahead of sales. This is a critical difference, and the necessity of forecasting sales before establishing target inventory levels makes inventory management a difficult task (Brigham and Houston, 2003, p. 707).

Inventory management refers to an optimum investment in inventories. It should neither be too low to effect the production adversely nor too high to block the funds unnecessarily. Excess investment in inventories is unprofitable for the business and both excess and inadequate investments in inventories are not desirable (Fabozzi and Peterson, 2003 p. 658). Hence, the firm should operate within the two danger points. Additionally, proper inventory management requires close coordination among the sales, purchasing, production, and finance departments. The sales/marketing department is generally the first to spot changes in demand. These changes must be worked into the company's purchasing and manufacturing schedules, and the financial manager must arrange any financing needed to support the inventory buildup. Lack of coordination among departments, poor sales forecasts, or both, can lead to disaster (Brigham and Houston, 2003 p. 707). In general, the purpose of inventory management is to determine and maintain the optimum level of firm's investment on inventory. At the same time, it helps to hold the costs of ordering and carrying inventories to the lowest possible level.

As it can be discussed in the above section, it is not necessary for a firm to hold high level of raw material inventory, in fact a firm can order raw material on the daily basis but the high ordering cost is associated with firms' policy. Moreover, the delay in supply might stop the production. Similarly, firm can reduce its finished goods inventory by reducing the production and by producing the goods only to meet the current demand. However, such a strategy can also create trouble for the company if the demand for the product rises suddenly. Further, such a situation might cause the customer dissatisfaction and even a loyal customer can switch to the competitors brand. Therefore, the firm should have enough inventories to meet the unexpected rise in demand but the cost of holding this inventory should not exceed its benefit (Brealey and Myers, 2003, p.821). Companies want to keep the inventory at a level which maximizes the profit and this level is known as optimal level, but what is an optimal level of inventory for a company? In order to answer this question finance managers analyze the cost associated with inventory i.e. carrying cost and ordering cost using economic order quantity (EOQ) as follow:

Graph 2.3 Economic order quantity (Behavior of ordering, carrying and total cost)



$$EOQ = \sqrt{\frac{2(\text{Annual usage in units})(\text{Ordering cost})}{(\text{Annual carrying cost per unit})}}$$

Source: Paramasivan and Subramanian (2009, p.169)

Monitoring inventory management

Companies can monitor its inventory by looking through its financial ratios like that of monitoring receivables. Inventory turnover ratio in days (ITID) indicates the number of time the stock has been turned over sales during the period and evaluates the efficiency with which a firm is able to manage its inventory. This ratio indicates whether investment in stock is within proper limit or not (Brigham and Houston, 2003, p. 691). Hence, the ratio is calculated by dividing inventory by cost of goods sold and multiplying with 365 days and depicted as follows:

$$\text{Inventory Turnover in Day (ITID)} = \text{Inventory} / (\text{Cost of sales}/365)$$

In general there is no rule of thumb or standard for interpreting the inventory turnover ratio. The norms may be different for different firms depending upon the nature of industry and business conditions. However the study of the comparative or trend analysis of inventory turnover is still useful for financial analysis.

2.1.4.3 Cash management

Brealey and Myers (2003) indicated that cash is the oxygen which enhances a survival and prosperity, and is the basic indicator of business health. Cash includes both cash in hand and cash at bank. A company needs cash for transaction and speculation purposes. It also provides the liquidity to the company but the question is why company should have cash reserves when it has an option to utilize it by investing it in short term securities. The answer to this question is that it provides more liquidity than marketable securities. Cash should be considered as an inventory which is very important for the smooth running of

the business. No doubt a company can earn some interest if cash is invested in some marketable securities but when it has to pay its liabilities it needs cash and in order to convert marketable securities into cash it has to pay some transaction cost. So, there is a fair possibility that cost of holding marketable securities might exceed their benefit.

Holding a cash reserve is justifiable for all the businesses but how much cash a company should have? It is a big and very important question because too little cash might push a company in a situation where it will not be able to pay its current liabilities. On the other hand having high cash balance will not produce any return. The minimum level of cash reserve depends on the ability of a company to raise cash when it is required, future cash needs and companies will to keep cash to safeguard future unexpected events. Companies also want to have enough cash reserve to exploit the investment opportunities available in the future but having a very high level of cash reserve can turn out to be an idle resource. The maximum level of cash reserve depends on investment opportunities available in the future, return on these investments and transaction cost of making the investments (Gallagher and Joseph, 2000).

2.1.4.4 Accounts Payables management

Account payable is defined as a debt arising from credit sales and recorded as an account receivable by the seller and as an account payable by the buyer. Firms generally make purchases from other firms on credit, recording the debt as an account payable. Accounts payable is the largest single category of short-term debt, representing about 40 percent of the current liabilities of the average nonfinancial corporation (Brigham and Houston 2003, p. 720)

Arnold (2008 pp.479-482) described that account payable is the cheapest and simplest way of financing an organization. Accounts payable are generated when a company purchases some products for which payment has to be made no later than a specified date in the future. Accounts payable are a part of all the businesses and have some advantages associated with it e.g. it is available to all the companies regardless of the size of the company and earlier payment can bring cash discount with it. Companies not only need to manage their account payables in a good way but they should also have the ability to generate enough cash to pay the mature account payables. This is because, in case if a company fails to generate enough cash to fulfill the mature account payables then such a situation will pass the negative signal to the market and it will directly affect the share price, relationship with creditors and suppliers. Hence, in this situation it will be difficult for the company to raise more funds by borrowing money or get more supplies from the suppliers. Such a financial distress will lead to the death of the non living entity. Therefore, one way of monitoring accounts payables is by the Average payment period (APP) or day's payables outstanding ratio which measures the average length of time between the purchase of materials or labor and the payment of cash for supplies (Brigham and Houston 2003, p. 720). It can be calculated as:

$$\text{Average Payment period (APP)} = \text{Payables} / (\text{Cost of Goods Sold} / 365)$$

In general, if a company has a small number of accounts payable days, it could mean that the company is paying the bills very early or is taking advantage of purchase discounts (requiring early payment). On the other hand, if a company has a large number of

accounts payable days, it could mean that the company has low cash flows not sufficient to pay bills on time.

2.1.4.5 Short term borrowings

These are the short term financing instruments which a company uses and it includes bank overdraft, commercial papers, bill of exchange, and loan from commercial finance companies and the like. All these liabilities have a maturity less than one year (Arnold, 2008 pp.474-79). One reason for which company should have a proper working capital policy is short term borrowings because a poor working capital policy might cause the cash distress as a result company might not be able to pay its short term borrowing liability. The consequence of this default can be destructive for a business because after such a situation a company will not be able to win the trust of other financial institutions to borrow more money, market will perceive this situation in a negative way and the value of the share will fall, suppliers and creditors might hesitate to enter in a new contract.

2.1.4.6 The cash conversion cycle (CCC)

Cash conversion cycle is a time span between the payment for raw material and the receipt from the sale of goods. Weston and Brigham (1977, P. 690) mentioned that firms typically follow a cycle in which companies purchase inventory, sell goods on credit, and then collect accounts receivable. For a manufacturing company it can be defined it more precisely as, a time for which raw material is kept for the processing plus the time taken by the production process. And plus the time for which finished goods are kept and sold, including the time taken by the debtors to pay their liability, minus the maturity period of

account payable. By this definition it is quite clear that longer cash conversion cycle required more investment in the current assets. Furthermore good cash conversion cycle (depend up on companies target) is helpful for the organization to pay its obligations at a right time which will enhance the goodwill of a company. On the other hand, company with poor cash conversion cycle will not able to meet its current financial obligations and will face financial distress. Cash conversion cycle is also used as a gauge to measure the aggressiveness of working capital policy. It is believed that longer cash conversion cycle corresponds to defensive working capital policy and shorter cash conversion cycle corresponds to aggressive working capital policy (Arnold, 2008, pp.530-31).

In order to calculate the CCC one has to first calculate average collection period, inventory turnover in day and average payment period (as discussed previously in this section). In deed the formula used to compute cash conversion cycle is represented as follows:

$$\text{CCC} = \text{Average collection period} + \text{Inventory Turnover in day} - \text{Average Payment Period}$$

In general, depend up on the company policy lowering CCC without increasing cost and reducing sales may be preferable for the firm to have a good position of liquidity.

2.1.5 Working capital policy

Working capital policy can be best described as a strategy which provides the guideline to manage the current assets and current liabilities in such a way that it reduces the risk of default (Afza & Nazir, 2007). Working capital policy is mainly focusing on the liquidity

of current assets to meet current liabilities. Liquidity is very important because, if the level of liquidity is too high then a company has lot of idle resources and it has to bear the cost of these idle resources. However, if liquidity is too low then it will face lack of resources to meet its current financial liabilities (Arnold, 2008). Current assets are key component of working capital and the WCP also depends on the level of current assets against the level of current liabilities (Afza & Nazir, 2007). On this base the literature of finance classifies working capital policy into three categories as defensive or hedging, aggressive and conservative working capital policy (Arnold, 2008 pp.535-36) and discussed as follows:

Defensive policy: Company follows defensive policy by using long term debt and equity to finance its fixed assets and major portion of current assets. Under this approach, the business concern can adopt a financial plan which matches the expected life of assets with the expected life of the sources of funds raised to finance assets (Paramasivan and Subramanian 2009). Inventory expected to be sold in 30 days could be financed with a 30-day bank loan; a machine expected to last for 5 years could be financed with a 5-year loan; a 20-year building could be financed with a 20 year mortgage bond; and so forth (Weston and Brigham, 1977, P. 716).

Defensive policy reduces the risk by reducing the current liabilities but it also affects profitability because long term debt offers high interest rate which will increase the cost of financing (Arnold, 2008 p.530). This means a company is not willing to take risk and feel it appropriate to keep cash or near cash balances, higher inventories and generous credit terms. Mostly companies that are operating in an uncertain environment prefer to adopt such a policy because they are not sure about the future prices, demand and short term

interest rate. In such situation it is better to have a high level of current assets. Which means, keeping higher level of inventory in the stock, to meet sudden rise in demand and to avoid the risk of stoppage in production.

This approach gives a longer cash conversion cycle for the company. It also provides the shield against the financial distress created by the lack of funds to meet the short term liability but as the researcher discussed earlier long term debt have high interest rate which will increase the cost of financing. Similarly, funds tied up in a business because of generous credit policy of company and it also have opportunity costs. Hence, this policy might reduce the profitability and the cost of following this policy might exceed the benefits of the policy (Arnold, 2008 p.530).

Aggressive policy: Companies can follow aggressive policy by financing its current assets with short term debt because it gives low interest rate. However, the risk associated with short term debt is higher than the long term debt. Paramasivan and Subramanian (2009) pinpointed that in aggressive policy the entire estimated requirement of current assets should be financed from short-term sources and even a part of fixed assets financing be financed from short- term sources. This approach makes the finance mix more risky, less costly and more profitable. Furthermore, few finance managers take even more risk by financing long term asset with short term debts and this approach push the working capital on the negative side.

Managers try to enhance the profitability by paying lesser interest rate but this approach can be proved very risky if the short term interest rate fluctuates or the cash inflow is not enough to fulfill the current liabilities (Weston and Brigham, 1977, P. 716). Therefore,

such a policy is adopted by the company which is operating in a stable economy and is quite certain about future cash flows. A company with aggressive working capital policy offers short credit period to customers, holds minimal inventory and has a small amount of cash in hand. This policy increases the risk of default because a company might face a lack of resources to meet the short term liabilities but it also gives a high return as the high return is associated with high risk (Arnold, 2008 p.536).

Conservative policy: Some companies want neither to be aggressive by reducing the level of current assets as compared to current liabilities nor to be defensive by increasing the level of current assets as compared to current liabilities. So, in order to balance the risk and return these firms are following the conservative approach. It is also a mixture of defensive WCP and aggressive WCP. In this approach temporary current assets, assets which appear on the balance sheet for short period will be financed by the short term borrowings and long term debts are used to finance fixed assets and permanent current assets (Weston and Brigham, 1977 P. 718). Thus, the follower of this approach finds the moderate level of working capital with moderate risk and return. It is called as “low profit low risk” concept (Paramasivan and Subramanian, 2009). Moreover, this policy not only reduces the risk of default but it also reduces the opportunity cost of additional investment in the current assets.

On the other hand apart from the above points the level of working capital also depends on the level of sale, because, sales are the source of revenue for every companies. Sales can influence working capital in three possible ways (Arnold, 2008 p.534-35).

- As sales increase working capital will also increase with the same proportion so, the length of cash conversion cycle remains the same.
- As the sales increase working capital increase in a slower rate.
- As the sales increase the level of working capital rises in inappropriate manner i.e. the working capital might raise in a rate more than the rate of increased in the sale.

Company with stable sale or growing sale can adopt the aggressive policy because it has a confidence on its future cash inflows and is confident to pay its short term liabilities at maturity. On the other hand a company with unstable sale or with fluctuation in the sale can't think of adopting the aggressive policy because it is not sure about its future cash inflows. In such a situation adoption of aggressive policy is similar to committing a suicide. Hence, searching other method might be the best choice.

2.1.6 Profitability and liquidity measures

Profitability ratio is a measure of profit generated from the business and is measured in percentage terms e.g. percentage of sales, percentage of investments, percentage of assets. High percentage of profitability plays a vital role to bring external finance in the business because creditors, investors and suppliers do not hesitate to invest their money in such a company (Fabozzi and Peterson (2003 p. 733). There are several measures of profitability which a company can use. Few measures of profitability are discussed here:

Net profit margin (NPM): It calculates the percentage of each sale dollar remains after deducting interest, dividend, taxes, expenses and costs. In other words it calculates the

percentage of profit a company is earning against its per dollars sale. Higher value of return on sale shows the better performance (Gitman, 1999).

$$\text{NPM} = (\text{Earnings available for common stakeholder} / \text{Net sales}) * 100$$

Return on asset (ROA): This ratio explains that how efficient a company is to utilize its available assets to generate profit. It calculates the percentage of profit a company is earning against per dollar of assets (Weston and Brigham (1977, P. 101). The higher value of ROA shows the better performance and it can be computed as follows:

$$\text{ROA} = (\text{Earnings Available For Common Stockholders} / \text{Total Asset}) * 100$$

Gross operation profit (GOP): this ratio explains that how efficient a company is to utilize its operating assets. This ratio calculates the percentage of profit earned against the operating assets of the company (Weston and Brigham, 1977, P. 101).

$$\text{Gross operating profit} = (\text{Sales} - \text{COGS}) / (\text{Total asset} - \text{financial asset})$$

On the other hand, Liquidity ratio measures the short term solvency of financial position of a firm. These ratios are calculated to comment upon the short term paying capacity of a concern or the firm's ability to meet its current obligations (Fabozzi and Peterson, 2003 p. 729) and they are discussed as follows:

Current ratio: is defined as the relationship between current assets and current liabilities. It is a measure of general liquidity and it is the most widely used to make the analysis for short term financial position or liquidity of a firm (Fabozzi and Peterson (2003 p. 733). Current ratio can be calculated by dividing the total current assets by total current liability.

$$\text{Current ratio} = \text{current asset} / \text{current liability}$$

Acid test ratio or **quick ratio**: it is the true liquidity refers to the ability of a firm to pay its short term obligations as and when they become due. It is the ratio of liquid assets to current liabilities.

$$\text{Quick ratio} = \frac{\text{Current asset} - \text{inventory}}{\text{Current Liabilities}}$$

It is very useful in measuring the liquidity position of a firm. It measures the firm's capacity to pay off current obligations immediately and is more rigorous test of liquidity than the current ratio.

On the other hand, debt ratio is one part of financial ratio which is used for debt management used by different company. Hence, it is ratio that indicates what proportion of debt a company has relative to its assets. The measure gives an idea to the leverage of the company along with the potential risks the company faces in terms of its debt-load (Fabozzi and Peterson, 2003 p. 586). It can be calculated as dividing total debt by total asset.

$$\text{Debt Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

2.1.7 Relationship between liquidity and profitability

Finance manager has to take various types of financial decisions like investment decision, finance decision, liquidity decision and dividend decision, in different time. In every area of financial management, the finance manger is always faced with the dilemma of liquidity and profitability. He/she has to strike a balance between the two (Eljelly, 2004). Liquidity means the firm has to have adequate cash to pay bills as and when they fall due, and it also have sufficient cash reserves to meet emergencies and unforeseen demands, in

all time. On the other hand, Profitability goal requires that funds of a firm should be utilized as to yield the highest return. Hence, liquidity and profitability are conflicting decisions, when one increases the other decreases. More liquidity results in less profitability and vice versa. This conflict finance manager has to face as all the financial decisions involve both liquidity and profitability.

Creditors of the company always want the company to keep the level of short term assets higher than the level of short term liabilities; this is because they want to secure their money. If current assets are in excess to current liabilities then the creditors will be in a comfortable situation. On the other hand managers of the company don't think in the same way, obviously each and every manager want to pay the mature liabilities but they also know that excess of current assets might be costly and idle resource which will not produce any return. For example, having high level of inventory will raise warehouse expense. So, rather than keeping excessive current assets (cash, inventory, account receivable) managers want to keep the optimal level of current assets, to a level which is enough to fulfill current liabilities. And also managers want to invest the excessive amount to earn some return. Hence, managers have to make a choice between two extreme positions; either they will choose the long term investments, investments in non current asset such as subsidiaries (equity), with high profitability i.e. high return and low liquidity. On the other hand to choose short term investment with low profitability i.e. low return and high liquidity.

However, creditors of the company want managers to invest in short term assets because they are easy to liquidate but it reduces the profitability because of low interest rate. On

the other hand, if the managers prefer the long term investment to enhance the profitability then in case of default lenders or creditors have to wait longer and bear some expense to sell these assets because the liquidity of long term investment is low. In reality, none of the managers choose any of these two extremes instead they want to have a balance between profitability and liquidity which will fulfill their need of liquidity and gives required level of profitability (Arnold, 2008).

2.2 Review of empirical studies

The previous section was presented the theories of working capital management focusing on components, types of working capital, determinant of working capital requirement including and working capital policies. This section reviews the empirical studies on the impact of working capital management on firms' profitability. There are a number studies that assessed working capital management from the perspective of both developing and developed nations. For example, pioneer study by Mueller (1953) about corporate working capital and liquidity may be considered as the best-known study in this field (Samiloglu and Demirgunes, 2008). The difficulty, compounded due to the lack of any uniformity in definition of what is meant by "working capital" motivated him to study on corporate working capital and liquidity literature. Hence, the study was conducted using qualitative method to answer three problems towards which the paper was directed. Thus are; "what is meant by corporate working capital, liquidity and sources of liquidity?" Indeed the study concluded that the term "working capital" should be coextensive with current assets and described by it functions as revolving capital. Further, the study noted that the nature of an asset is determined by its function and not by its name. On the other

hand, the study pinpointed that the ordinary use of the term "liquidity" makes it more a problem of marketing than accounting and finance and hence, liquidity is a consequence of the dynamic function of satisfying social wants. Finally, the study concluded that, it is through working capital that source of liquidity is attained.

Grablowsky (1976) examined mismanagement of accounts receivable by small business in US firm and its impacts on success. Prior to his study in 1975 he was conducted a survey about US firms credit policies and reported that most firms moved an account from active in-house collection to the bad debt file between four to twelve months after the due date. The survey also reveals that even if a customer became a slow payer or was occasionally delinquent, many retailers continued to extend credit to him or her. These signify the existence of collection problems in the US. Depend up on the above problem he was interested to study on the relationship of such policy on firm's success. Grablowsky (1976) has showed as there is a significant relationship between various success measures and the employment of formal working capital policies and procedures. On similar study, Walker and Petty (1978) mentioned that managing cash flow and cash conversion cycle is a critical component of overall financial management for all firms, especially those who are capital constrained and more reliant on short-term sources of finance.

Long et al. (1993) developed a model of trade credit in which asymmetric information leads good firms to extend trade credit so that buyers can verify product quality before payment. Their sample contained all industrial (SIC 2000 through 3999) firms with data available from compustat for the three-year period ending in 1987 and used regression analysis. They defined trade credit policy as the average time receivables are outstanding

and measured this variable by computing each firm's days of sales outstanding, as accounts receivable per dollar of daily sales. To reduce variability, they averaged days of sales outstanding and all other measures over a three year period. They found evidence consistent with the model. The findings were suggested that producers may increase the implicit cost of extending trade credit by financing their receivables through payables and short-term borrowing.

On the other hand Peel and Wilson (1996) examined working capital and financial management in the small firm sector of UK. They were primarily interested to investigate whether the cause of corporate failure is, due to lack of short term financing or inefficient management of working capital. As a result, the researcher used quantitative survey method and concluded that for small and growing businesses, an efficient working capital management is a vital component of success and survival; i.e. both profitability and liquidity. They further assert that smaller firms should adopt formal working capital management routines in order to reduce the probability of business closure, as well as to enhance business performance. Given these peculiarities, they have stressed the efficient management of working capital, and more recently good credit management practice as being pivotal to the health and performance of the small firm sector.

Smith and Begemann (1997) emphasized that those who promoted working capital theory shared that profitability and liquidity comprised the salient goals of working capital management. The problem arose because, the maximization of the firm's returns could seriously threaten its liquidity, and the pursuit of liquidity had a tendency to dilute returns. This article evaluated the association between traditional and alternative working capital

measures and return on investment (ROI), specifically in industrial firms listed on the Johannesburg Stock Exchange (JSE). The problem under investigation was to establish whether the more recently developed alternative working capital concepts showed improved association with return on investment to that of traditional working capital ratios or not. Results indicated that there were no significant differences amongst the years with respect to the independent variables. The results of their stepwise regression corroborated that total current liabilities divided by funds flow accounted for most of the variability in Return on Investment (ROI). The statistical test results showed that a traditional working capital leverage ratio, current liabilities divided by funds flow, displayed the greatest associations with return on investment. Well known liquidity concepts such as the current and quick ratios registered insignificant associations whilst only one of the newer working capital concepts, the comprehensive liquidity index, indicated significant associations with return on investment.

Shin and Soenen (1998) 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). Cash conversion period reflects the time span between disbursement and collection of cash. It is measured by estimating the inventory conversion period and the receivable conversion period, less the payables conversion period. In their study, the researchers 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 COMPUSTAT 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.

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. Based on the study results, he suggests that managers can increase corporate profitability by reducing the number of day's accounts receivable and inventories. De Chazal (1998) revealed that 60% enterprises suffer from cash flow problems. Narasimhan and Murty (2001) stress on the need for many industries to improve their return on capital employed by focusing on some critical areas such as cost containment, reducing investment in working capital and improving working capital efficiency.

Ghosh and Maji (2003) 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 (2003) tested the

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

Other study by, Lyroudi and Lazaridis, (2000) used Greek food industry to examine the cash conversion cycle (CCC) as a liquidity indicator of the firms and tried to determine its relationship with the current and the quick ratios. Hence, the main objective of the study was to investigate the implications of the CCC in terms of profitability, in-debtiness and firm size. The results of their study indicate study showed that there is significant positive relationship between the cash conversion cycle and the traditional liquidity measures of current and quick ratios. The cash conversion cycle also positively related to the return on assets and the net profit margin but had no linear relationship with the leverage ratios. Conversely, the current and quick ratios had negative relationship with the debt to equity ratio, and a positive with the times interest earned ratio. Finally, the study concluded as there is no difference between the liquidity ratios of large and small firms. In the same country, Lazaridis and Tryfonidis (2006) investigated the relationship between working capital management and corporate profitability of listed company in the Athens Stock Exchange. They conducted a penal study by using a sample of 131 firms listed on the Athens Stock Exchange for the period of 2001–2004. The result from regression analysis showed that, there is statistically significant relationship between profitability, measured through gross operating profit, and the cash conversion cycle and its components (accounts receivables, accounts payables, and inventory). Based on the results, they concluded that managers could create value for shareholders by handling correctly

handling the cash conversion cycle and keeping each different component to an optimum level.

Raheman and Nasr (2007) studied the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability of Pakistani firms. They selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of six years from 1999 - 2004 and found a strong negative relationship between variables of working capital management and profitability of the firm. They found that as the cash conversion cycle increases, it leads to decreasing profitability of the firm and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level.

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 endogenetic, 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. On the other hand, 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.

Samiloglu and Demirgunes (2008) study was aims to investigate the effect of working capital management on firm profitability. In line with this aim, a sample of 5, 843 Turkish listed manufacturing companies in Istanbul Stock Exchange (ISE) for the period of 1998-2007 are analyzed under a multiple regression model. Empirical results show that, for the mentioned sample and period, accounts receivables period, inventory period and leverage significantly and negatively affect profitability of Turkish manufacturing firms, while firm growth (in sales) significantly and positively affect firms profitability. However, it is also concluded that cash conversion cycle, size and fixed financial assets have no statistically significant effects on firm profitability of Turkish manufacturing firms for the period of 1998-2007.

Afza and Nazir (2009) was made an attempt in order to investigate the traditional relationship between working capital management policies and a firm's profitability for a sample of 204 non-financial firms listed on Karachi Stock Exchange (KSE) for the period 1998-2005. The survey study found significant different among their working capital requirements and financing policies across different industries. Moreover, regression result found a negative relationship between the profitability of firms and degree of aggressiveness of working capital investment and financing policies. They suggested that managers could increase value if they adopt a conservative approach towards working capital investment and working capital financing policies.

Falope and Ajilore (2009) used a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. Their study utilized panel data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of fifty Nigerian firms listed on the Nigerian Stock Exchange. Furthermore, they found no significant variations in the effects of working capital management between large and small firms. On the same year, Mathuva (2009) examined the influence of working capital management components on corporate profitability by using a sample of 30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008. He used Pearson and Spearman's correlations, the pooled ordinary least square (OLS), and the fixed effects regression models to conduct data analysis. The key findings of his study were that: i) there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers (accounts collection period) and profitability, ii) there exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability, and iii) there exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and Profitability.

Amarjit et. al. (2010) investigated the relationship between the working capital management and the firms' profitability for a sample of 88 American manufacturing companies listed on the New York Stock Exchange for the period of 3 years from 2005-

2007. They were primarily sought to extend Lazaridis and Tryfonidis's (2006) findings by testing with the same hypothesis. They found statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. The study concluded that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level.

Finally, Wajahat and Hammad (2010) conducted the study with the purpose of exploring the relationship between working capital policy and profitability of Swedish firms. Furthermore this study was aimed to investigate the nature of relationship between working capital policy and component of cash conversion cycle. For the purpose of their study the researchers used a sample of 37 listed companies in the OMX Stockholm stock exchange over the period of five years from 2004-2008 and six regressions were run on 185 observations in SPSS software. The result of regression analysis shows that managers can't change the level of profitability by adopting any of the working capital policy i.e. there exist no relationship between working capital policy and profitability.

Conclusions and identification of knowledge gap

In general, the literature review indicates that working capital management has impacts on profitability of a firm. Having optimum level of working capital components will help firms to meet its day to day operations and vital for maximizing value and profitability. Hence, the cash conversion is the most important measure of working capital management efficiency of a firm. Indeed, keeping smaller cash conversion cycle depend up on firms working capital policy will helps a firm to increase profitability.

Even if, the literature review indicated that working capital management has impact on the profitability of the firm but there still is ambiguity regarding the appropriate variables that might serve as proxies for working capital management as a whole. This problem was creating misinterpretation of working capital meaning by earlier researchers like Mueller (1953) and Grablowsky (1976). Hence, literature review consisting some of previous studies though limited in scope, methodology and overall output. Likewise, lack of not incorporating all relevant and most important variables (independent and control) used to measure both working capital and profitability, it creates difficulty for comparability of studies conduct in similar areas. Moreover, studies regarding working capital are mostly related with improving models to determine optimal liquidity and cash balance, rather than analyzing underlying reasons of relationships between liquidity, working capital management practices and profitability. Therefore, its difficulty for who read those studies to answer why? As a result, first the researcher tried to identify major relevant variables which are missed or not included in previous studies. Accordingly, unlike the previous studies the researcher run the regression for gross operating profit together with all selected major relevant variables to see their impact on firm's profitability. Here by including new variables (current ratio and sales growth as a measure of liquidity and profitability others usual), running the regression by including all variables would enhance the finding and fill the problem of missing important variables which was observed in previous studies. In general the researcher believed that, the above actions would fill the gap identified in thus study.

2.3 Nature of manufacturing companies

In its earliest form, manufacturing was usually carried out by a single skilled artisan with assistants and training was by apprenticeship. In much of the pre-industrial world the guild system protected the privileges and trade secrets of urban artisans. Before the industrial revolution, most manufacturing in the world was occurred in rural areas, where household-based manufacturing served as a supplemental subsistence strategy to agriculture (and continues to do so in places). Entrepreneurs organized a number of manufacturing households into a single enterprise through the putting-out system. However, the market place of the twenty-first century is evolving into one of merging national markets, fragmented consumer markets, and rapidly changing product technologies in manufacturing industry. These changes are driving firms to compete, simultaneously, along several different dimensions: design, manufacturing, distribution, communication, sales and others. Although manufacturing has not been utilized as a competitive weapon historically, the market place of the twenty first century will demand that manufacturing assume a crucial role in the new competitive arena.

Progress in human society has been accomplished by the creation of new technologies in deferent industries and that is why last few years have witnessed unparalleled changes throughout the world. Rapid changes in the markets demand drastically shortened product life cycles and high-quality products at competitive prices. Customers now prefer a large variety of products and this phenomenon has inspired manufacturing firms to look for progressive computerized automation in various processes. Thus, mass production is



being replaced by low-volume, high-variety production so as to maximize sale and there by profitability.

Manufacturing firms have recognized the importance of flexibility in the manufacturing system to meet the challenges posed by the pluralistic market. The concept of flexibility in manufacturing systems has attained significant importance in meeting the challenges for a variety of products of shorter lead-times, together with higher productivity and quality. The flexibility is the underlying concept behind the transition from traditional methods of production to the more automated and integrated methods. According to some economists, manufacturing is a wealth-producing sector of an economy and the back bone of world economy.

To summaries, now a day's the international standard industrial classification (ISIC, 2003, p.1) defined manufacturing activity as "the physical or chemical transformation of materials or components into new products, whether the work is performed by power driven machines or by hand, whether it is done in a factory or in the worker's home, and whether the products are sold at the whole sale or retail. The assembly of the component parts of manufactured products is also considered as manufacturing activities".

Chapter 3

Research methodology

The previous chapter indicated the literature on the impacts of working capital management on firms' profitability, and pointed out that there is limited research in developing countries, particularly in Ethiopia.

The intent of this chapter is giving brief outline of the broad objective of the study and hypotheses, the underlying principle of research methodology and the choice of the appropriate research method for the study. The chapter is arranged as follows: section 3.1 presents the research objective and hypotheses. Section 3.2 discusses the different research approaches while section 3.3 shows methods adopted in the study. Finally, conclusions along with the link between hypotheses and data sources are presented in section 3.4.

3.1 Research objective and hypotheses

This study aims to examine the impacts of working capital management on profitability of firms in Addis Ababa city with a special reference to the manufacturing sector of share companies'.

Therefore, in light of the above research objective, several statements of supposition can be made in view of the impacts of working capital management on firms' profitability. The following discussion covers the hypotheses that this study attempted to test.

Since, the basic objective of working capital management is to manage firm's current assets and liabilities and in such a way that working capital are maintained at a satisfactory level. Smith (1980) mentioned that working capital management plays an important role in a firm's profitability and risk as well as its value. Whereas, Van Horne and Wachowicz (2004) pointed out that excessive level of current assets have a negative effect on firm's profitability, while lower level of current assets lead to lower liquidity and stock-outs, and result in difficulties of maintaining smooth operations. Therefore, depend upon the above theoretical basis the first hypothesis of the study is developed as follows:

HP₁: There is positive relationship between efficient¹ working capital management and profitability of firms'.

Cash conversion cycle is one factor that would affect profitability of firms. Weston and Brigham (1977, P. 690) mentioned that firms typically follow a cycle in which companies purchase inventory, sell goods on credit, and then collect accounts receivable. This cycle is referred to as the cash conversion cycle (CCC). Thus, CCC focuses on the length of time between when the company makes payments and when it receives cash inflows. Sound working capital policy is designed to minimize the time between cash expenditures on materials and collection of cash on sales depend upon working capital policies of firms. Gitman (1999) argued that CCC is a key factor in working capital management. Therefore, CCC can be shortened first by reducing inventory conversion period by

¹ Here the word efficient describes, on average how much number of days does each firms takes to convert each of its working capital component in to sale or cash. Hence, firm having with a minimum number of days in each working capital component are more efficient in managing its working capital.

processing and selling goods more quickly. Secondly, by reducing receivables collection period through speeding up collections and finally, by lengthening the payables deferral period through slowing down the firm's own payments. Therefore, to the extent that these actions can be taken without increasing costs or depressing sales, it increases firm's profitability. Thus, the second hypothesis is developed as follows:

HP₂: There is a negative relationship between cash conversion cycle and profitability of firms'.

The other important variable that would affect liquidity and profitability are very closely related to it. Most of the time, liquidity goals of a firm is to have adequate cash to pay for its bills; to make large unexpected purchases and finally, firm has an adequate cash reserve to meet emergencies in all time. Whereas, profitability goal on the other hand requires that, funds of a firm are used so as to yield higher return. Therefore, when one increase the other decreases (Weston and Brigham, 1977, P. 690). Apparently, liquidity and profitability goals conflict in most of the decisions the finance manager makes. For example, higher inventories are kept in anticipation of increase in prices of raw materials; hence, profitability goal is approached but the liquidity position of a firm is endangered. Similarly, firms by following liberal credit policy may be in a position to push up its sales but its illiquidity decrease. In reality, none of the managers choose any of these two extremes instead they want to have a balance between profitability and liquidity which will fulfill their need of liquidity and gives required level of profitability (Arnold, 2008). As a result, the third hypothesis is developed as follows:

HP₃: There is a negative relationship between liquidity and profitability of firms.

Fourthly, the researcher anticipated that profitability may have a relation with company's size (measured in terms of logarithm of sales). The company size may affect liquidity and thus, profitability in different ways. On the one hand, large companies may be able to buy inventory in large quantities in order to get quantity discounts. Further, because of their size, large companies may qualify for quantity discounts from suppliers with relatively small inventory levels. Additionally, large companies may be able to get favorable credit terms from their suppliers in terms of longer credit periods and they may have more success in their receivables collection efforts relative to small companies. Hence, having the above opportunities, large companies are in favor of small firms in maximizing their sales, utilizing resources and finally boosts their profit. Thus, in light of the above theoretical grounds the fourth hypothesis developed as follows:

HP₄: There is a positive relationship between firm size and profitability.

Finally, the fifth factor that would affect the profitability of a firm is, the way that managers are financing their business. As a result, in all time internal and external finance are not perfectly substitutes in practice. External finance, like debt may be more expensive than internal finance because of market imperfections. In these circumstances, a firm's investment and financing decisions are interdependent. Firms may have a target cash conversion cycle as a measure of working capital which balances costs and benefits and hence, maximizes the value for the firm. For this reason, the cost of the funds invested in the cash conversion cycle is higher in firms with a larger leverage, because they have to

pay a higher risk premium. Therefore, it is possible to anticipate a negative relationship between leverage ratio and profitability. Deloof (2003) mentioned that when leverage of the firm increases; it will adversely affect its profitability while financial debt ratio used as a proxy for leverage. Hence, basing the above discussion the last hypothesis developed as follows:

HP₅: There is a negative relationship between debt used by the firms and their profitability.

3.2 Research approaches

Depending on the philosophical stance, strategies of inquiry and specific methods, a research approach can be categorized as quantitative research approach, qualitative research approach and mixed research approach. The discussions in the subsequent sections present these three approaches of research. Specifically, Section 3.2.1 presents quantitative research approach while sections 3.2.2 and 3.2.3 present respectively qualitative and mixed methods research approaches.

3.2.1 Quantitative research approaches

Quantitative research is grounded in the post-positivism knowledge claim that primarily reflects the scientific method of the natural sciences. This paradigm adopts a deductive approach to the research process. The researcher gathers data from the real world setting and then analyses the data statistically to support or reject the hypotheses (Blanchi and Durrhein, 1999). Researchers who adopt a more deductive approach use theory to guide the design of the study and the interpretation of the results. In line with this, the overall

objective of quantitative research is to test or verify a theory, rather than to develop one. Therefore, the theory offers a conceptual framework for the entire study, and it also serves as an organizing model for the entire data collection procedure (Welman and Kruger, 2001). Shaw (2006) sees quantitative techniques as an attempt to test a hypothesis by incorporating it into the research design and responding to it by measuring its strength and weaknesses that give numerical measurements to the data collected.

Firestone (1987) stated that quantitative data are those which can be sorted, classified, measured in a strictly objective ways. They are also capable of being accurately described by a set of rules or formulae which then make their definition (if not always their interpretation) unambiguous and independent of individual judgments. Quantitative researchers put their emphasis on procedures, methodologies and statistics. As a result, it relies on statistical techniques aided by computational algorithms and software packages for analysis the problem under study.

Quantitative research is one in which the investigator primarily uses positivist claims for developing knowledge and its strategies of inquiries are associated with experimental and survey research methods. Creswell (2009) mentioned that experimental research seeks to determine if a specific treatment influence an outcome. This impact is assessed by providing a specific treatment to one group and withholding it from another and then determining how both groups scored on an outcome. Therefore, pure experiment enables the researcher to manipulate an independent variable in order to see the effect on the dependent variable with the random assignment of subjects to treatment conditions while quasi experiments uses non randomized designs and it is a single subjects design.

Whereas, survey research provides quantitative or numeric description of research trends attitudes or opinions of a population by studying a sample of population. It includes cross-sectional (data will be collected in one point in time) and longitudinal studies (data will be collected through time with different interval) using questionnaires, structured interviews and documentary reviews for data collection, with the intent of generalizing from the sample to the population (Creswell, 2009).

The well planned and implemented quantitative research has the merit of being able to make generalizations, for a broader population, based on findings from the sample. To enhance the generalization of findings, quantitative research methods follow, at least theoretically, standardized procedures in sample selection, instrument design, implementation and analysis. This standardization in turn increases the duplicability of procedures and the reliability of findings and also can mitigate the impact of interviewer (if administered through direct interviews) and interviewee biases (minimizing subjectivity of judgment).

Notwithstanding the above advantage, quantitative research design has a number of limitations. First, it belittles human individuality and the ability to think. Second, it fails to provide the researcher with information on the context of the situation where the studied phenomenon occurs. Third, it will have limited outcomes to only those outlined in the original research proposal due to closed type questions and the structured format and finally, quantitative research appears to lack flexibility in design which may be crucial when additional information revealed through data collection needs further exploration for knowledge.

3.2.2 Qualitative research approaches

Qualitative approach is centered on the interpretive social sciences paradigm. Qualitative methodology of investigation tends to be based on recognition of the importance of the subjective, experiential 'life-world' of human beings (Blanchi and Durrhein, 1999). Shaw (2006) described that qualitative research seeks to come to terms with meaning rather than frequency because they discover or uncover issues in order to generate ideas and hypothesis. This paradigm therefore focuses on context and capture ways in which people interpret events, experiences and relationship.

Easterbyet et al. (1991) mentioned that the task of the qualitative methodologist as to capture what people say and do as a product of how they interpret the complexity of their world, and to understand events from the viewpoints of the participants. Creswell (2009) pinpointed that qualitative approach is one in which the inquirer often makes knowledge claims based primarily on constructivist perspectives (i.e., the multiple meanings of individual experiences meanings socially and historically constructed, with an intent of developing a theory or pattern) or advocacy/participatory perspectives (i.e., political, issue-oriented, collaborative, or change oriented) or both.

Greener (2008) and Creswell (2009) stated that qualitative research approach uses strategies of inquiry such as case studies, narratives research, phenomenology's, ethnographies, action research and grounded theory. Greener (2008) described case study as strategies of inquiry in which the research will involve more than one ways of delivering data about the case or organization/unit under study for a prolonged time period. This may include collecting and analyzing documents, talking to peoples, survey

data, participates observation, consumer research and any other data collection techniques which offer qualitative information about the case. According to Creswell (2009) narrative research is a strategy of inquiry in which the research studies the life of individuals and asks one or more individual to provide stories about their lives. This information is then often retold or restored by the researcher into the narrative chronology.

Dawson (2002) explained that ethnography has its roots in anthropology and was a popular form of inquiry at the turn of the century when anthropologists travelled the world in search of remote tribes. The emphasis in ethnography is on describing and interpreting cultural behavior. Ethnographers immerse themselves in the lives and culture of the group being studied, often living with that group for a prolonged period of time. These researchers participate in group activities whilst observing its behavior, taking notes, conducting interviews, analyzing, reflecting and writing reports. The research process is flexible and typically involves contextually in response to the lived realities encountered in the field setting. Phenomenological research is a strategies of inquiry in which the researcher identifies the essence of human experiences about the phenomenon as described by participants (Creswell, 2009). Understanding the lived experiences marks phenomenology as a philosophy as well as method, and the procedure involves studying a small number of subjects through intensive and prolonged engagement to develop patten and relationships of meaning. Finally Dawson (2002) defined that grounded theory is a strategy of inquiry which was first laid out in 1967 by two researchers named Glaser and Strauss. The emphasis in this strategy is on the generation of theory which is grounded in the data (which means it has emerged from the data). In grounded theory, methods such as

focus groups and interviews tend to be the preferred data collection method, along with a comprehensive literature review which takes place throughout the data collection process.

Qualitative research uses data collection methods such as interviews, participant observation, open ended questioners, documentary and audiovisual materials studies and finally the findings are conveyed subjectively through descriptions using words rather than numbers. This means, in qualitative research the main emphasis is on description and inductive discovery of evolving theory that may arise after observation is carried out or data is collected.

Like that of quantitative research method, qualitative research approaches has its own strengths and weaknesses. The advantage of a qualitative research approach is that it provide a more realistic feel of the world that cannot be experienced in the numerical data and statistical analysis used in quantitative research. It is flexible ways to perform data collection, subsequent analysis, and interpretation of collected information. Further, it provides a holistic view of the phenomena under investigation and the researcher have an ability to interact with the research subjects in their own language and on their own terms.

Despite the above advantage, qualitative research design has its own limitations. First, it required much time for data collection, analysis and interpretation i.e., the researcher has to spend a considerable amount of time in the research setting in order to examine holistically and aggregately, the interactions, reactions and activities (Babbie, 1995). Second, lack of standardized rules in the research design and the emphasis on giving meanings and interpretations to events and things reduces the objectivity. Third, in

qualitative research the researcher arrives on different conclusions based on the same information depending on the personal characteristics of the researcher (subjectivity) and inability to investigate causality between different research phenomena. Four, the findings of qualitative research cannot be statistically generalized for a broader population of interest for it is based on a small and unrepresentative number of investigated cases.

3.2.3 Mixed research approaches

Triangulation is about exposing potentially conflicting perspectives to analysis and showing that data can be integrated and cross-referenced to highlight consistency. Pervez and Kjell (2005) stressed that to enhance validity, there is a need to collect or analyze data through triangulation and where correctness or precision is important. Hence, it is quite logical to collect information through different methods and angles. Babbie (1995) mentioned that a combination of qualitative and quantitative approaches should be viewed as an acceptable methodological approach for research occupying a variety of epistemological positions.

Creswell (2009) defined that mixed approach is one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g., consequence-oriented, problem-centered, and pluralistic). It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problem. The data collection also involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information. As a result, when methods are combined, the advantages of each

methodology complement those of the other, making a stronger research design that will yield more valid and reliable findings. Indeed, the inadequacies of individual methods are reduced.

In general, according to McKerchar (2008) the choice among the three research approaches is guided by mainly the research problem apart from the underlying philosophy of each research method. That is, whether the research problem is based on a framework developed deductively through a review of the literature and prefigured information to be collected in advance of the study or to allow it to emerge from participants in the project or both.

3.3 Methods adopted

The choice among the three research approaches is guided by mainly the research problem apart from the underlying philosophy of each research method (McKerchar 2008). That is, whether the research problem is based on a framework developed deductively through a review of the literature and prefigured information to be collected in advance of the study or to allow it to emerge from participants in the inquiry process. Also the type of data may be numeric information to be gathered on scales of instruments or more textual information, recording and reporting the voice of the participants. In light of the research objective and hypotheses presented at the beginning of this chapter along with the underlying philosophy of each research approach, in this study, the quantitative method along with survey design strategy of inquiry was used. More specifically, this study

employed structured documentary reviews. In the context of this the following subsection presents the survey design together with its components.

3.3.1 Survey design

The study assessed the impacts of working capital management on the profitability of selected manufacturing share companies in Addis Ababa City Administration. To achieve the research objective and to test the hypotheses, the study adopted quantitative research approach. The researcher chooses survey research as a strategy of inquiry. The adoption of the survey design, in the study, would have the following benefits; first, generalization process from sample to population is the intention of a quantitative as opposed to a qualitative researcher. In this type of research, only one sample of subjects is studied and based upon characteristics of that sample, generalization is made back to the population where the sample is formerly chosen. Second, it would give a chance for the researcher to produce data based on empirical figures and thirdly, using survey design was economically viable. This means, it can produce a large amount of data in a short time with a low cost. Accordingly, the data for the study was collected using structured documentary reviews of companies' financial statement (especially balance sheet and income statement). Further, the survey was cross sectional, in which data are collected at one point in time. The subsequent sections present a discussion of the structured survey of documents, sampling design and data analysis in an orderly manner.

3.3.1.1 Structured survey of documents

It is crucial that the data collected and the method used in a research work affect its outcome. Therefore, the data for the study was collected using structure documentary reviews of target companies audited financial statements like balance sheet and income statement. Since the required data for the study is more of quantitative, appropriate data couldn't be collected using simply distributed questionnaires to the company's managers or other concerned bodies. For this reason, reviewing selected companies balance sheet and income statement items would be the right avenue to determine coefficient of correlation and regression analysis between working capital management and firm's profitability. Additionally, it was preferred for its convenience and cost effectiveness. However, the main problem of using secondary data would be lack of accessibility of getting relevant source of information directly from selected companies (lack of willingness) and its reliability. By considering the above problems and to excel the reliability of data, it was collected from Ethiopian revenue and custom authority from which audited financial statement is directly submitted by the taxpaying companies to the office.

3.3.1.2 Sampling design

The target population of the study was manufacturing² share companies found in Addis Ababa city administrations. According, to the ISIC classifications manufacturing enterprises involves industrial groups or business types such as:

- Manufacture of food products: manufacture of vegetable and animal oils and fats, manufacture of dairy products, manufacture of bakery products, manufacture of cocoa, chocolate and sugar confectionary; grain mill services;
- Manufacture of textiles: preparation and spinning of textile fibers, manufacture of made up textile articles, manufacture of carpets and rugs; manufacture of wearing apparel, dressing and dyeing of fur;
- Manufacture of leather, manufacture of luggage, hand bags and foot wear;
- Manufacture of wood and products of wood and cork;
- Manufacture of paper and paper products; publishing, printing and production of recording media;
- Manufacturing of chemicals and chemical products;

² The international standard industrial classification (ISIC Revision-3 cited in central statistics agency (CSA, 2003, p.1) defined manufacturing activity as “the physical or chemical transformation of materials or components into new products, whether the work is performed by power driven machines or by hand, whether it is done in a factory or in the worker’s home, and whether the products are sold at the whole sale or retail. The assembly of the component parts of manufactured products is also considered as manufacturing activities”.

- Manufacturing of other non metallic mineral products(manufacture of glass and glass products ,manufacture of ceramic and clay products, manufacture of articles of concrete, cutting ,shaping and finishing of stones;
- Manufacture of fabricated metal products, except machinery and equipment; manufacture machinery and equipment manufacture of parts and accessories for motor vehicles and their engines;
- Manufacture of furniture and manufacture jewelry and related articles and other manufacturing enterprises not elsewhere mentioned.

Similarly, choosing the right and appropriate study area for the problem identified may enhance the output of the study and help to achieve its objective. Therefore, the decision to use manufacturing companies was based on the following two aspects that enhance the validity of the study. First, manufacturing companies represent an appropriate sample in order to analyze working capital management. Because all of three components working capital (inventory, account receivable and payable) usually play important roles in the manufacturing sector and comparability of the sample companies will be enhanced. For instance, service companies most probably hold much less inventory and accounts receivable. Hence, they represent a less reliable source of information for this specific study. Second, most of the previous studies in different countries in relation to this topic were conducted on manufacturing companies like by (Deloof, 2003; Zariyawati et al., 2008; Raheman and Nasr, 2007). For this reason, the researcher believed that manufacturing companies was suitable for the problem under study.

Therefore, according to Addis Ababa city administration trade and industry bureau, formally registered manufacturing share companies' until end of the year 2004 were about 29 firms. Since, the study covered only five years data (from 2005 – 2009) manufacturing companies registered after end of year 2004 were not eligible for the study. Therefore, the total number of population eligible and used for the study was 29 manufacturing share companies found in Addis Ababa city administration.

The sampling procedure employed in this study was stratified sampling method based on the afore-mentioned ISIC classifications of manufacturing enterprises. Among the above listed types of manufacturing enterprises, four types of manufacturing firms are chosen based on combination of their nature (see appendix 1). And then each of four stratum was divided into three groups based on companies' turnover³. As the researcher discussed on the literature part, nature and turnover of the companies are crucial factors that determine and affect working capital requirements of a firm. Hence, the researcher believed that stratifying companies based on their nature and turnover is appropriate technique for this specific study. Indeed, the representativeness of all groups in the sample was increased and it reflects the true proportion of the sample about the population. Further, Solomon (2004) in his study of socio economic determinants of growth of small manufacturing

³ As there is no base for the researcher to divide share companies based on their size as large, medium and small, hence, the researcher preferred to use companies' turnover as the second base of stratification so as to increase the representativeness of the sample data. Using their average turnover for five years(5) the population is segregated into three groups as group A, group B and group C. Group "A" represents companies with turnover from 50, 000.00 up to 15,000,000.00, "B" 15,000,001.00 Up to 100,000,000.00 and "C" Greater than 100,000,000.00.

enterprises in Addis Ababa city divides manufacturing industry in to four strata as leather, textile, metal and food companies.

In designing a sample, basing the sample selection on a comprehensive list of potential respondents who have an equal chance of selection is vital to increasing the representativeness of the samples. Meanwhile, the researcher does not use any formula to determine the sample size because if the researcher used the formula for determination of the sample size, the sample size will be too high which resulted in high cost and takes long time to finish the study. Hence, the researcher considered it limited time and resource to determine the sample size. Accordingly, after stratifying the population using nature of operations and turnover the study selected a total sample of thirteen (13) companies from all sectors and turnover groups' using random sampling techniques.

Unlike other sampling techniques, stratified sampling method has the following advantage which leads the researcher to use it. First, it improves the accuracy of the sample, i.e. it ensures that any differences between the strata are controlled by making sure that each stratum is proportionately represented. Second, Stratified sampling is one tool to reduce selection bias. However, if from stratum's one group is either overrepresented or underrepresented in a sample, selection bias has occurred and the sample will not accurately reflect the larger population. Moreover, simple random sampling method was used for the following advantages. First, the method gives equal chance for all strata in the study to be included in the sample. Second, it minimizes the existence of sampling biases, and thirdly, the method itself is too easy to use. Accordingly, the study has a total

of sixty five (65) observations to undertake study. In light of the above discussion the overall summary of sampling design is depicted on appendix 2.

3.3.1.3 Data analysis methods

Before presenting the data analysis methods adopted, the study tried to specify the variables and models used under the study. Accordingly, the study identified a total of nine (9) variables including one dependent, four independent and four control variables based on the previews studies on different countries on similar topics namely, Narware (2003), Deloof (2003), Rahemal and Nasr (2007), Zariyawati et al. (2008), Phuong (2010) and Amarjit Gill et al. (2010) and discussed as follows:

Gross operating profitability⁴ (GOP) that is a measure of profitability of firm is used as dependent variable. It is defined as sales minus cost of goods sold, and divided by total assets minus financial assets.

Regarding independent variables, average collection period⁵ (ACP) is used as a proxy for the collection policy of firms while inventory turnover in days⁶ (ITID) is used as a measure for the inventory policy of firms, and second independent variable. Similarly, average payment period⁷ (APP) is used as proxy for the payment policy of firms and third

⁴The researcher anticipated that, for a number of firms in the sample, financial assets, which are chiefly shares in affiliated firms, are/may be a significant part of total assets. When the financial assets are main part of total assets (presented on balance sheet), its operating activities will contribute little to overall return on assets. Hence, that is the reason why return on assets is not considered as a measure of profitability for this study.

⁵ ACP is calculated by dividing account receivable by sales and multiplying the result by 365 (number of days in a year)

⁶ Inventory turnover in day is calculated by dividing inventory by cost of goods sold and multiplying with 365 days.

⁷ Average payment period is computed by dividing accounts payable by purchases and multiplying the result by 365.

independent variable and the last independent variable is cash conversion cycle⁸ (CCC) which is used as a comprehensive measure of working capital management.

Current ratio⁹ (CR) is used as a traditional measure of firm's liquidity, and as a control variable. In addition, size were other control variable and calculated as (Natural logarithm of sales), Debt ratio (DR) is also used as a proxy for leverage and is computed by dividing total debt by total assets, and finally, sales growth (SG) were used as a measure of sales growth and calculated as ((this year's sales minus previous year's sales)/previous year's sales).

Therefore, the general formula used for the model is:

$$GOP_{it} = \beta_0 + \sum_{i=1}^n \beta_i X_{it} + \epsilon$$

Source: Raheman and Nasr, (2007).

Where:

GOP_{it} = Gross operating profit of a firm i at time t ; $i = 1, 2, 3, \dots, 13$ firms.

β_0 = The intercept of equation

β_i = Coefficient of X_{it} variables

X_{it} = The different independent variables for working capital management of firm i at time t .

t = Time from 1, 2, ..., 5 years and ϵ = Error term

⁸ CCC is measured by adding average collection period with inventory turnover in days and deducting average payment period.

⁹ Current ratio is calculated by dividing current assets by current liabilities. Companies with relatively high levels of liquidity are expected to post low levels of profitability and vice versa.

Finally, the above general least square model is converted in to specified variables as follows;

$$GOP_{it} = \beta_0 + \beta_1 (ACP_{it}) + \beta_2 (ITID_{it}) + \beta_3 (APP_{it}) + \beta_4 (CCC_{it}) + \beta_5 (CR_{it}) + \beta_6 (DR_{it}) + \beta_7 (SG_{it}) + \beta_8 (Size_{it}) + \varepsilon$$

Model used for regressing account receivable as independent variable.

$$GOP_{it} = \beta_0 + \beta_1 (ACP_{it}) + \beta_2 (CR_{it}) + \beta_3 (DR_{it}) + \beta_4 (SG_{it}) + \beta_5 (Size_{it}) + \varepsilon$$

Model used for regressing inventor as an independent variable

$$GOP_{it} = \beta_0 + \beta_1 (ITID_{it}) + \beta_2 (CR_{it}) + \beta_3 (DR_{it}) + \beta_4 (SG_{it}) + \beta_5 (Size_{it}) + \varepsilon$$

Model used for regressing account payable as an independent variable

$$GOP_{it} = \beta_0 + \beta_1 (APP_{it}) + \beta_2 (CR_{it}) + \beta_3 (DR_{it}) + \beta_4 (SG_{it}) + \beta_5 (Size_{it}) + \varepsilon$$

Model used for regressing cash conversion cycle as an independent variable

$$GOP_{it} = \beta_0 + \beta_1 (CCC_{it}) + \beta_2 (CR_{it}) + \beta_3 (DR_{it}) + \beta_4 (SG_{it}) + \beta_5 (Size_{it}) + \varepsilon$$

Where:

GOP= Gross operating profit	ACP= Average collection period
ITID= Inventory turnover in days'	APP= Average payment period
CCC= Cash conversion cycle	CR= Current ratio
DR= Debt ratio	Size= Natural logarithm of Sales
SG= Sales growth	ε = Error term

In terms of data collection methods, after collecting relevant information, the researcher processed the raw data using SPSS V19.0 and Eviews 6 software packages whichever is for different cases. It is known that different software packages have different features used to generate some statistical output even if the result is the same. As a result for the sake of convenience in presenting the regression output and balancing limitations of each packages the researcher used both method in different cases throughout the analysis part of the study. Hence, for the test of classical linear regression model (CLRM) assumptions both software packages were used together in different cases. The study used descriptive statistics, Pearson correlation coefficient and regression analysis.

Descriptive analyses were used to describe patterns of behavior or relevant aspects of phenomena and detailed information about each variable. Thus, it shows the average, and standard deviation of the different variables of interest in the study. Moreover, it also presents the minimum and maximum values of the variables which help in getting a picture about the maximum and minimum values a variable can achieve and processed using SPSS.

The study used correlation analysis, specifically Pearson correlation to measure the degree of association between different variables under consideration which was generated using SPSS package. Similarly, with the help of Eviews software the study used multiple regression analysis to estimate the causal relationships between profitability variable, liquidity and other chosen variables.

The researcher used pooled ordinary least squares to investigate the impact of working capital management on corporate profitability and to test the research hypotheses. For quantitative analysis especially in regression analysis a pooled regression¹⁰ was conducted since the data has both time series¹¹ and cross-sectional¹² dimensions. The major benefits of using panel data is, more useful in studying the dynamics of adjustment, and it is better able to identify and measure effects that are simply not detectable in pure cross-sections or pure time series data. Moreover, many variables can be more accurately measured at the micro level and biases resulting from aggregation over firms or individuals are eliminated (Brooks, 2008 pp.488-489).

As it can be mentioned above, for this research OLS (ordinary least square) were used. Therefore, before the regressions were run tests for fulfillment of basic CLRM assumptions are tested. Consequently, the basic CLRM assumptions tested in this study are normality¹³ of the error distribution, linearity, homoscedasticity¹⁴ (equal variance) and multicollinearity¹⁵ (variance inflation factor (VIF¹⁶)). In summary, the fundamental

¹⁰ Pooled regression, involve estimating a single equation on all the data together, so that the dataset for y is stacked up into a single column containing all the cross-sectional and time-series observations, and similarly all of the observations on each explanatory variable would be stacked up into single columns in the x matrix and then the equation is estimated using OLS (Brooks, 2008 p.488)

¹¹ Time series data, as the name suggests, are data that have been collected over a period of time on one or more variables. Time series data have associated with them a particular frequency of observation or collection of data points. The frequency is simply a measure of the interval over, or the regularity with which, the data are collected or recorded (Brooks, 2008 pp.3 - 4).

¹² Gujarati (2004, p 27) mentioned that cross-section data are data on one or more variables collected at the same point in time.

¹³ Normality of the error distribution assumed that errors of prediction (differences between the obtained and predicted dependent variable scores) are normally distributed. Violation of this assumption can be detected by constructing a histogram of residuals (Brooks, 2008)

¹⁴ The assumption of the CLRM that the variance of the errors is constant or equal is known as homoscedasticity (i.e. it is assumed that $\text{var}(u_i) = \sigma^2$). If the variance of the errors is not constant, this would be known as heteroscedasticity (Gujarati, 2004 p 387)

¹⁵ Multicollinearity it's the existence of a perfect, or exact, linear relationship among some or all explanatory variables of a regression model. If the explanatory variables were correlated to one another, adding or removing a variable from a regression equation would cause the values of the coefficients on the other variables to change (Brooks, 2008 p.170).

concept and terms used in the analyses part of the study is briefly discussed on appendix 3.

3.4 Conclusions and the relationship between research hypotheses and the data

This chapter discussed the research objective and hypotheses, research methods and different data sources which were appropriately used to address the study problems. Table 3.1 set out how each research hypotheses are addressed by the appropriate items in the survey of structured documentary reviews of companies' financial statements.

In general basing the research problems and objective the study developed five hypotheses. Similarly, based on the underlying principles of research methods and the research problem quantitative approach were chosen as appropriate to this research. To this end, surveys of structured documentary reviews (companies' financial statement) were shown to be the appropriate method of inquiry to answer the research problems for this study. The next chapter presents the results of each of these methods of inquiry.

¹⁶ As a rule of thumb VIF greater than 10 percent will be the sign of high multicollinearity problem on between variables. VIF is a measure of the reciprocal of the complement of the inter-correlation among the predictor variables.

Table 3.1 Relation between the research hypotheses and the data

Research hypotheses	Items in the survey of documentary reviews
HP ₁ : There is positive relationship between efficient working capital management and firms' profitability.	Reviews of firms' income statement and balance sheet. Specifically, sales, COGS and A/R, A/P, financial asset, inventory and cash.
HP ₂ : There is a negative relationship between cash conversion cycle of firm and profitability.	Reviews of firms' income statement and balance sheet, specifically, sales, COGS, A/R, A/P, inventory, cash and financial asset.
HP ₃ : There is a negative relationship between liquidity of the firms and profitability.	Reviews of firms' income balance sheet and statement, like cash, A/R, A/P, inventory, financial asset, sales and COGS.
HP ₄ : There is a positive relationship between firm size and its profitability.	Reviews of firms' income statements and balance sheet namely, sales, COGS, financial assets.
HP ₅ : There is a negative relationship between debt used by the firms and profitability.	Reviews of firms' balance sheet and income statement like, total debt, total asset, financial asset, sales, COGS.

Chapter 4

Results

The former chapter presented the research methodology and the rationale for undertaking the research using a quantitative approach particularly surveys of documentary analysis. This and the next chapter present respectively the results and analysis of the findings on the impacts of working capital management on firm's profitability. The approach adopted is first to present the outcomes of the different methods independently in this chapter. The results obtained under different methods are jointly analyzed in the subsequent chapter to address each research hypotheses. Therefore, the chapter is organized as follows. Sections 4.1 present the outcomes of the study and finally, conclusions are presented in section 4.2.

4.1 Survey results

The main purpose of this study is to investigate the impacts of working capital management on firms' profitability. The primary data sources to this end are the surveys of documentary analysis of companies financial statements particularly income statements and balance sheet. Using companies' income statement and balance sheet the subsequent discussion presents the results obtained using various statistical tools. Specifically, section 4.1.1 presents results for summary descriptive statistics of the study followed by the test results for the assumptions of classical linear regression model (CLRM) in section 4.1.2.

Section 4.1.3 presents summary of significance of the model. Pearson's correlation coefficient on section 4.1.4 and finally results of multiple regressions are presented in section 4.1.5.

4.1.1 Results for summary of descriptive statistics

The descriptive statistics are presented for 65 total observations of manufacturing share companies found in Addis Ababa city administration for the period of five years. For both dependent and independent variables value of minimum, maximum, mean and standard deviation are presented on table 4.1.

Table 4.1 Descriptive statistics of sample companies

Descriptive statistics					
Variables	N	Minimum	Maximum	Mean	Std. Dev.
Gross operating profit	65	-.220	.520	.141	.199
Average collection period in day	65	12	135	57.85	28.62
Inventory turnover in day	65	37	200	97.58	34.02
Average payment period in day	65	30	226	104.49	48.86
Cash conversion cycle	65	-25	343	129.88	86.53
Current ratio	65	.190	3.700	1.88	.812
Debt ratio	65	.040	1.100	.496	.280
Sales growth	65	-1.00	.950	.11	.284
Size of the company	65	6.64	8.89	7.66	.518

Source: SPSS output from financial statements of sample companies, 2005-2009

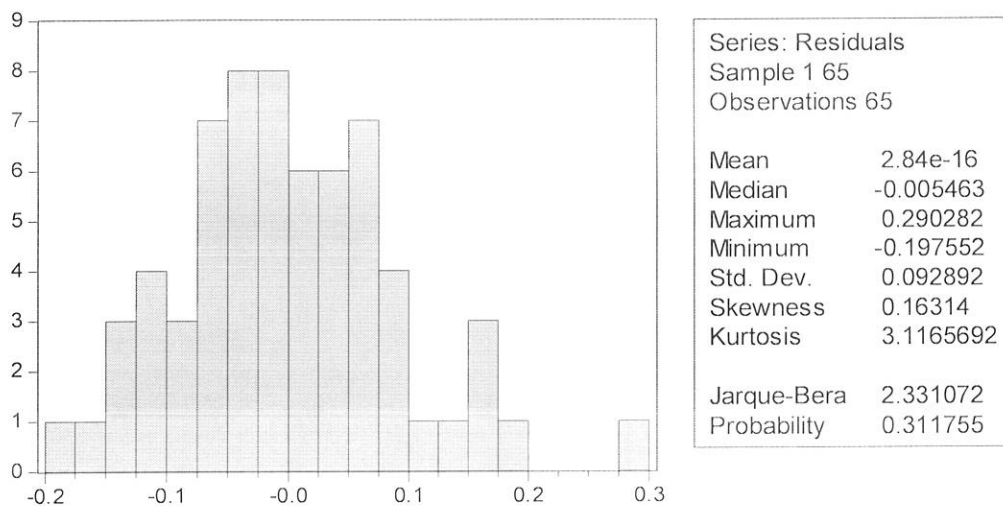
4.1.2 Test results for CLRM assumption

Under this subsection the study presented three different results for the test of CLRM. Firstly the test results for linearity assumption are presented using both graphic and non graphic method followed by test results for homoscedasticity (equal variance) are presented. Finally, results for multicollinearity (variance inflation factor (VIF)) tests are presented.

4.1.2.1 Graphic and non graphic test results for normality

Figure 4.1 revealed that the data is normally distributed and residuals are normally distributed, the histogram is bell-shaped and the Jarque-Bera statistic of 2.33 has a probability of 0.31.

Figure 4.1 Histogram of normally test



Source: Eviews output from financial statement of sample companies 2005-2009

Regarding the non graphic test of normality by Kolmogorov-Smirnov and Shapiro-Wilk on table 4.2 shows the significant level of 20 and 69.2 percent respectively.

Table 4.2 Kolmogorov-Smirnov and Shapiro-Wilk test for normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Unstandardized Residual	.055	65	.200 [*]	.986	65	.692

*A lilliefors significant correction *this is a lower boundary of the true significance*

Source: Eviews output from financial statement of sample companies 2005-2009

4.1.2.2 Test result for linearity

The result Ramsey test shows that F-statistic of 1.92 and log likelihood of 2.33 while, the probability of F and χ^2 has 17percent and 13.5 percent respectively (table 4.3)

Table 4.3 Ramsey Reset test for linearity

F- statistic	1.92	Prob. F(1,55)	0.171
Log likelihood ratio	2.33	Prob. Chi-Square (1)	0.135

Source: Eviews output from financial statement of sample companies2005-2009

4.1.2.3 Test results for constant variance errors (homoscedasticity)

The probability of F-statistics for white’s test is 18.7 percent while the probability of χ^2 for R-squared and Scaled explained SS are 18.4 and 39.7percent respectively (table 4.4)

Table 4.4 white's test for heteroskedasticity

F-statistic	1.496	Prob. F(7,57)	0.187
Obs*R-squared	10.087	Prob. Chi-Square(7)	0.184
Scaled explained SS	7.317	Prob. Chi-Square(7)	0.397

Source: Eviews output from financial statement of sample companies 2005-2009

Regarding the Breusch-Pagan-Godfrey test for heteroskedasticity on table 4.5 indicates the probability of F-statistic is 28.6 percent. The probability of chi-square for R^2 and Scaled explained SS are 27.3 and 50.3 percent respectively.

Table 4.5 Breusch-Pagan-Godfrey test for Heteroskedasticity

F-statistic	1.26	Prob. F(7,57)	0.286
Obs*R-squared	8.72	Prob. Chi-Square(7)	0.273
Scaled explained SS	6.32	Prob. Chi-Square(7)	0.503

Source: Eviews output from financial statement of sample companies 2005-2009

4.1.2.4 Test results for multicollinearity

The pair wise correlations between variables are lays between ± 1 . Therefore, in terms of partial pair wise correlation between variables majority of correlation are on between - 0.45 and 0.403 as presented on table 4.6. Likewise, the minimum correlation of -0,009 is observed between current of 0.403 is between current ratio (CR) and average payment

period (APP) while the maximum correlation of 0.403 is between cash conversion cycle (CCC) and average collection period (ACP).

Table 4.6 Partial pair wise correlation between variables

Control Variables		ACP	ITID	APP	CCC	CR	DR	SG	Size
GOP	ACP	1.000							
	ITID	.023	1.000						
	APP	-.126	.103	1.000					
	CCC	.403	.270	.044	1.000				
	CR	.060	-.160	-.458	-.009	1.000			
	DR	.156	.202	.210	-.057	-.270	1.000		
	SG	-.148	-.175	.112	-.249	.071	.170	1.000	
	Size	-.118	.332	.389	-.341	-.271	.373	-.026	1.000

The numbers are rounded to the higher number

Source: SPSS output from financial statements of sample companies, 2005-2009

On table 4.7 the maximum value of 2.64 for variance inflation factor (VIF) is scored by cash conversion cycle (CCC) while minimum value of 1.28 is scored by average payment period (APP). Similarly, other statistical results of 2.01, 1.51, 1.59, 1.35, 1.53 and 2.31 are accounted respectively for ACP, ITID, CR, DR, SG and size.

Table 4.7 The variance inflation factor

Variables	Co-linearity Statistics	
	Tolerance	VIF
ACP	.497	2.01
ITID	.663	1.51
APP	.784	1.28
CCC	.378	2.64
CR	.628	1.59
DR	.744	1.35
SG	.654	1.53
Size	.432	2.31

Source: SPSS output from financial statements of sample companies, 2005-2009

4.1.3 Test result for significance of the model

As table 4.8 revealed, at a significance level of (0.000) the regression model predicts the outcome variables. Regarding the significance of the relationship between dependent variables and all the other independent variables are explained by 25.198 given on F-statistics.

Table 4.8 ANOVA linear regression for significant of the model

Model		ANOVA ^b				
		Sum of square	Df	Mean square	F	Sig.
1	Regression	1.988	8	.248	25.198	0.000 ^a
	Residual	.552	56	.010		
	Total	2.540	64			

a. Predictors: (Constant), Size, ITID, APP, DR, SG, CR, ACP, CCC b. Dependent Variable: GOP

Source: SPSS output from financial statements of sample companies, 2005-2009

Table 4.9 shows R is 88.5 percent while R^2 and adjusted R^2 are 78.3 and 75.2 percent respectively. Similarly, statistical result for Durban-Watson is 1.475.

Table 4.9 Model summary of linear regression

Model Summary ^b					
Model	R	R Square (R^2)	Adjusted R^2	Std. Error of the Estimate	Durbin-Watson
1	.885 ^a	.783	.752	.099306	1.475

a. Predictors: (Constant), Size, ITID, APP, DR, SG, CR, ACP, CCC b. Dependent Variable: GOP

Source: SPSS output from financial statements of sample companies, 2005-2009

4.1.4 Results for Pearson's correlation coefficient

In terms of the correlation coefficient between dependent and independent variables, average collection period (ACP) and inventory turnovers in day (ITID) are negatively correlated with gross operating profit (GOP) respectively by -0.637 and -0.461 . Similarly, there is negative correlation between firms' profitability and average payment period (APP), cash conversion cycle (CCC), credit ratio (CR) and debt ratio (DR). However, regarding sales growth and firms' size both are positively correlated with gross operating profit respectively by 0.550 and 0.674 (table 4.10).

Table 4.10 Pearson's correlation coefficients

	ACP	ITID	APP	CCC	CR	DR	SG	Size	GO P
ACP Pearson Corre Sig. (2-tailed) N	1 65								
ITID Pearson Corre Sig. (2-tailed) N	.310* .012 65	1 65							
APP Pearson Corre. Sig. (2-tailed) N	-.066 .601 65	.113 .369 65	1 65						
CCC Pearson Corre Sig. (2-tailed) N	.618** .000 65	.460** .000 65	.063 .616 65	1 65					
CR Pearson Corre Sig. (2-tailed) N	.365** .003 65	.114 .367 65	-.369** .003 65	.284* .022 65	1 65				
DR Pearson Corre Sig. (2-tailed) N	.089 .481 65	.157 .212 65	.207 .098 65	-.074 .555 65	-.256* .039 65	1 65			
SG Pearson Corre Sig. (2-tailed) N	-.446** .000 65	-.383** .002 65	.067 .595 65	-.484** .000 65	-.230 .066 65	.169 .179 65	1 65		
Size Pearson Corre Sig. (2-tailed) N	-.492** .000 65	-.094 .457 65	.254* .041 65	-.591** .000 65	-.517** .000 65	.308* .013 65	.355** .004 65	1 65	
GOP Pearson Corre Sig. (2-tailed) N	-.637** .000 65	-.461** .000 65	-.048 .703 65	-.569** .000 65	-.510** .000 65	-.049 .701 65	.550** .000 65	.674** .000 65	1 65

*Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS output from financial statements of sample companies, 2005-2009

4.1.4.1 Results for multiple regression

The regression is estimated and run using gross operating profit as an independent variable. Further, all independent variables are run using average collection period, inventory turnover in day, average payment period and cash conversion cycle including other control variables. Therefore, this section present two regression outputs one for the whole regression including all variables together and results of each dependent variable regressed by independent variables to see the time impact on the output.

Pooled multiple regression for all independent and control variables simultaneous indicated that, except for sales growth (0.157) and firms size (0.213) all variables had negative coefficient. At the same time, apart from debt ratio p-value (0.258) all variables are significant at 1 percent degree of freedom. The value of adjusted R^2 is 75.2 percent while Durbin-Watson and F-statistic are 1.47 and 25.81 respectively (table 4.11).

Table 4.11 Result of multiple regressions for pooled OLS

$\text{GOP} = -1.060 - 0.002 \text{ ACP} - 0.002 \text{ ITID} - 0.001 \text{ APP} - 0.005 \text{ CCC} - 0.05 \text{ CR} - 0.0587 \text{ DR} + 0.157 \text{ SG} + 0.213 \text{ Size}$				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.060	0.296	-3.576	0.0007**
ACP	-0.002	0.001	-2.695	0.0093**
ITID	-0.002	0.001	-3.665	0.0006**
APP	-0.001	0.0003	-3.877	0.0003**
CCC	-0.005	0.0002	2.185	0.0330*
CR	-0.058	0.019	-3.037	0.0036**
DR	-0.059	0.051	-1.142	0.2581
SG	0.157	0.054	2.910	0.0052**
SIZE	0.212	0.036	5.841	0.0000**
R-squared	0.783	Durbin-Watson stat		1.47
		F-statistic		25.198
Adjusted R ²	0.752	Prob (F-statistic)		0.0000

The result is rounded, * Regression is significant at the 0.05 level **Regression is significant at the 0.01 level

Source: Eviews output from financial statements of sample companies, 2005-2009

Regarding separate regression for each independent variable to investigation the impacts on firms' profitability, average collection period showed negative coefficient (-0.002) with a p-value of 0.027. At the same time current and debt ratios had a p-value of 0.0392 and 0.072 with negative coefficient -0.047 and -0.111 respectively. Unlike, current and debt ratio, sales growth and firms' size had positive coefficient 0.201 and 0.159 with a p-

value of 0.0016 and 0.0001 respectively. There is also 63.9 percent adjusted R square, 1.08 Durbin-Watson and 23.66 F-statistic on table 4.12.

Table 4.12 Result of multiple regressions for model 1

$GOP = -0.863672 - 0.001552ACP - 0.046633 CR - 0.110664 DR + 0.201168 SG + 0.158679 Size$				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.863	0.320	-2.695	0.0091**
ACP	-0.002	0.001	-2.257	0.0277*
CR	-0.047	0.022	-2.109	0.0392*
DR	-0.111	0.060	-1.828	0.0726
SG	0.201	0.061	3.308	0.0016**
Size	0.158	0.039	4.106	0.0001**
R-squared	0.667	Durbin-Watson stat		1.08
		F-statistic		23.66
Adjusted R ²	0.639	Prob(F-tatistic)		0.0000

The result is rounded,* Regression is significant at the 0.05 level **Regression is significant at the 0.01 level

Source: Eviews output from financial statements of sample companies, 2005-2009

As table 4.13 revealed -0.002 coefficient for inventory turnover in days with a p-value of 0.0013. As the same time there is -0.049 and -0.112 coefficient for current and debt ratio respectively with a p-value of 0.0201 and 0.0488. Sales growth and firms' size had 0.173 and 0.194 coefficient having with 0.0046 and 0.0000 p-values respectively. On the same table there is 67.2 percent adjusted R-squared, 1.18 Durbin-Watson and 27.17 F-statistics.

Table 4.13 Result of multiple regressions for model 2

GOP = -1.061520 - 0.001591ITID - 0.049673CR - 0.112177DR + 0.173009SG + 0.194301Size				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.061	0.278	-3.806	0.0003**
ITID	-0.002	0.0004	-3.383	0.0013**
CR	-0.049	0.021	-2.388	0.0201*
DR	-0.112	0.056	-2.011	0.0488*
SG	0.173	0.059	2.945	0.0046**
SIZE	0.194	0.034	5.688	0.0000**
R-squared	0.698	Durbin-Watson stat		1.18
		F-statistic		27.17
Adjusted R ²	0.672	Prob(F-tatistic)		0.00000

The result is rounded, * Regression is significant at the 0.05 level ** Regression is significant at the 0.01 level

Source: Eviews output from financial statements of sample companies, 2005-2009

The regression result for average payment period on table 4.14 showed that there is -0.001141 coefficient with a p-value of 0.0006. Similarly, current and debt ratio had -0.077 and -0.137 coefficients with a p-value of 0.0006 and 0.0136 respectively. The remaining control variables sales growth and firms' size both had a p-value of 0.0000 with 0.241 and 0.199 coefficient respectively.

Table 4.14 Result of multiple regressions for model 3

$GOP = -1.082032 - 0.001141APP - 0.077452CR - 0.136678 DR + 0.241609SG$ + 0.199698 Size				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.082	0.274	-3.939	0.0002**
APP	-0.001	0.0003	-3.637	0.0006**
CR	-0.077	0.021	-3.638	0.0006**
DR	-0.137	0.054	-2.545	0.0136**
SG	0.241	0.053	4.528	0.0000**
SIZE	0.199	0.034	5.908	0.0000**
R-squared	0.704	Durbin-Watson stat		1.02
		F-statistic		28.16
Adjusted R ²	0.679	Prob(F-tatistic)		0.0000

The result is rounded. * Regression is significant at the 0.05 level **Regression is significant at the 0.01 level

Source: Eviews output from financial statements of sample companies, 2005-2009

Cash conversion cycle as a compressive measure of firms' working capital management had -0.002 coefficient and p-value of 0.0500. Of the four control variables current and debt ratio had -0.058 and -0.149 coefficients respectively with a p-value of 0.0143 and 0.0147. The remaining control variables sales growth and firms' size had 0.229 and 0.171coefficient with a p-value of 0.0006 and 0.0002 respectively.

Table 4.15 Result of multiple regressions for model 4

$GOP = - 0.986332 - 0.000225 CCC - 0.056769 CR - 0.149520DR + 0.229239SG + 0.171394 Size$				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.986	0.359	-2.748	0.0079**
CCC	-0.002	0.002	-0.931	0.0500*
CR	-0.057	0.022	-2.525	0.0143**
DR	-0.149	0.059	-2.514	0.0147**
SG	0.229	0.063	3.625	0.0006**
SIZE	0.171	0.043	3.997	0.0002**
R-squared	0.644	Durbin-Watson stat		0.943
		F-statistic		21.32
Adjusted R ²	0.614	Prob(F-tatistic)		0.0000

The result is rounded. * Regression is significant at the 0.05 level **Regression is significant at the 0.01 level

Source: Eviews output from financial statements of sample companies, 2005-2009

4.2 Conclusions

In order to address the research objective and hypotheses, as detailed in chapter 1 and 3, it is crucial to examine the results of the different methods concurrently. This chapter presented the statistical and regression results which are computed using different methods adopted to investigate the impacts of working capital management on firms' profitability. Specifically, the results of the quantitative methods of inquiry, namely surveys of documentary reviews of sample companies' income statement and balance

sheet are presented using. Accordingly, the chapter started by presenting the results for test of CLRM assumptions followed by test result for significant of the model and descriptive statistics. Lastly the chapter presented the result of Pearson's correlation coefficient and multiple regressions.

Chapter 5

Data analysis

In this chapter the study is tried to present and analyzes the real impacts of working capital management on firm's profitability, by testing the hypothesis defined in chapter three. Besides, in each sub-section brief analyses are enclosed back to the results obtained. Therefore, firstly, the chapter analyses for descriptive statistics of all variables. Secondly, the study analyses the tests for the fulfillment of basic OLS (ordinary least square) assumptions following this thirdly, analyses for the overall significance of the model is presented. Fourthly, Pearson correlation analyses were presented to measure the degree of association among basic variables and finally regression analyses are presented along with hypotheses testing. In this chapter all figures and tables mentioned are depicted on chapter four.

5.1 Analysis for summary of descriptive statistics

Table 4.1 presented descriptive statistics for 13 Addis Ababa city manufacturing firms for a period of five years from year 2005 to 2009 with a total of 65 observations. The mean value of net operating profitability is 14.18percent of total assets, and standard deviation 19.9 percent. It means that value of the profitability can deviate from its mean to both sides by 19.9 percent. The maximum value for the net operating profitability is 52 percent for a company in a year while the minimum is -22 percent.

The cash conversion cycle used as a proxy to check the efficiency in managing working capital is on average 130 days and standard deviation is 86 days. The minimum time taken by a company to convert its overall activity is -25 days which is unusual and the maximum time taken by the firm for this purpose is 343 days again its very large. Firms receive payment against sales after an average of 58 days and standard deviation is 28 days. Minimum time taken by a company to collect cash from receivables is 12 day while the maximum time for this purpose is 135 days. It takes an average 96 days to sell inventory with standard deviation of 34 days. Here, maximum time taken by a company is 37 days, which is a very small time period to convert inventory into sales. Firms wait an average 104 days to pay their purchases with standard deviation of 49 days. Here, minimum time taken by a company is 30 days which is usual for 30 days credit period, and maximum time taken for this purpose is 226 days.

To check the liquidity of the companies, a traditional measure of liquidity (current ratio) is used. The average current ratio for Addis Ababa manufacturing firms is 1.88 with a standard deviation of 0.81. The highest current ratio for a company in a particular year is 3.7 and in the same way the minimum ratio for a company in a year is 0.19.

In the same way to check the debt financing and its relationship with the profitability the debt ratio (obtained by dividing the total debt of the company by the total assets) is used as a control variable. The results of descriptive statistics show that the average debt ratio for the sample of Addis Ababa manufacturing companies is 49.6percent with a standard deviation of 28percent. The maximum debt financing used by a company is 1.10percent which is unusual because of debt larger asset. However, it is possible if the equity of the

company is in negative. While the minimum level of the debt ratio is 0.040percent, this means that there is a company that uses a little debt in its operation.

Further, to check the sales growth and its impact on profitability, sales growth is measured by $((\text{this year's sales} - \text{previous year's sales}) / \text{previous year's sales})$ is used as control variable. Looking at the above table, we can see that the average value of sales growth is 11.03percent with standard deviation of 28.38percent. The maximum and minimum values of sales growth are 0.95 and -1 respectively.

Finally, to check the size of the firm and its relationship with profitability, natural logarithm of sales is used as a control variable. From table 4.7 above one can see that the mean value of log of sales is 7.66 and standard deviation of 0.518. The maximum value of log of sales for a company in a year is 8.895 while the minimum value is 6.649.

5.2 Analyses for the test of CLRM assumptions

The study analyzed three tests for CLRM assumptions namely, normality, linearity, homoscedasticity and multicollinearity discussed as follows.

5.2.1 Analyses for tests of normality/test for normal errors

The result depicted on figure 4.1 revealed that, majority of distributions are full's in to the bell shaped boundary of histogram with the mean of 2.84e-16 and standard deviation 0.093. Therefore, Jarque-Bera statistic of 2.33 is not significant and it shows that the error terms are normally distributed. Hence, the p-value given at the bottom of the normality test screen is bigger than 5 percent and signifying not to reject the null of normality at the 5percent level.

Similarly, table 4.2 shows the Kolmogorov-Smirnov and Shapiro-Wilk test results. For both test if the test is not significant or above 0.05, then the data are normal. Therefore, the Kolmogorov-Smirnov test P-value of 20percent is quite above the standard 5percent level of significance and indicating the data is normally distributed. Likewise, 69.2 percent P-value for Shapiro-Wilk test indicated that the error terms are normally distributed and the data is normal.

5.2.2 Analyses for test of linearity

As table 4.3 revealed that, both F and χ^2 (Chi-Square) versions of the test are presented respectively with 17 and 13.5 percent and it can be seen that there is no apparent non-linearity in the regression equation as both test result is greater than 5 percent. So it's concluded that the linear model for the study is appropriate.

5.2.3 Analyses for test of constant variance errors (Homoscedasticity)

For test of homoscedasticity the researcher used two methods called white's and Breusch-Pagan test. Table 4.4 presented three different types of tests for heteroscedasticity using white's test. Hence, in each case, both the F and χ^2 versions of the test statistic give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the p-values are considerably in excess of 0.05. Similarly, table 4.5 for the Breusch-Pagan test shows both the F and χ^2 test statistic give the same conclusion that there is no evidence for the presence of heteroscedasticity, since the P-values are considerably in excess of 0.05. Accordingly, p-value of 28.60, 27.37 and 50.27percent respectively for F-statistics, R-squared and scaled explained SS indicated that the regression of the residuals on the

predicted values reveals insignificant heteroskedasticity at 1, 5 and 10 percent levels of significance.

5.2.4 Analyses for multicollinearity

For test of multicollinearity table 4.6 using Partial pair wise correlation showed that, there is no correlation coefficient above ± 50 percent. The only higher correlation observed is between current ratio (CR) and average payment period (APP) which equals to -45.8percent. Even that it is not a serious problem, when compared to the standard more than 80percent coefficient (Gujarati, 2004). To have a strong assurance the following more efficient technique, VIF technique is run on table 4.7. Therefore, the VIF verify the absence of multicollinearity since there are no exaggerated pair wise correlation values more than 10 score. In general, all tests illustrated above are testimonials as to the employed model is not sensitive to the problems of violation of the CLRM assumption.

5.3 Analysis for the test of significance of the model

Significant of the model is tested by ANOVA and model summary table. Accordingly, table 4.8 for ANOVA of linear regression indicated that the regression model predicts the outcome variable significantly with the p-value of (0.000) and its shows the overall model applied was significantly good enough in predicting the outcome variable. Model summary on table 4.9 shows dependent variable (gross operating profit) R^2 is 75.2 percent explained by its independent variables, which is very large. To conclude, the regression model used for the study is highly explained the overall model signifying the study was note lost very important variables that affect the study output.

5.4 Analyses for Pearson's correlation coefficient

From table 4.10 the researcher started the analysis of correlation results between the average collection period and gross operating profitability. The result of correlation analysis shows a negative coefficient -0.637 , with p-value of (0.000) . It indicates that the result is highly significant at $\alpha = 1$ percent significant level and that if the average collection period increases it will have a negative impact on the profitability and decrease it. Correlation results between inventory turnover in days and the gross operating profitability also indicate the same result. The correlation coefficient is -0.461 and the p-value of (0.000) . This again shows that the result is highly significant at $\alpha = 1$ percent. It also indicates that if the firm takes more time in selling inventory, it will adversely affect its profitability. Correlation results among the payable turnover in days or average payment period also indicate the same trend. Here again, the coefficient is negative but not significant. The coefficient is -0.048 and the p value of (0.703) . This means that the less profitable firms wait longer to pay their bills. Moreover, a negative relationship between number of day's accounts payable and profitability is consistent with the theoretical view that less profitable firms wait longer to pay their bills. In that case, profitability affects the account payables policy and vice versa. An alternative explanation for a negative relationship between the number of day's accounts payable and profitability could be that firms wait too long to pay their accounts payable. Speeding up payments to suppliers might increase profitability because firms often receive a substantial discount for prompt payment. The cash conversion cycle which is a comprehensive measure of working capital management also has a negative coefficient -0.569 and the p value of

(0.000). Unlike, APP it is significant at $\alpha = 1$ percent. It means that if the firm is able to decrease this time period known as cash conversion cycle, it can increase its profitability. By analyzing the results the researcher concluded that, if the firm is able to reduce these time periods, then the firm is efficient in managing working capital. This efficiency will lead to increase its profitability. To summarize the above discussion demonstrates that paying suppliers longer and collecting payments from customers earlier, and keeping products in stock less time, are all associated with an increase in the firm's profitability.

Current ratio is a traditional measure of checking liquidity of the firm. On the same table 4.9 current ratio has a significant negative relationship with profitability measured by gross operating profitability with the coefficient of -0.510 and p-value of (0.000) and the result is significant at $\alpha = 1$ percent. It indicates that the two objectives of liquidity and profitability have inverse relationships. So, the Addis Ababa manufacturing firms need to maintain a balance or tradeoff between these two measures. Meanwhile, debt ratio (DR) used as a proxy for leverage of a company, the Pearson correlation analysis shows that positive relationship with gross profit and the coefficient is 0.049 . However, the P- value is not significant at all.

Further with reference to the control variables, sales growth and size of the company are significant. Corporate profitability is positively associated with sales growth of a company. The coefficient is 0.550 with p-value of (0.000) and the result is highly significant at $\alpha = 1$ percent. This shows that as sales growth over time will increase company's profitability of a firm. One should not overlook the positive significant association that exists between gross operating profit and logarithm sales (the measures of

size). Hence, the result does not change if the logarithm of sales is used to measure the size. As it can be seen in the correlation table 4.10, the coefficient is positive 0.674 with p-value of (0.000) and the result is highly significant at $\alpha = 1$ percent. This is similar with the theoretical view that higher sales will generate higher profit. To sum, the above two analyses pinpointed that sales growth and company size are significantly predominant factors for corporate profitability.

On the other hand Pearson's correlation table 4.10 displayed a significant positive relationship between the average collection period (ACP) and cash conversion cycle (CCC) the correlation coefficient is 0.618 and the p-value of (0.000). That ratio is slightly significant at $\alpha = 1\%$, which means that if a firm takes more time to collect cash against the credit sales it will increase its operation or cash conversion cycle. There is also a positive relationship between inventory turnover in days (ITID) and the cash conversion cycle which means that if the firm takes more time to sell inventory it will lead to increase in the cash conversion cycle as well. The correlation coefficient is positive and 0.460 with the p-value of (0.000) showing highly significant at $\alpha = 1$ percent. This means, whenever a firm lowers its time to convert raw material and good in process to finished good it decreases cash conversion cycle. Unlike the above output the average payment period (APP) and cash conversion cycle have a negative relationship. The coefficient is -0.063 , the p-value is (.060), highly significant at $\alpha = 10$ percent. It means that if firms take more time to pay their purchases than the time for collection and selling inventory, the cash conversion cycle will be reduced.

In general, these negative relationships between cash conversion cycle, average collection period, average payment period and inventory turnover in days with the profitability of companies are consistent with the literature review and have significant effect on the profitability of company. The results of correlation analysis indicated that, as far as Addis Ababa manufacturing firms are concerned, working capital management is very strongly and significantly affects their profitability. Therefore, the researcher accepted its all hypotheses except (HP₅) that *“there is a negative relationship between debt used by the firms and profitability”* because the p-value is not significant event at 10 percent.

5.4.1 Analysis for multiple regression results

This section analysis two regression outputs one for the whole regression including all variables together and separate analysis on the results of each dependent variable regressed by independent variables to see the time impact on the output.

The overall regression equation on table 4.11 shows that there is a negative relationship between average collection period (ACP), inventory turnover in day (ITID), average payment period (APP) and cash conversion cycle (CCC) with profitability measured by gross operating profit. It is consistent with the literature that a decrease in the working capital component including cash conversion cycle will generate more profits for a company. As a result all independent variables have a negative coefficient and the result is highly significant for ACP, ITID, APP and CCC at $\alpha = 1$ percent significant level. Therefore, this is consistence with the view of Weston and Brigham (1977, P. 690) minimizing components of working capital will increase profitability as a measure of efficiency CCC.

On the same table 4.11 the regression shows that firms with high level of liquidity (measured by current ratio) are expected to post low level of profitability and vice versa with a very higher level of significance. The regression coefficient -0.058 and p-value 0.0036 shows highly significant at $\alpha = 1$ percent indicating firm profitability has a negative relationship with liquidity. In light analysis Arnold (2008) mentioned that liquidity and firms' profitability has a negative relationship, however he stressed that choose any of these two extremes are difficult for the managers. Unlike current ratio, the regression output for debt ratio as a measure of firms leverage shows that, whenever firm's debt increases profitability will decrease. Even if the regression coefficient is -0.059, the p-value indicates the result is not significant. However, Deloof (2003) mentioned that when leverage of the firm increases; it will adversely affect its profitability while financial debt ratio used as a proxy for leverage. Meanwhile for the sample of Addis Ababa manufacturing companies the result is statistically insignificant.

Similarly, the regression shows that the larger firms (measured through the natural logarithm of sales) the higher profit with a very high level of significance. The regression coefficient (0.212) is very higher from all output and signifying that size of the company is playing a greater role for firm's profitability with a p-value of (0.000), showing the result is very strongly significant at $\alpha = 1$ percent. This is consistence with the theoretical views of large firms higher economic of scale and good will in the market. Using these market diversifications is the right avenue which increase sales and there by maximize profitability. At the same time, on table 4.11 sales growths is statistically significant where gross operating profit increases as sales increase. The result shows sales growths

has a positive coefficient of 0.157 and significant at $\alpha = 1$ percent with a p-value of 0.0052. In general the result makes economic sense since if all coefficients were zero then a firm would have negative results i.e. gross operating profit = -1.060.

The adjusted R^2 , also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables and is 75.2 percent. The C is the constant, where the regression line intercepts the y axis, representing the amount the dependent y will be when all the independent variables are zero. Here C is -1.060; the probability of the coefficient is significant with p-value of 0.0007. The F statistic is used to test the significance of R. From the table 4.10 result of one can see that the model is fit with F-statistics 25.20 and p-value of 0.000 and it shows highly significant at $\alpha = 1$ percent. So, the researcher concluded that at least all of AR, CR, DR, SG and size (log of sales) is related to GOP.

Table 4.12 presented the result for model 1, it indicates that the coefficient of accounts receivable is negative -0.002 and p-value of 0.0277 which is significant at $\alpha = 1$ percent. It implies that the increase or decrease in account receivables will significantly affect profitability of the firm. The above analysis is similarly with Fabozzi and Peterson (2003) those who mentioned that increase in amounts of account receivable has opportunity costs and bad debt, while increasing sales for a company. Therefore, whenever collection periods increases bad debt increase and hence profitability will full down and vice versa. Similarly, the finding is consistence with previous research who found negative relationship between accounts receivables and corporate profitability (Deloof, 2003; Lazaridis and Tryfonidis, 2006; Raheman and Nasr, 2007; Falope and Ajilore, 2009 and

Amarjit et. al. 2010). The regression result for current ratio (CR) which is a traditional measure of liquidity has a negative coefficient -0.047 and signifying negative relationship with profitability. The p-value 0.0392 shows that the coefficient is significant at $\alpha = 1$ percent.

On the same table 4.12 debt ratio is used as a proxy for leverage; from analysis of regression it shows that there is a negative relationship with gross operating profit. The coefficient is -0.111, but only marginally significant with p-value 0.073 at $\alpha = 10$ percent. This means that if there is an increase in debt ratio it will lead to decrease in profitability of firm. Similarly log of sales used as proxy for size of a company shows a significant positive relationship with profitability which means that bigger size firms have more profitability compared to firms of smaller size with the coefficient and p-value of 0.201 and 0.0016 respectively. In general having with the above coefficient the regression equation makes GOP to have a value of -0.663 and -0.863 if all coefficients on variables are constant and zero respectively. Therefore, the regression output has economical meaning for profitability of a firm.

Looking table 4.13 coefficients, the intercept C has a value of -1.061 and also highly significant. Similarly, the coefficient for inventory turnover in days is negative and highly significant at $\alpha = 1$ percent with the coefficient -0.002 and p value 0.003. The coefficient implies that the increase or decrease in the inventory turnover in days, significantly affect profitability of a firms'. It can be interpreted that if the inventory takes more time to sell, it will adversely affect profitability. Again the finding is consistence with the previous studies, Garcia and Martinez (2007) and Raheman and Nasr (2007) Moreover, all the

other variables are also significantly affecting profitability as in case of the first regression. But, unlike that of the first regression here debt ratio coefficient is -0.112 and significant at $\alpha = 1$ percent having a p-value of 0.0488. whereas increase in sales has a positive impact on profitability while all other control variables like current ratio and sales growth have a significantly negative and positive effect on profitability of a firm respectively.

The result table 4.14 revealed that, there is negative relationship between gross operating profit and average number of account payable. The coefficient of intercept C and average payment period is -1.082 and -0.001 respectively. The coefficient including intercept and average payment period (proxy for payment policy) is negative and highly significant at $\alpha = 1$ percent, and implies that the increase or decrease in the average payment period, significantly affects profitability of the firm. However, the finding is not consistent with Lazaridis and Tryfonidis (2006) who claimed that there was a positive relationship between number of day's accounts payable and profitability. Differing from Lazaridis and Tryfonidis (2006) the finding is similar to Eljelly (2004) and Mathuva (2009) who found a strong negative relationship between number of day's accounts payable and profitability. Hence, the negative relationship between average payment period and profitability indicates that the less profitable firms wait longer to pay their bills. Similarly, all other variables are also significantly affect firms profitability. All of them are significant at $\alpha = 1$ percent. However, sales growth and size of the firm (measured in terms of log of sales) has a positive impact on firm profitability while other control variable like current and

debt ratio has a negative impact on profitability of a firm and strongly significant at $\alpha = 1$ percent.

Finally, the cash conversion cycle is used as a popular to measure efficiency of working capital management. Therefore, model 4 took the cash conversion cycle as an independent variable, and the result on table 4.15 indicated that CCC has negative coefficient and significant at $\alpha = 5$ percent. This means there is a negative relationship between cash conversion cycle and firms profitability. The researcher finding is balanced against the previews studies of one African country (Nigeria) Garcia and Martinez (2007) who found strong negative relationship between cash conversion cycle as a measure of working capital management efficiency. However, the study finding is differed from Amarjit et. al. (2010) who found positive relationship between cash conversion cycle and profitability. All the other variables; current ratio, debt ratio, sales growth and size are significantly affect firms' profitability at 1 percent significance level. The CCC coefficient is -0.002 with p-value 0.05 and highly significant at $\alpha = 0.05$. This implies that the increase or decrease in the cash conversion cycle significantly affect firms profitability.

Hypotheses testing

Regarding the study hypotheses the researcher concluded the following points. For the first hypothesis (HP_1) that talks about efficient working capital management is significantly affects profitability of firms and positively related is the one to be accepted. Because, the finding in the analysis section supported this hypothesis that, managing average collection period, inventory turnover and average payment period efficiently to minimum and reasonable range profitability will increases. In the same way the researcher

accepted the second hypotheses (HP₂) that there is a negative relationship between cash conversion cycle of firm and profitability. Combined and independent regression of cash conversion cycle witnessed that, as it's negatively related with corporate profitability and the p-value is highly significant.

Additionally, concerning control variables third hypothesis (HP₃) that negative relationship between liquidity and profitability of a firm is accepted. It is found that current ratio is the most important liquidity measure that affects profitability and there is strongly negative relation in between. The sample firms must set a trade-off between these two objectives so that neither the liquidity nor profitability suffers. The researcher also accepted fourth hypotheses (HP₄) regarding the size and profitability. As the size (measured in terms of natural logarithm of sales) increases, it will lead to an increase in profitability of the firm. Here the regression output and p-value is very highly significant for all cases signifying that Addis Ababa manufacturing firm's profitability is highly influenced by the size of companies. However, the study does not accept the fifth hypotheses (HP₅) concerning the debt ratio. Even if the first combined regression shows negative coefficient and signifying that, when the debt financing increases, profitability goes down. But the p-value that measures the significant level of the coefficient is almost zero. Meanwhile, with the help of individual regression output the study fully accepted hypotheses (HP₅) that firms profitability will decrease while firms leverage increase with strong significant level. It is interpreted that debt financing will affect the financial cost which will lead to decreasing profitability.

Chapter 6

Conclusions and recommendations

The basic intent of this chapter is to present the overall overviews of the research by summing the main findings of the analysis part and give future research directions. Accordingly, the chapter started its discussion by briefly sum up the overviews of the study and its main findings. In section two based on the study finding the researcher highlights some recommendations for the target populations the study is pivoting on. Finally, the research strengths together with the limitations of the study, future research directions are presented in section three.

6.1 Conclusions

The purpose of this study is to investigate the impact of working capital management on firms' profitability. The study aims to examine the statistical significance between firms' working capital management and profitability.

In light of this objective the study adopted quantitative method of research approaches to test a series of research hypotheses. Specifically, the study used survey of documentary reviews of companies' audited financial statements. Stratified sampling design was employed based on nature and turnover of companies. Then companies were selected based on simple random sampling method from each stratum's to avoid biases and

represent firms from each sub-classification (stratum's) within manufacturing companies. Consequently, the study selected a sample of thirteen (13) companies for the period of five years (2005-2009) with the total of 65 observations. Data was then analyzed on quantitative basis using Pearson's correlation and OLS regression analysis.

The descriptive statistics shows gross operating profit fluctuates with its minimum and maximum value of -0.220 and 0.520 respectively. At the same time on average gross operating profit has a value of 0.141 with standard deviation of 0.199. On the other hand, by taking cash conversion cycle as a comprehensive measure of working capital efficiency the finding shows that, on average cash conversion cycle takes 129 days and with a minimum and maximum days of -25 and 343 respectively. Here the minimum value takes negative value when ever average payment period overstate above the sum of both average collection period and inventory turnover in day. Before directly entered in to the regression the data was stated for the basic assumptions of CLRM, which is the vital for regression analysis and the data, are fulfilled all tested assumptions for OLS.

From this study the researcher find that, most of Addis Ababa manufacturing firms have large amounts of cash invested in working capital. Therefore, it can be expected that the way in which working capital managed will have a significant impact on profitability of those firms. The study have found a significant negative relationship between corporate profitability which is measured by gross operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of Addis Ababa manufacturing firms. The negative relationship between accounts receivables and firms' profitability suggests that less profitable firms will pursue

a decrease of their accounts receivables in an attempt to reduce their cash gap in the cash conversion cycle. The result, further suggest that managers can create value for their shareholders by reducing the number of day's accounts receivable and inventories to a realistic minimum level. Likewise, the negative relationship between number of days in inventory and corporate profitability suggests that in the case of a sudden drop in sales accompanied with a mismanagement of inventory will lead to tying up excess capital at the expense of profitable operations. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills. Moreover, cash conversion cycle that is used as measuring efficiency of working capital management shows that, as cash conversion cycle is longer, profitability is smaller. Hence, the researcher claims and recommends that company managers can build firms value by reducing the cash conversion cycle to a reasonable range or managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component (accounts receivables, accounts payables, inventory) to an optimum level.

In general, the study adds to existing literature such as Shin and Soenan (1998), Deloof(2003), Eljelly (2004), Lazaridis and Tryfonidis (2006), Raheman and Nasr (2007), Falope and Ajilore (2009) and Mathuva (2009) who found a strong negative relationship between the measures of working capital management including the average collection period, inventory turnover in days, average payment period and cash conversion cycle with corporate profitability.

6.2 Recommendations

Based on the study findings the researcher recommended the following points:

- The negative relationship between firms' gross operating profit and average collection period will decrease firms' profitability, if there is low collection of account receivables. Therefore, companies have to maintain or adopt neither liberal credit nor conservative policy so as to minimize bad debt and not to lose customers and hence, increase firms' profitability.
- The study found negative relationship between inventory turnovers in day's and firms profitability. Here, higher inventory turnover will have higher costs like storage, carrying, spoilages, insurance, and it hold opportunity cost too. As a result, companies' manager has to look over the proper ways of inventory control techniques like economic order quantity (EOQ) or others depend up on the nature of materials they hold. Further, the researcher recommended that companies marketing, purchasing and manufacturing departments should have create strong linkage and communications so as to feed each other in firms' operations and minimize costs.
- Similar to the above findings average payment period has negatively related to firms' profitability. In it whole senses firms which wait longer to pay their account payables or bills will increase profitability. However, the researcher recommended that firms' have to pay all its debt or bills on time for not losing their venders in the long run.
- Likewise, CCC has a negative relationship with firms' profitability. Therefore, regarding the CCC, the researcher recommended that lowering working capital cycle

as a measure of efficient working capital management is the one to be appraised. However, the policy followed for each component has to be neither tight or nor liberal like for average collection period which will loss customers and increase bad debt respectively. Similarly, as recommended above companies' has to manage their inventories (raw materials, working process and finished goods) and account payables in day efficiently to a minimum level, so as to minimize the overall working capital cycle of a firms' and increase profitability.

- In general the above discussions demonstrates that paying suppliers longer (not absolutely) and collecting payments from customers earlier, and keeping products in stock less time, are all associated with an increase in the firm's profitability.

6.3 Research limitations and future research directions

This research tried to meet the gap between the existing literatures but it also has its own limitations and those limitations can be addressed by the researchers in the future. Accordingly, the study is limited to the sample of Addis Ababa manufacturing share companies industry. The findings of this study could only be generalized to manufacturing firms similar to those that were included in this research. Further, the researcher used one measure to measure the profitability of a firms' i.e. gross operating profits. However, there are lots of measures of profitability (return on asset (ROA), return on asset (ROI)). Consequently, the results can differ from this study by the use of different measures of profitability and working capital management's.

Therefore, the future researches should investigate generalization of the findings beyond the Addis Ababa manufacturing sector and not only on share manufacturing firms' but also small and medium sectors. Thus, the scope of further research may be extended to the working capital components and profitability measures' including cash, marketable securities and ROA, ROI respectively.

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APPENDIXS

Appendix 1 Stratification of sample companies

A. Manufacturing of garment, leather and shoe factories (first strata)

1. Addis Ababa Tannery S/Co paid-up capital 15,135,000 kolfe keraniyo kifile Ketema telephone 911201451 “industry”
2. ADDIS GARMENT S.Co. Share Company paid up capital 5,810,000.00 Lideta Kifile Ketema , tel. 113201287 “industry”
3. Akaki Garment Share Company piad up capital 8,559,000.00 let. 340154 “industry”
4. Gulele Garment Share Company paid-up capital 12,000,000.00 kolfe keraniyo kifile Ketema TEL. 112703434 “industry”
5. Adey Abeba Yarn Factory , Share Company piad up capital 23,670,000.00, Nefas Silk Lafto Kifle ketema let. 114423455 “industry”
6. Tikur Abay Shoe Sh.Co. paid-up capital 30,852,605.00 “Shoe & Glue Production” kolfe keraniyo kifile Ketema
7. Anbesa Shoe S.C. 24,454,000.00 Lideta Kifile Ketema Kebele 05
8. Ethio japanes synthetic textiles S.C. paid-up capital 31,051,029.00 Lideta Kifile Ketema Kebele 13

B. Manufacturing of steel, glass and glass products, equipments, spare parts, plastic, furniture, paper and paper products factories (second strata)

9. Akaki Spare Perts & Hand Tools S.C. paid-up capital 142,298,000.00 Akaki Kefele Ketema TEL. 114340422 “industry”
10. Addis Ababa Bottle & Glass Share Company paid-up capital 26,105,000.00 telephone 792628 “industry”
11. Brick Products Processing S.C. paid-up capital 10,097,000.00 Addis Ketema Kefle Ketema “industry”
12. Al-kyd Resin S.C. paid-up capital 25,400,000.00 akaki kaliti Kefele ketema kebele 10 “industry”
13. Addis Block Production S.C paid-up capital 14,245,000.00 “industry”

14. Ecafco /Ethiopian Chip wood & Furniture S. C paid-up capital 4,338,000.00 Nefas Silk Lafto Kifle ketema TEL. 114421515 “ industry”
15. Ethiopian Plastic Share Company paid-up capital 29,670,000.00 Kirkos Kifile ketema TEL. 115517890 “ industry”
16. Saba Plastic Products Factory paid-up capital 35,567,000.00 “ industry”
17. MATADOR-ADDIS TYRE S.C. paid-up capital 255,041,369.00 Akaki Kefele Ketema “industry”
18. Mega Net Corporation S.C. paid-up capital 10,000,000.00 “ industry”

C. Manufacturing of mineral water, beverages & soft drink factories (third strata)

19. Ambo Mineral Water S.C. paid-up capital 300,607,000.00 Kirkos Kifile ketema “industry”
20. Ethiopian Mineral Development S.C. paid-up capital 128,525,000.00 Bole Kifle Ketema TEL. 116613355 “ industry”
21. Moha Soft Drinks Industry SC CP. 105,000,000.00 Bole Kifle Ketema TEL. 614655/6614655 “ industry”
22. Awash Wine S.C. paid-up capital 30,850,000.00 Lideta Kifile Ketema Kebele 02
23. Ease Africa Bottling S.C. paid-up capital 66,160,600.00 TEL. 757603 “industry”

D. Manufacturing of food products and agro industry factories (fourth strata)

24. Ethio-Horti S.C. paid-up capital 2,162,500.00 Bole Kifle Ketema TEL. 636750 “Agricultural Development”
25. Ethiopian Spice Extraction S.C. 10,609,000.00 Akaki Kefele Ketema “ industry”
26. Kaliti Food S.C. paid-up capital 88,734,000.00 Akaki Kefele Ketema “industry food complex”
27. Rx Africa (Ethiopia) S.C. paid-up capital 17,748,612.00 Kirkos Kifile ketema “ industry”

28. Addis Mojo Edible Oil Complex S.C. paid-up capital 149,692,000.00 Nefas Silk
Lafto Kifle ketema

29. Ethiopian pharmaceuticals Manufacturing S.C. paid-up capital 122,963,000.00,
Nefas Silk Lafto Kifle ketema TEL. 113711000 “ industry”

Appendix 2 Sampling design

Types of Companies		Population		Sample Size	
		Frequency	Proportion	Frequency	Proportion
1. Manufacturing of garment, leather and shoe factories		8	0.28*	3	0.23
	Group A	3	0.38*	1	0.33
	Group B	5	0.62	2	0.67*
	Group C	0	0	0	0
2. Manufacturing of steel, glass and glass products, equipments, spare parts, plastic, furniture, paper and paper products factories.		10	0.77*	5	0.38
	Group A	4	0.4	2	0.4
	Group B	4	0.4	2	0.4
	Group C	2	0.2	1	0.2
3. Manufacturing of mineral water, beverages & soft drink factories		5	0.17	2	0.23
	Group A	0	0	0	0
	Group B	2	0.4	1	0.5
	Group C	3	0.6	1	0.5
4. Manufacturing of food products, agro industry factories and others		6	0.21*	3	0.23
	Group A	2	0.33	1	0.33
	Group B	2	0.33	1	0.33
	Group C	2	0.34*	1	0.34*
Total Number		29	100	13	100

*the data are rounded to the next number

Appendix 3 Fundamental concepts for analysis

F-value: The value of F test explains the overall significance of a model. It explains the significance of the relationship between dependent variables and all the other independent variables. (Anderson et al., 2007)

T-Value: T value is used to determine the level of significance of regression coefficient. It is also known as test of individual significance. It explains the significance of relationship between dependent variable with each of the independent variable. If the t value is less than 3 then it supports the null hypothesis and if the t value is greater than 3 then it neglects the null hypothesis (Anderson et al., 2007).

R square: It explains the total variation in the value of dependent variable. Its value lies between 0 and 1, if the value of R square is closer to 1 then it tells that the regression model which is applied on data really supports it (Gujarati 2004).

P-Value: It is also used to determine the level of significance of regression coefficient. It measures whether the data supports the null hypothesis or not. If the P value is greater than .05 then null hypotheses can't be rejected and if the value of P is less than .05 then it rejects the null hypothesis. Usually we call it significance (Brooks, 2008)

95 % confidence interval: It gives two boundaries where a certain percentage of population is expected to lay e.g. 95% confidence interval means that 95 % of the population will lay between the upper boundary and lower boundary and half of the remaining values lie above the upper boundary and half of it lies below the lower boundary (Brooks, 2008).

Correlation: Correlation explains how two variables react to each other e.g. what change will occur in one variable with the change in other variable (Anderson et al., 2007).

Beta (β): The value of beta explain the change in the dependent variable with the per unit change in independent variable. It also explains the nature and strength of the relationship between dependent variable and independent variable (Brooks, 2008).