AN EVALUATION OF WORKING CAPITAL POLICIES AND THEIR IMPACT ON PROFITABILITY OF FIRMS

A Study of Some Selected Manufacturing Companies in Nigeria

BY

SANUSI, MUHAMMAD SURAJO

BEING A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN ACCOUNTING AND FINANCE

DEPARTMENT OF ACCOUNTING
FACULTY OF ADMINISTRATION
AHMADU BELLO UNIVERSITY
ZARIA.

AUGUST, 2006

DECLARATION

I hereby declare that this thesis is the result of my sole effort in research under the supervision of Mr. Solomon Akanet. To the best of my knowledge and belief, this work has never been presented in any submission for an award of any higher degree. All literature, articles and other publications consulted have been duly acknowledged. I assume full responsibility for any limitation that may arise from this research work.

…… ……

SANUSI, MUHAMMAD SURAJO **DATE**

CERTIFICATION

This thesis entitled “An Evaluation of Working Capital Policies and their Impact on Profitability of Firms”: A Study of Some Selected Manufacturing Companies in Nigeria” written by Sanusi, Muhammad Surajo and supervised by Mr. Solomon Akanet meets the regulations governing the award of Master of Science Degree in Accounting and Finance of Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and literary presentation.

…… ……

CHAIRMAN, SUPERVISORY COMMITTEE **DATE**

…… ……

MEMBER, SUPERVISORY COMMITTEE **DATE**

…… ……

HEAD, DEPARTMENT OF ACCOUNTING **DATE**

…….. ……

DEAN, POST-GRADUATE SCHOOL **DATE**

DEDICATION

This project is highly dedicated to the Almighty God and my Parents;

Alhaji Sanusi Usman

and

Hajiya Aishatu Ja’afar

ACKNOWLEDGEMENT

Undertaking a study of this nature is a long and demanding exercise that cannot really by successful without the help of others. May I therefore, express my profound gratitude to my supervisor Mr. Solomon Akanet for his helpful suggestions and criticisms. Despite diverse commitments and responsibilities, his valuable ideas, experience, comments and corrections have made the final draft of this research to be possible. I equally register my appreciation and thanks to all my lecturers in Accounting Department, Ahmadu Bello University, Zaria, for the immense, valuable and wealthy experience gained from them.

My appreciation also goes to my wife, Zainab Ahmed, and my son, Mahmoud Muh'd Surajo for being my source of inspiration and have been extremely supportive ever since. I am most thankful to my parents, brothers and sisters for their wonderful love and immense contributions to my welfare throughout the duration of my educational career.

I particularly owe a debt of gratitude to my boss in office, Mr. Benjamin I. Jenfa for his moral and financial support during the course of this work.

For their most valuable companionship, I particularly owe a debt of gratitude to all my colleagues in Nigerian College of Accountancy, Jos and friends, especially for the untiring advice and help during the course of this work. Special thanks goes to Miss Chiamaka Anaele for her invaluable service in patiently and skillfully typing this work. To all of them I gratefully acknowledge their significant contributions without which this work would not have been a reality. It is my sincere wish that they

be all rewarded in full measures. Above all, I joyously thank God Almighty for his abundant mercies, particularly in keeping me alive to realize my ambition in life.

TABLE OF CONTENTS

		PAGE
	Title Page……	i
	Declaration…….	ii
	Certification……	iii
	Dedication……..	iv
	Acknowledgement…….	v
	Table of Contents …….	vii
	List of Tables ……	x
	List of Figures ……...	xiii
	List of Appendices ……	xiv
	Abstract…….	Xv
	CHAPTER ONE: INTRODUCTION	
1.1	Background of the Study ……	1
1.2	Statement of the Problem …….	2
1.3	Objectives of the Study ……..	4
1.4	Scope of the Study ……	5
1.5	Research Hypotheses……	5
1.6	Significance of the Study …….	7
	CHAPTER TWO: LITERATURE REVIEW	
2.1	Introduction ……	8
2.2	Concept of Working Capital ……	8

2.3 The Need for Working Capital …… 11

2.4 Determinants of Working Capital ……... 15

2.5 Nature of Working Capital Decisions ……. 18

2.6 Alternative Working Capital Policies ……. 30

2.7 Issues in Working Capital Management ……. 35

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction……. 48

3.2 Research Method/Design …… 49

3.3 Research Population and Sampling Method…… 50

3.4 Sources of Data …… 52

3.5 Data Collection Methods …… 53

3.6 Data Analysis Technique …… 54

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction…… 59

4.2 Historical Background of the Companies under Study …… 59

4.3 Features of the Companies under Study …….. 63

4.4 Summary of Data from Research Questionnaires Administered ……. 66

4.5 Testing of Hypotheses ……. 76

4.6 Evaluation of Working Capital Policies and their Impact on Profitability of Firms …… 84

4.7 Interpretation of Results ……... 101

4.8 Discussion of Findings …….. 110

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.

5.1 Summary of Findings…… 113

5.2 Conclusion……. 114

5.3 Limitations of the Study ……... 116

5.4 Recommendations……. 117

References…….. 118

Appendices…… 120

LIST OF TABLES

		PAGE
Table 2.1:	The Risk-Return Trade-Off in Managing a Firm's Working Capital……	24
Table 4.1:	Summary of Responses to Question 2.1 on the Major Source of Financing in Organizations……	69
Table 4.2	Summary of Responses to Question 2.2 on the Relationship between Financing Mix and Profitability in Organizations……..	70
Table 4.3	Summary of Responses to Question 2.3 on the Difference in Profitability of Companies that use Aggressive Working Capital Policy and those that use Conservative Working Capital Policy…….	70
Table 4.4	Summary of Responses to Question 2.6 on the Effect on Profitability of Companies when their Current Liabilities are Increased……	71
Table 4.5	Summary of Responses to Question 2.7 on the Effect on Profitability of Companies when their Current Liabilities are Decreased……	71
Table 4.6	Summary of Responses to Question 2.8 on the Effect on Profitability of Companies when their Long Term Capital is Increased……	72
Table 4.7	Summary of Responses to Question 2.9 on the Effect on the Profitability of Companies when their Long Term Capital is Decreased……	72
Table 4.8	Summary of Responses to Question 2.10 on the Effect on Profitability of Companies when their Current Liabilities are Made to be Equal with Temporary Current Assets……	73
Table 4.9	Summary of Responses to Question 2.11 on the Rating of Performance of Companies under Study……..	73

Table 4.10	Summary of Responses to Question 2.12 on the Rating of Profitability of Company when it is Using Short Term Funds to Finance Part of its Fixed Assets…….	74
Table 4.11	Summary of Responses to Question 2.13 on the Rating of Profitability of Company when it is using Long Term Funds to Finance Part of its Temporary Current Assets……	74
Table 4.12	Summary of Responses to Question 2.14 on the Rating of Profitability of Company when it is Using Short Term Funds to Finance Part of its Temporary Current Assets and Long Term Funds to Finance only Fixed Assets and Permanent Current Assets……	75
Table 4.13	Presentation of the Observed Responses/Frequencies from Respondents for Testing Hypothesis 1……..	77
Table 4.14	Solution for Value of 't' in Testing Hypothesis 1……..	78
Table 4.15	Presentation of the Observed Responses/ Frequencies from Respondents for Testing Hypothesis 2……	79
Table 4.16	Solution for Value of 't' in Testing Hypothesis 2……	80
Table 4.17	Presentation of the Observed Responses/Frequencies from Respondents for Testing Hypothesis 3……..	82
Table 4.18	Solution for Value of 't' in Testing Hypothesis 3…….	83
Table 4.19	Relationship between Working Capital Policy and Profitability of Benue Cement Co. Plc……..	87
Table 4.20	Relationship between Working Capital Policy and Profitability of Cement Co. of Northern Nigeria Plc……	88
Table 4.21	Relationship between Working Capital Policy and Profitability of Jos International Breweries Plc……	89
Table 4.22	Relationship between Working Capital Policy and Profitability of Paterson Zochonis (PZ) Industries Plc…….	91
Table 4.23	Relationship between Working Capital Policy and Profitability of Unilever Nigeria Plc…….	92

Table 4.24	Relationship between Working Capital Policy and Profitability of Vitaform Nigeria Plc……..	93
Table 4.25	Profitability and Performance Financial Ratios of Benue Cement Co. Plc for the Relevant Years of Study….	96
Table 4.26	Profitability and Performance Financial Ratios of Cement Company of Northern Nigeria Plc for the Relevant Years of Study……	97
Table 4.27	Profitability and Performance Financial Ratios of Jos International Breweries Plc for the Relevant Years of Study……	98
Table 4.28	Profitability and Performance Financial Ratios of Paterson Zochonis (PZ) Industries Plc for the Relevant Years of Study…….	99
Table 4.29	Profitability and Performance Financial Ratios of Unilever Nigeria Plc for the Relevant Years of Study…….	100
Table 4.30	Profitability and Performance Financial Ratios of Vitafoam Nigeria Plc for the Relevant Years of Study…….	101

LIST OF FIGURES

		Page
Figure 2.1	The Operating Cycle……	13
Figure 2.2	Working Capital Cycle……	14
Figure 2.3	Permanent and Temporary Current Assets…….	21
Figure 2.4	Alternative Current Assets Investment Policies……..	26
Figure 2.5	Alternative Working Capital Policies……..	32
Figure 4.1	Values of the Correlation Coefficient……..	86

LIST OF APPENDICES

		Page
Appendix A:	Research Questionnaire……	120
Appendix B:	Benue Cement Company Plc; Published Financial Statements (Balance Sheet, and Profit and Loss Account) For the Years 1999-2003……	124
Appendix C:	Cement Company of Northern Nigeria Plc; Published Financial Statements (Balance Sheet, and Profit and Loss Account), for the Years 1999 – 2003……	134
Appendix D:	Jos International Breweries Plc; Published Financial Statements (Balance Sheet, and Profit and Loss Account) For the Years 1999 – 2003……	140
Appendix E:	Paterson Zochonis (PZ) Industries Plc; Published Financial Statements (Balance Sheet, and Profit and Loss Account) For the Years 1999 – 2003……	148
Appendix F:	Unilever Nigeria Plc; Published Financial Statements (Balance Sheet, and Profit and Loss Account) For the Years 1999 – 2003……	158
Appendix G:	Vitafoam Nigeria Plc; Published Financial Statements (Balance Sheet, and Profit and Loss Account) For the Years 1999 – 2003……	166
Appendix H:	T-Test Statistics Critical Table Value of 't'……..	172

ABSTRACT

The management of current assets and short term funds is as important as that of fixed assets and long term funds. Therefore, the need for effective working capital management cannot be overemphasized in manufacturing companies for realization of their objectives. The effectiveness of that working capital management depends largely on proper financing of working capital. It was therefore considered appropriate in this research to evaluate the impact of working capital financing policies on profitability of manufacturing firms in Nigeria. The main objective of the study was to come up with evidences that establish the relationship between working capital policy and profitability of a firm, and identify the working capital policy that contributes most to the profitability of a firm under different conditions. To achieve this objective, six (6) manufacturing companies that are quoted in the Nigerian Stock Exchange were selected as a case study, and a sample of one hundred and fifty (150) respondents who were employees of the companies was used in the study. Thus, data from primary sources were analyzed using simple descriptive research design. In addition, three (3) hypotheses were formulated and tested for significance using the t-test statistic technique. The secondary data were collected from the published financial statements of the companies under study and analyzed using correlation coefficient and financial ratios for the period 1999 to 2003. The research revealed that companies using different working capital policies had different profitability, which concluded that there is significant relationship between working capital policy and profitability of manufacturing company, and such relationship depends on the operating performance of the firm. It was also discovered that manufacturing companies that adopt conservative working capital policy are more profitable especially when the demand for company's product is high. Finally, the researcher recommended that manufacturing companies should employ qualified financial managers so as to effectively control cost of production and balance the trade off between cost of sales and quality of products manufactured in order to boost sales. It was also recommended that factors affecting working capital needs should be critically studied, so that investment in working capital would be appropriate to avoid high risk of uncertainties.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The management of current assets and short term funds is as important as that of fixed assets and long term funds. This is because in both cases, a firm analyses their effects on its return and risk. In managing current assets, firm's liquidity position is a very important factor; consequently, large holding of current assets, especially cash, strengthens the firm's liquidity (and reduces risks), but also reduces the overall profitability. Thus, a risk-return trade off is involved in holding current assets. Current assets are the capital available for running the day to day operations of an organization and it is termed as working capital, (Olowe, 1997:452).

The need for working capital and its management which involves financing and controlling the current assets of a firm cannot be overemphasized especially in manufacturing companies. Manufacturing companies due to their function possess largest investments in working capital assets, and therefore, the success of these companies depend largely on proper financing and management of working capital. The productivity of these companies contribute immensely to the development and growth of every economy. It has also been noted by Block and Hirt (2000), that the economic environment within which manufacturing companies operate possesses serious challenges; success does not come by chance, it is a payoff for good business management which begins with appropriate use of efficient and

effective management policies. Working capital policy is defined by Brigham and Houston (2001), as the manner in which the permanent and temporary current assets of a firm are being financed. Pandey (1999) sees it as the relative mix of short and long term funds in financing working capital.

In view of the above discussion, it is considered important to carry out this study in order to evaluate the working capital policies and their impact on profitability of firms, come up with evidences that established the relationship that exists between working capital policy and profitability of a firm under different conditions and generate information that would be used for better control and management of working capital in Nigerian manufacturing companies.

1.2 STATEMENT OF THE PROBLEM

The profit maximization objective of manufacturing companies depends largely on the management of their corporate investment in assets (fixed and current). For a business to function effectively, it must invest in assets having fairly long life in productive use, importantly, it must also provide for assets that are used in day to day running of the business. For operational purposes, both sets of capital (fixed or working) must be maintained in proportions that would enhance optimum level of operations.

The challenges in business environment are making decisions to become more complex, particularly in developing countries like Nigeria due to uncertainties about the future. Manufacturing companies are finding it

difficult to design better ways of coping with the economic trends in managing their working capital. Their survival or growth in this trend is all about the trade-off between their profitability and liquidity position. And this is a reflection of appropriate working capital management.

The consideration of the level of investment in current assets should avoid two danger points; excessive and inadequate investment in current assets. Investment in current assets should just be adequate, not more, not less, to the needs of the business firm. Excessive investment in current assets should be avoided because it impairs the firm's profitability, as idle investment earns nothing. On the other hand, inadequate amount of working capital can threaten solvency of the firm because of its inability to meet its current obligations. It should be realized that the working capital needs of the firm may be fluctuating with changing business activity. Management should therefore be prompt to initiate action and correct imbalances especially working capital to their mode of financing working capital.

Managers are also facing problems in selecting appropriate means of financing their working capital. According to Olowe (1997), working capital may be financed by one of the following; long term finance, short term finance, or the mix between short and long term finance. Short term finance is a cheap and flexible source of financing usually used in financing short term working capital needs. The sources of short term financing include borrowing from friends and relatives, trade credits, accruals, bank overdraft, bank loans, etc, while long term finance is a fund raised by a company for which interest

is paid usually at a fixed rate whether it makes profit or not. Sources of long term finance include loan stock or debentures, preference shares, ordinary shares, etc. Therefore, the choice of selecting one of these alternatives or mixing them relatively to finance working capital would have to involve careful evaluation of their impact.

This study is therefore to address the problems stated above by coming out with the appropriate working capital policy that considers effectively the trade-off point between profitability and liquidity position of a firm.

1.3 OBJECTIVES OF THE STUDY

The objectives of this study are as follows:

(i) To evaluate working capital policies and their impact on the profitability of firms.

(ii) To come up with evidences that established the relationship between working capital policy and profitability of a firm.

(iii) To identify the working capital policy that contributes most to the profitability of a firm under different conditions.

(iv) To also identify the limitations associated with each working capital policy.

(v) To examine the extent to which working capital polices have contributed to the profit maximization of Nigerian manufacturing companies.

(vi) To make appropriate recommendations based on the research findings on the proper mix of short term and long term financing for current assets.

1.4 SCOPE OF THE STUDY

This research is specifically focused on issues of working capital policies having to do with profit maximization in Nigerian manufacturing companies. It will not consider other factors that affect profit maximization in such companies, rather it assumes that such factors are constant. Neither will it delve into issues of working capital policies or management in other industries of the Nigerian economy.

The research study will only examine manufacturing companies that are quoted on the Nigerian Stock Exchange. Only six (6) companies would be selected, and these are Benue Cement Company Plc, Cement Company of Northern Nig. Plc, Jos International Breweries Plc, Paterson Zochonis (PZ) Industries Plc, Unilever Nigeria Plc, and Vitafoam Nig. Plc. The study aims to cover period from 1999 to 2003.

1.5 RESEARCH HYPOTHESES

In line with the already stated central problems of this research, the study addresses the following hypotheses in form of tentative statements as the research assumptions to be tested.

HYPOTHESIS 1

H_{01} - There is no significant difference in the profitability of manufacturing companies that adopt aggressive working capital policy and those that adopt conservative working capital policy.

H_{11} - There is significant difference in the profitability of manufacturing companies that adopt aggressive working capital policy and those that adopt conservative working capital policy.

HYPOTHESIS 2

H_{02} - There is no significant difference in the profitability of manufacturing companies that adopt aggressive working capital policy and those that adopt moderate working capital policy.

H_{12} - There is significant difference in the profitability of manufacturing companies that adopt aggressive working capital policy and those that adopt moderate working capital policy.

HYPOTHESIS 3

H_{03} - There is no significant difference in the profitability of manufacturing companies that adopt conservative working capital policy and those that adopt moderate working capital policy.

H_{13} - There is significant difference in the profitability of manufacturing companies that adopt conservative working capital policy and those that adopt moderate working capital policy.

1.6 SIGNIFICANCE OF THE STUDY

The outcome of this study could be of tremendous importance to specifically the managers of manufacturing companies in Nigeria. This is because it will open new doors for improvement, growth and excellence in operations through the understanding of the proper mix of short term and long term financing for current assets. It will also be of immense benefit to both potential and existing investors of manufacturing companies, their employees and competitors in the same industry, students and other policy makers on the field of working capital management.

Besides contributing meaningfully to academic development, this study would also serve as a basis for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter attempts to review previous studies and research findings made by recognized authorities and researchers that are relevant to this research, so that ideas relating to the research problem of the study will be clearly identified. It is also necessary to review the earlier studies in order to avoid unnecessary repetitions of the earlier efforts or ideas. The review considers issues such as concept of working capital, nature of working capital decisions, working capital policies and issues in management of working capital.

2.2 CONCEPT OF WORKING CAPITAL

According to Brigham and Houston (2001:695), 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”.

Brealey and Myers (1996:823) identified the components of working capital to be of current assets and liabilities. Current assets constitute cash, marketable securities, accounts receivable, inventories and other short term assets. While current liabilities components are short term loans, accounts payable, accrued income taxes, current payments due on long term debt and other short term liabilities.

Working capital has been defined by Keown *et al* (1999:612) as the firm’s total investment in current assets or assets which are expected to be converted into cash within a year or less. Short term financing problems arise in the management of a firm’s investments in current assets (working capital) and its use of current liabilities. The firm’s net working capital (which is the difference between firm’s current assets and its current liabilities) at any particular time provides a very useful summary measure of the firm’s short term financing decisions. As the firm’s net working capital decreases, the firm’s profitability tends to rise. However, this increase in profitability comes only at the expense of an increased risk of illiquidity. Consequently, short term financing decisions impact a firm’s net working capital and entail a risk-return trade-off.

From the view of Pandey (1999:807 – 809), there are two (2) concepts of working capital, and these are gross and net. Gross working capital refers to the firm’s investment in current assets. These are the assets that can be

converted into cash within an accounting year (or operating cycle). Net working capital refers to the difference between current assets and current liabilities. Current liabilities are those claims of outsiders which are expected to mature for payment within an accounting year. Net working capital can be positive or negative. A positive net working capital will arise when current assets exceed current liabilities. A negative net working capital occurs when current liabilities are in excess of current assets.

Osisioma (1996:318) added that working capital is one of the most widely used measures of short term liquidity. A working capital deficiency exists when current liabilities exceed current assets. A weak liquidity position poses a threat to the solvency of the company and makes it unsafe and unsound. A negative working capital means a negative liquidity and is disastrous for the company. Excessive liquidity is also bad and may arise from mismanagement of current assets. It is the responsibility of management to take prompt and timely action to correct and improve the imbalance in the firm's liquidity position.

Working capital is important because it serves as a pool of liquid assets which provides a safety cushion to creditors. It provides a liquid reserve with which to meet contingencies and the ever present uncertainty regarding a company's ability to balance its cash outlay with an adequate inflow of funds. It is a qualitative concept in the sense that it indicates the liquidity position of the firm and suggests the extent to which working capital needs may be financed by permanent sources of funds.

The importance attached by credit grantors, investors and others to working capital as a measure of liquidity and solvency has caused some companies, in their desire to present their current position in the most favourable light, to stretch to the limit of definition of what constitutes a current asset and a current liability. Proper judgement is therefore necessary in determining what items should be included in working capital.

2.3 THE NEED FOR WORKING CAPITAL

The use of working capital in an organisation is very necessary, this is because when a company invests in fixed assets, it must not only consider the financial outlay involved with acquiring a new fixed asset (e.g. a new machine), it must also consider the additional current assets that would be involved. For instance, a company that is intending to increase its production capacity by acquiring a new machine must also consider additional stock of raw materials, and work-in-progress, increased level of debtors and the need for greater level of cash. Thus, it can be argued that investment decisions cannot be separated from working capital management, (Olowe,1997:452; Peterson,1994:687; Lasher,2000:457).

The need for working capital to run the day-to-day business activities cannot be over-emphasized. We will hardly find a business firm which does not require any amount of working capital. Indeed, firms differ in their requirements of the working capital. We know that a firm should aim at maximising the wealth of its shareholders. In its endeavour to do so, a firm

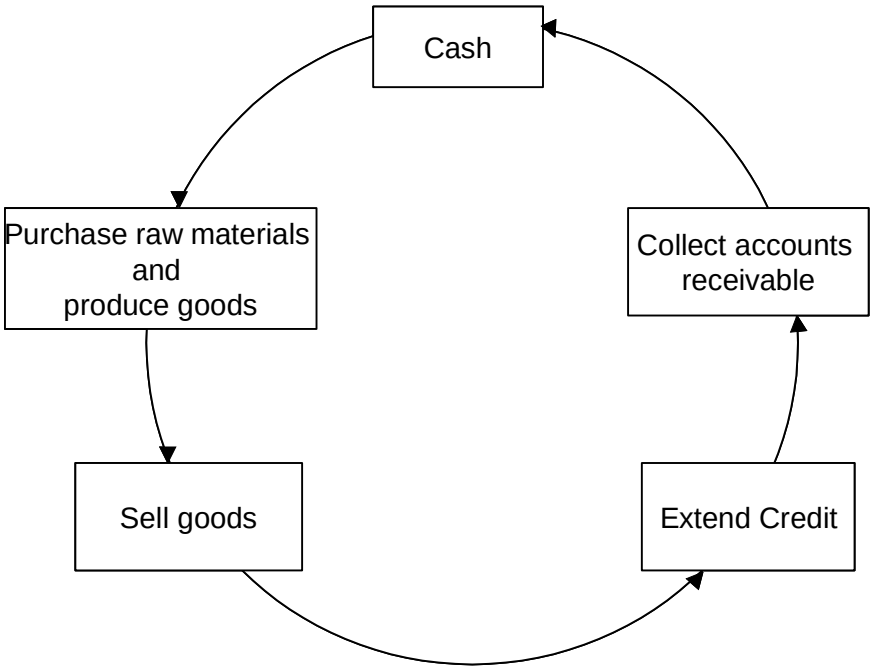
should earn sufficient return from its operations. Earning a steady amount of profit requires successful sales activity. The firm has to invest enough funds in current assets for generating sales. Current assets are needed because sales do not convert into cash instantaneously. There is always an operating cycle which necessitates the use of current assets to convert sales into cash, (Pandey, 1999:809).

2.3.1 Operating Cycle

Operating cycle is the time duration required to convert sales, after the conversion of resources into inventories, into cash. The operating cycle of a manufacturing company involves three(3) phases: Acquisition of resources, manufacture of the product, and sale of the product, (Pandey, 1999:810).

Peterson (1994:690) also argues that the need for working capital is as a result of firm's responsibility to hold some of their assets in cash or liquid form to meet the transactions of their day-to-day operations. The amount of working capital needed differs from firm to form, depending largely on the flow of cash into and out of the firm which is determined by firm's operating cycle in form of diagram as follows:

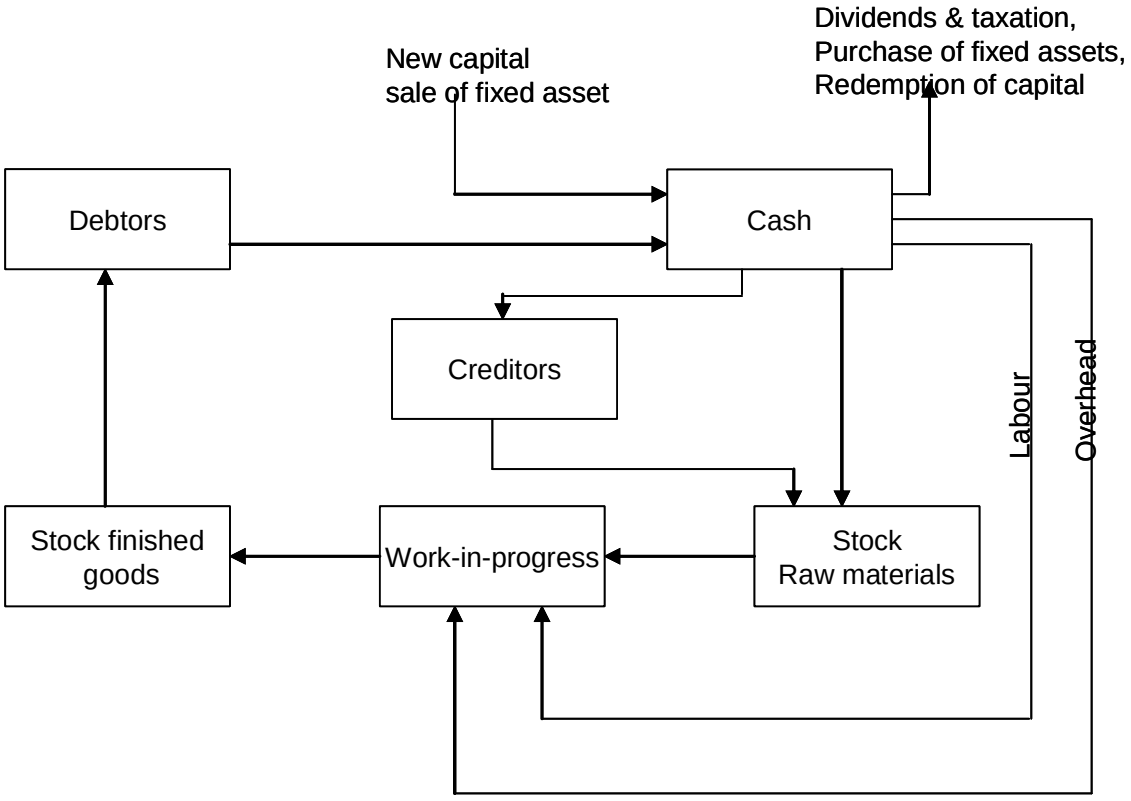
Figure 2.1: The Operating Cycle



Source: Peterson, P. P. (1994:690), Financial Management and Analysis, McGraw Hill Inc, United States of America.

Brockington (1987:263) sees operating cycle as working capital cycle. He defines it as a process of cash conversion cycle. It is depicted in a diagram as follows:

Figure 2.2 Working Capital Cycle



Source: Brockington, R. B. (1987:263), Financial Management (4th Edn), Guernsey Press Co. Ltd, Great Britain.

Figure 2.2 shows that for a manufacturing firm to operate, raw materials must be processed into finished goods to create sales in cash or accounts receivable. The same cash and probably accounts payable (creditors) are converted to stock and into sales again. the cycle continues as a normal operation in any manufacturing company. With this, Brockington proves the need for working capital in the operational activity of a manufacturing concern.

2.4 DETERMINANTS OF WORKING CAPITAL

Osisioma (1996:321-322) is also of the opinion that the company's working capital requirements are determined largely by the length of operating cycle and the rate of flow of costs within the operating cycle. The rate of flow of the costs in turn depends on the volume of production and sales, and the costs associated with the production and sales activities. Each of these is also influenced by several other factors including: nature of industry and length of the period of operating cycle, seasonal nature of an industry, credit policy, the terms and conditions of purchases of goods, company's policies and government's policies.

In a more elaborated way, Pandey (1999:816-819) identifies the factors that determine the working capital requirements of firms as follows:

a. Nature of Business: Working capital requirements of a firm are basically influenced by the nature of its business. Trading and financial firms have a very small investment in fixed assets, but require a large sum of money to be invested in working capital. In contrast, public utilities have a very limited need for working capital and have to invest abundantly in fixed assets.

b. Sales and Demand Conditions: The working capital needs of a firm are related to its sales. It is difficult to precisely determine the relationship between volume of sales and working capital needs. In practice, current assets will have to be employed before growth takes place. It is therefore, necessary to make advance planning of working capital for a growing firm on a continuous basis.

Sales depend on demand conditions. Most firms experience seasonal and cyclical fluctuations in the demand for their products and services. These business variations affect the working capital requirement, especially the temporary working capital requirement of the firm. When there is an upward swing in the economy, sales will increase; correspondingly, the firm's investment in inventories and debtors will also increase, and vice versa. Likewise seasonal fluctuations of demand, during periods of peak demand, increasing production may cause additional investment in fixed assets and this act will require further additions of working capital.

c. Technology and Manufacturing Policy: The manufacturing cycle (or the inventory conversion cycle) comprises of the purchase and use of raw materials and the production of finished goods. Longer the manufacturing cycle, larger will be the firm's working capital requirements. An extended manufacturing time span means a larger tie-up of funds in inventories. Thus, if there are alternative technologies of manufacturing a product, the technological process with the shortest manufacturing cycle may be chosen. Once a manufacturing technology has been selected, it should be ensured that manufacturing cycle is completed within the specified period. This needs proper planning and co-ordination at all levels of activity. Any delay in manufacturing process will result in accumulation of work-in-process and waste of time.

d. Credit Policy: The credit policy of the firm affects the working capital by influencing the level of debtors. The credit terms to be granted to

customers may depend upon the norms of the industry to which the firm belongs. But a firm has the flexibility of shaping its credit policy within the constraint of industry norms and practices. The firm should use discretion in granting credit terms to its customers. Depending upon the individual case, different terms may be given to different customers. A liberal credit policy, without eating the credit worthiness of customers will be detrimental to the firm and will create a problem of collecting funds later on.

Van Horne (1998:361) believes that economic conditions and the firm's credit policies are the chief influences on the level of a firm's accounts receivable. Economic conditions, of course, are largely beyond the control of the financial manager. As with other current assets, however, the manager can vary the level of receivables in keeping with the trade-off between profitability and risk. Lowering quality standards may stimulate demand, which, in turn, should lead to higher profits. But there is a cost to carrying the additional receivables, as well as a greater risk of bad debt losses. Van Horne emphasizes that the credit and collection policies of one firm are not independent of those of other firms. If product and capital markets are reasonably competitive, the credit and collection practices of one company will be influenced by what other companies are doing. Such practices determine the level of working capital investment.

e. Availability of Credit: The working capital requirements of a firm are also affected by credit terms granted by its creditors. A firm will need less working capital if liberal credit terms are available to it. Similarly, the

availability of credit from banks also influences the working capital needs of the firm. A firm, which can get bank credit easily on favourable conditions, will operate with less working capital than a firm without such a facility.

f. Operating Efficiency: The operating efficiency of the firm relates to the optimum utilization of resources at minimum costs. The firm will be effectively contributing in keeping the working capital investment at a lower level if it is efficient in controlling operating costs and utilizing assets.

g. Price Level Changes: The increasing shifts in price level make functions of financial manager difficult. He should anticipate the effect of price level changes on working capital requirements of the firm. Generally, rising price levels will require a firm to maintain higher amounts of working capital. Same levels of current assets will need increased investment when prices are increasing. However, companies which can immediately revise their product prices with rising price levels will not face a severe working capital problem.

2.5 NATURE OF WORKING CAPITAL DECISIONS

According to Brigham and Houston (2001:694), the nature of working capital decisions involves two (2) basic questions: (a) What is the appropriate amount of current assets for the firm to carry, both in total and for each specific account, and (b) How should current assets be financed?

Olowe (1997:452) also stated that an important consideration in working capital decision is determining the amount of investment in working

capital and how working capital should be financed. The nature of working capital decision and working capital policy is restricted to issues pertaining the size of the firm's investment in current assets and the financing of current assets, (Ross et al, 1996).

2.5.1 Investment in Working Capital

As discussed in the preceding sections, the need for current assets in the effective operations of manufacturing firms can not be overemphasized. There will hardly be a business firm that does not require any amount of working capital and indeed the requirement level of firms differ based on the determinants of working capital such as the nature of the business, operating cycle, sales and demand conditions, etc.

Investment in current assets is an important aspect of working capital decision. Some of the factors that affect the level of investment in current assets are as follows:

(a) Permanent and fluctuating current assets.

(b) Balanced working capital position.

(c) Liquidity versus profitability: Risk-Return Trade-off.

(d) Alternatives level of investment in current assets.

(Brigham and Houston, 2001; Olowe, 1997; Pandey, 1999).

(a) Permanent and Fluctuating Current Assets

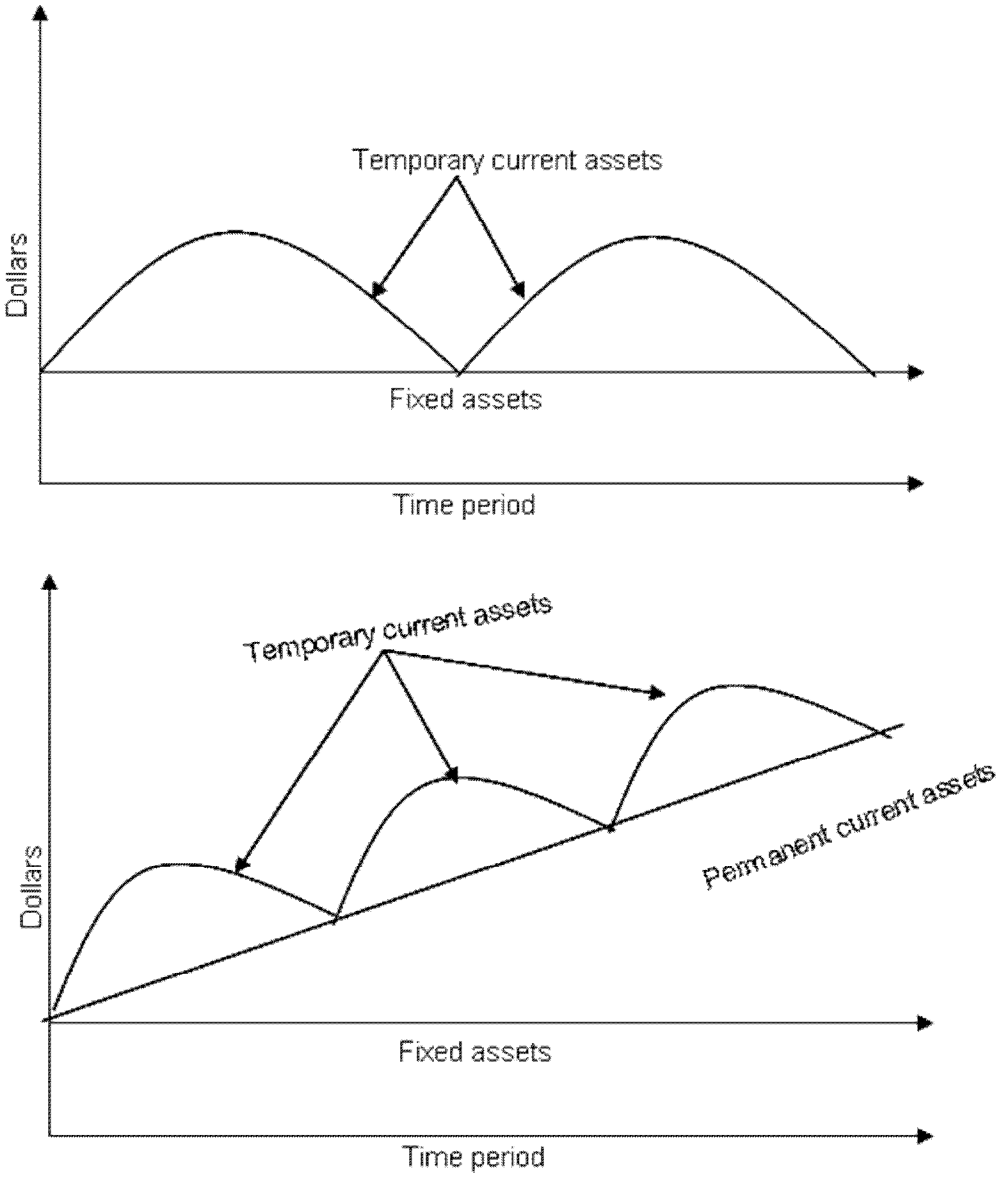
Keown et al (1999:615) see permanent current assets as the investment in current assets that the firm expects to hold for the foreseeable future. For

example, the minimum level of inventory the firm plans to hold for the foreseeable future and temporary current assets as the investment in current assets that the firm plans to sell (liquidate) within a period no longer than one (1) year. Temporary investments generally are made in inventories and receivables.

Brigham and Houston (2001:746) simply defined permanent current assets as current assets that a firm must carry even at the trough of its cycles and temporary current assets are the current assets that fluctuate with seasonal or cyclical variation in sales.

Block and Hirt (2000:147) explained permanent and temporary current assets in form of a diagram as follows:

Figure 2.3: Permanent and Temporary Current Assets



Source: Block, S. B. and Hirt, G. A. (2000:147), Foundation of Financial Management (9th Edn), Irwin McGraw-Hall, U.S.A.

The above explanation of permanent and temporary current assets shows that any firm investing in current assets must be conversant with current assets that are permanent over sometime and those that fluctuate with seasonal variations in sales.

(b) Balanced Working Capital Position

A firm should maintain a balanced working capital position. Neither so much nor so less. Excessive working capital means idle funds which earn no profits for the firm. Paucity of working capital not only impairs the firm's profitability but also results in production interruptions and inefficiencies.

Osisioma (1996:322) believes that the effect of excessive and inadequate working capital would be as follows:

1. The dangers of excessive working capital:
   (i) Management may become more complacent, less aggressive and less dynamic for the maximization of profit and shareholders' wealth.
   (ii) It could lead to wasteful expansion programmes.
   (iii) management may adopt a liberal dividend policy.
   (iv) It can also lead to very risky speculations in the securities market.
   (v) Unnecessary accumulation of inventories, thus chances of mishandling, waste, losses and cost of storage.
   (vi) It is an indication of defective credit policy and slack collection period.
2. The dangers of inadequate working capital:
   (i) It could lead to a business failure.
   (ii) It can frustrate the noble objectives of the company.
   (iii) It could lead to drastic reduction in the rate of return on total investment.
   (iv) It could erode the capital base of the company and thereby adversely

affect the company's credit worthiness.

(v) It stagnates growth, difficulty in achieving firm's profit target, and operating inefficiencies will creep in.

(vi) Fixed assets are not efficiently utilized for the lack of working capital funds.

Brockington (1987) is also of the same opinion that investment in current assets should be optimal because of the dangers explained above.

(c) Liquidity Versus Profitability: Risk-Return Trade Off

The two important aims of working capital management are: profitability and solvency. Solvency, used in the technical sense, refers to the firm's continuous ability to meet maturing obligations. Lenders and creditors expect prompt settlements of their claims as and when due. To ensure solvency, the firm should be very liquid, which means larger current assets holding. If the firm maintains a relatively large investment in current assets, it will have no difficulty in paying claims of creditors when they become due and will be able to fill all sales orders and ensure smooth production. Thus, a liquid firm has less risk of insolvency; that is, it will hardly experience a cash shortage or a stock-out situation. However, there is a cost associated with maintaining a sound liquidity position. A considerable amount of the firm's funds will be tied up in current assets, and to the extent this investment is idle, the firm's profitability will suffer.

To have higher profitability, the firm may sacrifice solvency and maintain a relatively low level of current assets. When the firm does so, its

profitability will improve as less funds are tied up in idle current assets, but its solvency would be threatened and would be exposed to greater risk of cash shortage and stockouts. It is therefore necessary for a firm to consider this factor in taking a decision of making an investment in working capital, (Pandey, 1999:823).

Block and Hirt (2000:167) confirm that each financial manager must structure his or her working capital position and the associated risk-return trade off to meet the company's needs. For firms whose cash flow patterns are predictable, typified by the public utilities sector, a low degree of liquidity can be maintained. Immediate access to capital markets such as that enjoyed by large prestigious firms, also allows a greater risk-taking capability. In each case, the ultimate concern must be for maximizing the overall valuation of the firm through a judicious consideration of risk-return options.

Keown et al (1999:613) depict the pictorial situation as follows:

Table 2.1: The Risk-Return Trade-Off in Managing a Firm's Working Capital

	Firm Profitability	Firm Liquidity
Investing in additional marketable securities and inventories	Lower	Higher
Increasing the use of short-versus-long-term sources of financing	Higher	Lower

Source: Keown, A. J., Martin, J. D., Petty, J. W., and Scott, J. R. (1999:613), Basic Financial Management (8th Edn), Prentice Hall Inc, New Jersey, USA.

(d) Alternatives Level of Investment in Current Assets

The level at which current assets are being kept differs in different organizations due to varying level of sales, credit policies, etc. There are three (3) levels at which current assets should be kept and these are:

(i) Relaxed current assets level.

(ii) Moderate current assets level.

(iii) Restricted current assets level.

(i) Relaxed Current Assets Investment Policy:

This is where relatively large amounts of cash, marketable securities and inventories are carried and where sales are stimulated by the use of a credit policy that provides liberal financing to customers and a corresponding high level of receivables.

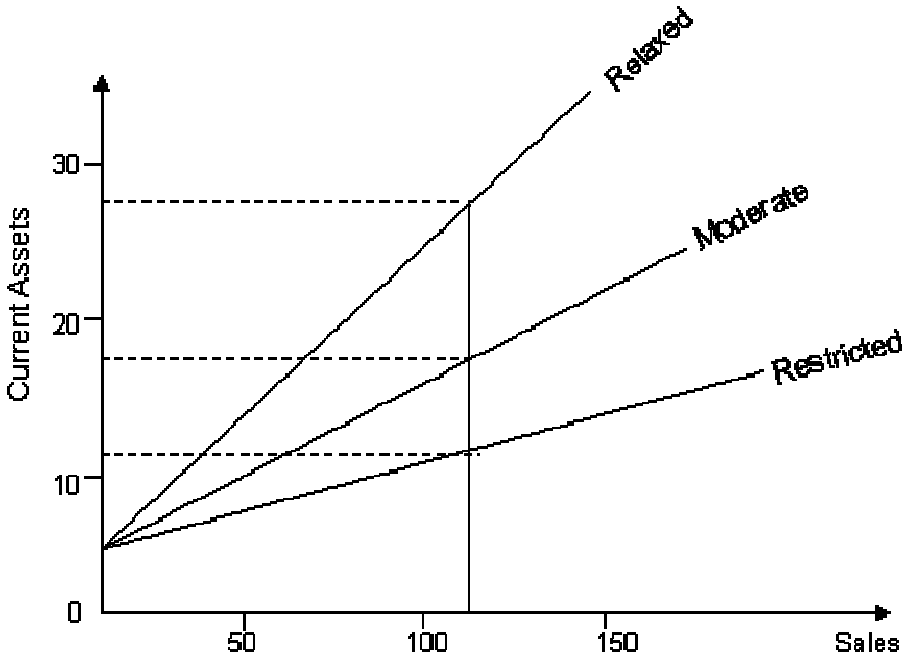
(ii) Moderate Current Assets Investment Policy:

This is where current assets are neither larger nor small, they are between the two extremes (relaxed and restrictive levels) situations.

(iii) Restrictive Current Assets Investment Policy:

This is where the holdings of cash, marketable securities, inventories, and receivables are minimized. Under the restrictive policy, current assets are turned over more frequently, so each dollar of current assets is forced to "work harder", (Brigham and Houston, 2001:697).

Figure 2.4: Alternative Current Assets Investment Policies.



Source: Brigham, E. F. and Houston, J. F. (2001:697), Fundamentals of Financial Management (9th Edn), Harcourt Asia, PTC Ltd, India.

Brigham and Houston (2001) continue by explaining that under conditions of certainty, when sales, costs, lead times, payment periods and so on, are known for sure, all firms would hold only minimal levels of current assets. Any larger amounts would increase the need for external funding without a corresponding increase in profits, while any smaller holdings would involve late payments to suppliers along with lost sales due to inventory shortages and an overly restrictive credit policy, and the picture changes when uncertainty is introduced.

2.5.2 Financing Working Capital

According to Olowe (1997:452-453), the second aspect of working capital decision is to decide on how to finance the investment to be made in

current assets. Block and Hirt (2000:143) are of the same view by stating that after determining the appropriate levels of cash, accounts receivable, and inventory that the firm should maintain, the next is to determine whether to carry these assets through credit extension from our suppliers, short term bank loans, or longer-term credit arrangements.

Olowe (1997) explained further that current assets may be financed by one of the following:

(i) Short term finance

(ii) Long term finance

(iii) Relative mix of short and long term finances

(i) Short-Term Finance: These are flexible source of financing usually used in financing short term working capital needs. The sources of short term finances include:

a. Borrowing from friends and relatives

b. Borrowing from cooperatives

c. Trade credits

d. Accruals

e. Bank borrowing e.g. bank overdraft and other bank loans

f. Speeding up payment from trade debtors

g. Factoring of debtors, and

h. Acceptance credit

(ii) Long-Term Finance: These are the finances that have long term obligations. They include:

a. Loan stock/debentures

b. Preference shares

c. Ordinary shares

d. Retained earnings

(iii) Relative Mix of Short and Long-Term Finance: The third one is the mix between short and long term finances to finance working capital of a firm.

Pandey (1999:827) is of the same opinion with Olowe (1997) but argues that apart from short and long term ways of financing working capital, there is also a spontaneous financing method. Spontaneous financing refers to the automatic sources of short term funds arising in the normal course of a business. Trade (suppliers) credit and outstanding expenses are examples of spontaneous financing. There is no explicit cost of spontaneous financing. A firm is expected to utilize these sources of finances to the fullest extent. The real choice of financing current assets, once the spontaneous sources of financing have been fully utilized, is between the long term and short term sources of finances.

2.5.2.1 Advantages and Disadvantages of Short and Long-Term Financing

Brigham and Houston (2001:749-750) consider the advantages of short-term financing to be the disadvantages of long-term financing and vice

versa. Therefore, they identify the advantages and disadvantages of short-term financing as follows:

(i) Speed: A short-term loan can be obtained much faster than long-term credit. Lenders will insist on a more thorough financial examination before extending long-term credit.

(ii) Flexibility: If its needs for funds are seasonal or cyclical, a firm may not want to commit itself to long-term debt for three (3) reasons: (1) flotation costs are higher for long term debt than for short term credit. (2) although long-term debt can be repaid early, provided the loan agreement includes a prepayment provision, prepayment penalties can be expensive. (3) long-term loan agreements always contain provisions, or covenants, which constrain the firm's future actions. Short-term credit agreements are generally less restrictive.

(iii) Cost of Long-Term Versus Short-Term Debt: The yield curve is normally upward sloping indicating that interest rates are generally lower on short-term debt. Thus, under normal conditions, interest costs at the time the funds are obtained will be lower if the firm borrows on a short- term rather than a long-term basis.

(iv) Risks of Long-Term Versus Short-Term Debt: Even though short-term rates are often lower than long-term rates, short-term credit is riskier for two (2) reasons: one, if a firm borrows on a long-term basis, its interest costs will be relatively stable over time, but if it uses short-term credit, its interest expense will fluctuate widely, at times going quite high. Secondly, if a firm

borrows heavily on a short-term basis, a temporary recession may render it unable to repay this debt. If the borrower is in a weak financial position, the lender may not extend the loan which could force the firm into bankruptcy.

2.6 ALTERNATIVE WORKING CAPITAL POLICIES

Working capital policy has been defined by Brigham and Houston (2001:746) as the manner in which the permanent and temporary current assets are financed. It refers to the decisions that are related to current assets and their financing. They went further to identify three (3) types of working capital policies as follows:

(a) Maturity matching or self-liquidating working capital policy.

(b) Aggressive working capital policy, and

(c) Conservative working capital policy.

(a) Maturity Matching or Self-Liquidating Working Capital Policy: This policy or approach calls for matching asset and liability maturities that are the same. This strategy minimizes the risk that the firm will be unable to pay off its maturing obligations. To illustrate, suppose a company borrows on a one-year basis and uses the funds obtained to build and equip a plant. Cash flows from the plant (profit plus depreciation) would not be sufficient to pay off the loan at the end of only one year, so the loan would have to be renewed. If for some reasons the lender refused to renew the loan, then the company would have problems. Had the plant been financed with long-term debt, however, the

required loan payments would have been better matched with cash flows from profits and depreciation, and the problem of renewal would not have arisen.

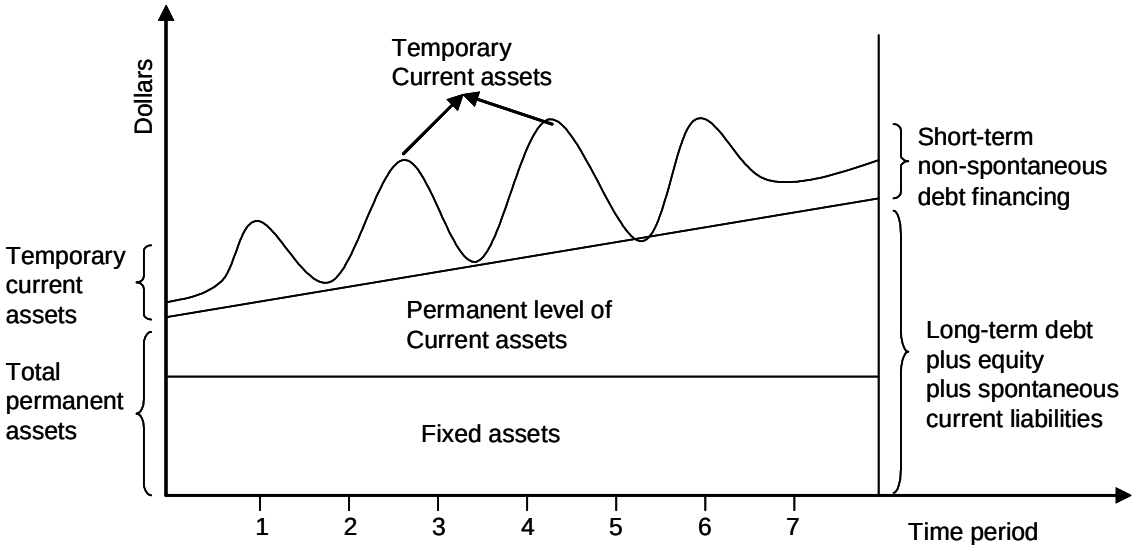
(b) Aggressive Working Capital Policy: The situation where a firm becomes relatively aggressive is when it finances all of its fixed assets with long-term capital and part of its permanent current assets with short- term, non-spontaneous credit. Note that we used the term "relatively" in the title because there may be different degrees of aggressiveness. It could be that all of the permanent current assets and part of the fixed assets were financed with short-term credit; this would be a highly aggressive, extremely non-conservative position, and the firm would be very much subject to danger from rising interest rates as well as to loan renewal problems. However, short-term debt is often cheaper than long-term debt, and some firms are willing to sacrifice safety for the chance of higher profits.

(c) Conservative Working Capital Policy: This is when permanent capital is being used to finance all permanent asset requirements and also to meet some of the seasonal needs. In this situation, the firm uses a small amount of short-term, non-spontaneous credit to meet its peak requirements, but it also meets a part of its seasonal needs by 'storing liquidity' in the form of marketable securities.

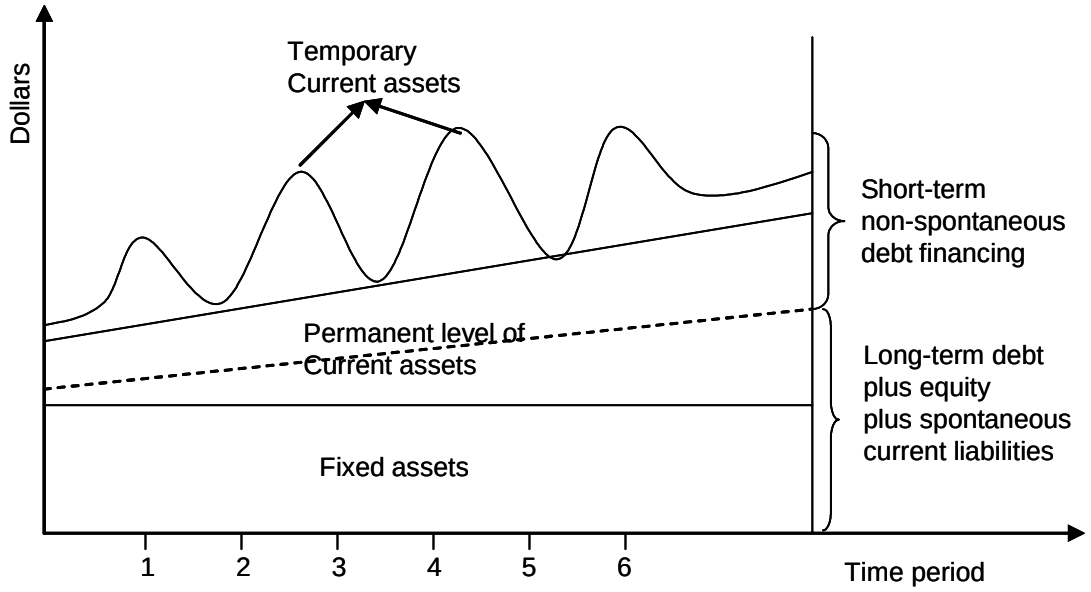
Brigham and Houston (2001) depicted the three (3) policies in form of diagram as follows:

Figure 2.5: Alternative Working Capital Policies.

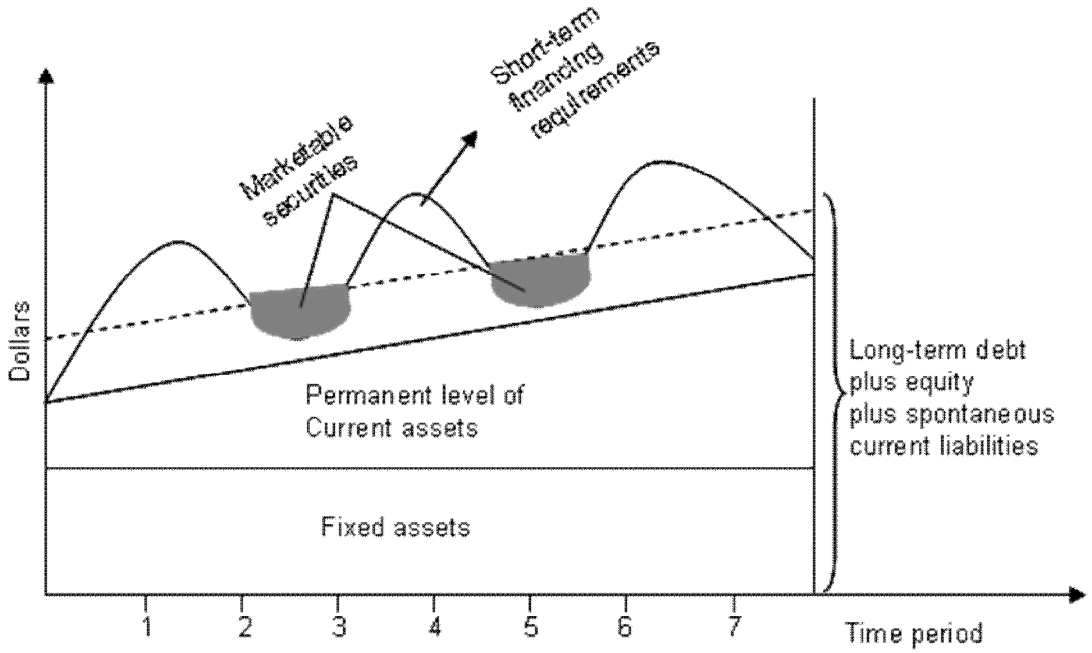
a. Moderate Policy (Maturity Matching)



b. Relatively Aggressive Policy



c. Conservative Policy



Source: Brigham, E. F. and Houston, J. F. (2001:748), Fundamentals of Financial Management (9th Edn), Harcourt Asia PTC Ltd, India.

Block and Hirt (2000:154-158) observed that the axiom that all current assets should be financed by current liabilities is subject to challenge when one sees the permanent build up that can occur in current assets and because there is uncertainty about the lives of assets and part of common equity must be used which has no maturity.

Kurfi (2003:98-101) identifies four (4) types of working capital policies and these are as follows:

(a) Conservative working capital policy.

(b) Matching (or self-liquidating) working capital policy.

(c) Aggressive working capital policy.

(d) Balanced working capital policy**.**

Kurfi went further to differentiate the above policies by bringing out the characteristics of each and every policy as follows:

(a) Conservative Working Capital Policy:

This policy ignores the distinction between permanent and fluctuating current assets by financing almost all assets investment with long-term capital (equity and debt). The policy is characterized by:

(i) High investment in inventories, receivables and cash.

(ii) Greater use of long-term funds for financing current assets.

(b) Matching (or Self-Liquidating) Working Capital Policy: This policy matches the maturity of a financing source with an asset useful life. The policy is characterized by:

(i) Moderate investment in inventories, receivables and cash.

(ii) Matching or using long-term funds for financing permanent assets only. All fluctuating current assets are financed by short-term borrowings or funds, and all permanent current assets are financed by long-term debt and equity.

(c) Aggressive Working Capital Policy: This policy takes an extreme position of resorting to short-term liabilities to finance not only fluctuating current assets but also a substantial part of the permanent current assets requirements. The policy is characterized by:

(i) Low investment in inventories, receivables and cash.

(ii) Greater use of short term funds for financing current assets. Apart from the fluctuating current assets a substantial percentage of permanent current assets if not all are also financed by short-term financing sources.

(d) Balanced Working Capital Policy: Because of impracticalities in implementing the matching policy and the extreme nature of conservative and aggressive policies, most financial managers opt for a compromise position. Such position is the balanced policy. This policy tries to adopt a moderate or balanced position in current assets financing. The policy is characterized by:

(i) Relatively moderate investment in inventories, receivables and cash.

(ii) Uses long-term funds in financing fixed assets, permanent current assets and a small percentage of fluctuating current assets and a substantial percentage of fluctuating current assets are financed by short-term financing sources.

2.7 ISSUES IN WORKING CAPITAL MANAGEMENT

Working capital management refers to the administration of all aspects of current assets, namely cash, marketable securities, debtors, stock(inventories) and current liabilities. The financial manager must determine levels and composition of current assets, (Pandey, 1999:820).

Olowe (1997:452) is of the same view that working capital management involves the management of current assets (cash, debtors and stock) and current liabilities (creditors).

Similarly, Block and Hirt (2000:146) see working capital management as that which involves the financing and management of the current assets of the firm. The financial executive probably devotes more time to working capital management than to any other activity. Current assets, by their very nature, are changing daily, if not hourly, and managerial decisions must be made. “How much inventory is to be carried and how do we get the funds to pay for it?”

2.7.1 Debtors Management

Debtors management is concerned with the efficient management of debtors to achieve an optimum level of debtors in the firm’s working capital investment. The optimum level of debtors represents a balance between two factors – namely:

(i) Increase in sales and profits associated with extending credit.

(ii) Costs of trade credit, which include interest and administrative cost of carrying debtors and cost of bad debt.

The above two factors will enable management to determine the profitability of a credit policy, (Olowe, 1997:459-460).

According to Kurfi (2003:114-115), debtors are accounts receivable which are assets accounts representing amounts owed to a firm as a result of the sale of goods or services in the normal course of business. The level of accounts receivable in a firm is greatly influenced by prevailing economic conditions, product quality, product price, nature of the market and the firm’s credit policies. Accounts receivable or trade debtors or simply debtors

constitute a substantial portion of current assets of many firms. As with other current assets, the level of accounts receivable of a firm can be varied keeping with the trade off between profitability and risk. Having a lax credit policy may stimulate demand, which, in turn, would lead to higher sales and profits. But there is a cost of carrying the additional trade debtors, as well as a greater risk of bad debt losses. As such, in deciding the optimum level of investment in accounts receivable, the trade-off between return (i.e. profitability) and risks (including the cost of administering the accounts) must be properly analysed.

Kurfi went further to explain the reasons why firms create and maintain accounts receivable or trade debtors. These are:

(i) Marketing Tool: Particularly when a new product is launched or when a firm wants to push its weak product or expand its market share, credit can be used as marketing tool.

(ii) Competition: Generally in a highly competitive market the more credit a firm grants the more the likelihood for it to compete favourably.

(iii) Customers' Requirements: In some business sectors, customers/dealers are not able to operate without extended credit. This is more so with industrial products.

(iv) Customers' Status: Big customers may demand easy credit terms because of bulk purchases and their higher bargaining power. But hardly do small retailers get much credit because of the difficulty in collecting dues from them.

(v) Relationship with Dealers: Sometimes companies extend credit to dealers to rewards them for their loyalty or build long-term relationship with them.

(vi) Others: Others are industry practice, firm's bargaining power and nature of the market or product.

On the same view, Pandey (1999:845-846) added maximization of sales and profit as a reason why firms keep accounts receivable.

It has been shown that economic conditions and the firm's credit policies are the chief influences on the level of a firm's accounts receivable.

We must emphasize that the credit and collection policies of one firm are not independent of those of other firms. If product and capital markets are reasonably competitive, the credit and collection practices of one company will be influenced by what other companies are doing. Credit and collection policies are the key issues to be carefully treated by a financial manager to control the trade off between profitability and risk of keeping-trade debtors, (Van Horne, 1998:361).

(a) Credit and Collection Policies

A firm's investment in accounts receivable depends on the volume of its credit sales and average period between sales and collections. The financial manager can influence the level of investment in accounts receivable through changes in the credit policy. The term credit policy is used to refer to the combination of three (3) decision variables which are as follows:

(i) Credit Standards and Analysis: Credit standards are the criteria a firm follows in selecting customers for the purpose of extending credit. The firm may have tight credit standards; that is, it may sell mostly on cash basis, and may extend credit only to the most reliable and financially strong customers. Such standards will result in no bad debt losses, and less cost of credit administration. But the firm may not be able to expand sales. Credit analysis has to do with the aspect of selecting quality customers. There are two aspects of the quality of customers (a) the time taken by customers to repay credit obligations and (b) the default rate. The Average Collection Period (ACP) determines the speed of payment by customers. It measures the number of days for which credit sales remain outstanding. The longer the average collection period the higher the firm's investment in accounts receivable. Default rate can be measured in terms of bad-debt losses – the proportion of uncollected receivables.

(ii) Credit Terms: Credit terms are the stipulations under which a firm sales on credit to customers. These stipulations include: (a) credit period; the length of time for which credit is extended to customers, and (b) cash discounts; reduction in payment offered to customers to induce them to speed up repayment of their credit obligations within a specified period of time.

(iii) Collection Policy and Procedures: This refers to the means and devices employed by a firm to accelerate collections from slow payers and reduce bad debt losses from credit sales. These devices include such things as phone calls, letters, personal visits, use of a collection agency and legal action in court.

(Kurfi, 2003; Pandey, 1999; Van Horne, 1998).

2.7.2 Stock/Inventory Management

Inventory management involves the control of the assets that are used in the production process or produced to be sold in the normal course of the firm's operations. The general categories of inventory include raw materials inventory, work-in-process inventory, and finished goods inventory. The importance of inventory management to the firm depends on the extent of the inventory investment. For an average firm, approximately 4.80 percent of all assets are in the form of inventory. However, the percentage varies widely from industry to industry. Thus, the importance of inventory management and control varies from industry to industry also. For example, it is much more important in the automotive dealer and service station trade, where inventories make up 54.21 percent of total assets, than in the hotel business, where the average investment in inventory is only 0.98 percent of total assets, (Keown et al, 1999:695).

Olowe (1997:466) explained that the main objective of holding stock is to meet sales demand and increase profits. If the products are available and customers' demand is immediately satisfied, prospective customers will not go elsewhere. However, if the firm is out of stock and cannot meet even customers' demand, there would be a loss of customers' goodwill.

Kurfi (2003:103) believed that in inventory management, the firm is faced with the problem of meeting two conflicting needs:

(i) maintaining large size of inventory for efficient and smooth production and sales operations; and

(ii) maintaining a minimum investment in inventories to minimize costs of ordering and handling thereby increasing profitability.

2.7.2.1 Techniques of Inventory Management

In the opinion of (Kurfi, 2003:105-108; Olowe, 1997:467; Pandey, 1999:887), in managing inventories, the firm's objective should be in consonance with the shareholders' wealth maximization principle. To achieve this, the firm should determine the optimum level of inventory. Efficiently controlled inventories make the firm flexible. Inefficient inventory control results in unbalanced inventory and inflexibility, the firm may sometimes run out of stock and sometimes may pile up unnecessary stocks. This increases the level of investment and makes the firm unprofitable.

One of the most commonly cited sophisticated tool for determining the optimal order for an item of inventory is the Economic Order Quantity (EOQ) model. It takes into account various operating and financial costs and determines the order quantity that minimizes the firm's overall inventory costs. It therefore gives an order size that will result in the lowest total cost of ordering and carrying for an item of inventory.

There is also the ABC method of stock control which seeks to control expensive inventory items more closely than less expensive items. In applying ABC method of stock control, inventories are graded class-wise. Class A, may

represent only 10 percent of the stock items but accounts for more than 50 percent of the investment in inventory; Class B, may represent a further 15 percent of the items, but a further 40 percent of the investment, so that classes A and B together account for more than 90 percent of the investment, but account only for 25 percent of the item of the inventory, etc. As such selective system of control is then applied according to the relative value and importance of each class of the inventory.

Lastly, recently a Japanese inspired method of inventory control system called 'Just in Time' (JIT) is gaining attention. JIT breaks with the conventional wisdom of maintaining large stock of inventories as buffer against uncertainties, but require item at the exact time needed or 'Just-in-Time' to reduce the carrying costs. It requires very accurate production and inventory information system, highly efficient purchasing, very reliable suppliers, and an efficient inventory handling system.

2.7.3 Cash Management

Cash management is an integral part of financial management. According to Pandey (1999), cash is the most important current asset for the operation of business firm and it is therefore seen as the basic input needed to keep a business running on a day-to-day basis. Hence, cash becomes the lifeblood of any business enterprise. Having seen cash as the life wire of every business enterprise, then the management of cash as a tool to achieve optimal goal need not to be overemphasized. The effective and efficient cash

management will therefore, in no doubt have favourable impact on both the short-run and long-run organizational goals and objectives.

Similarly, Van Horne (1998:345) stated that, cash management involves managing the monies of the firm in order to maximize cash availability and interest income on any idle funds. At one end, the function starts when a customer writes a check to pay the firm on its accounts receivable. The function ends when a supplier, an employee, or the government realizes collected funds from the firm on an account payable or accrual. All activities between these two (2) points fall within the realm of cash management. The firm's efforts to get customers to pay their bills at a certain time fall within accounts receivable management. On the other hand, the firm's decision about when to pay its bills involves accounts payable and accrual management. A financial manager should collect accounts receivable as soon as possible, but pay accounts payable as later as in consistent with maintaining the firm's credit standing with suppliers.

2.7.3.1 Reasons for Holding Cash

As cited by Kurfi (2003:108-109), according to John Maynard Keynes (1883-1946), a renowned British Economist, there are three (3) motives for holding cash. These motives are:

(i) Transaction Motive: This is the cash needed to conduct ordinary business transactions. This provides liquidity to the firm so that it can settle routine expenses, making purchases and sales.

(ii) Precautionary Motive: This is the cash held in order to handle contingencies or fluctuating needs whose magnitude is not known in advance.

(iii) Speculative Motive: Business organisations keep cash in order to take advantage of any profitable business opportunity that may come from time to time, for instance taking advantage of cash discount, unexpected developments, etc.

The cost of holding cash is, of course, the opportunity cost of lost interest. To determine the target cash balance, the firm must weigh the benefits of holding cash against the cost. It is generally a good idea for firms to figure out first how much cash to hold to satisfy the transactions needs. Next, the firm must consider compensating balance cash requirements, which will impose a lower limit on the level of the firm's cash holdings. Because compensating balances merely provide a lower limit, (Ross et al, 1996:724).

2.7.3.2 Methods of Cash Management

Efficient cash management has to do with proper forecasts of future cash inflows and outflows. The most important aspects of cash management is to determine how to put in place control mechanisms that will continually gather and monitor the information on the firm's daily cash balances, that is, cash receipts and disbursements. Even though it is an established procedure in every firm to anticipate for cash needs through cash budget, cash budget will only analyse the expected operating and financial cash receipts and disbursements. An efficient cash management is set to accomplish three (3) objectives:

(i) determining the appropriate target cash balance.

(ii) Collecting and disbursing cash efficiently.

(iii) Investing excess cash in marketable securities or other near cash assets.

(Kurfi, 2003:110; Ross et al, 1996:723).

2.7.4 Marketable Securities Management

Marketable securities are short term financial assets, which are often maintained as part of liquidity of a firm. Cash in excess of operating cash balance requirements should normally be invested in those alternatives, which will yield additional returns and be conveniently and promptly converted into cash. Thus, a firm may hold marketable securities for one or more of the following reasons:

(i) As a cash substitute to buffer against cash shortages.

(ii) As a temporary investment, marketable securities can be held during surplus cash flow periods and liquidated during the deficit cash flow periods.

(iii) To help meet predictable future financial requirements.

(iv) As hedge against cost of funds from short term borrowings to meet capital requirements, (Kurfi, 2003:112-113).

According to Brigham and Houston (2001:714), realistically, the management of cash and marketable securities cannot be separated, the management of one implies management of the others.

Brigham and Houston (2001) also identified that marketable securities typically provide much lower yields than operating assets. For example, Daimler Chrysler held approximately an $8 billion portfolio of short-term

marketable securities that provided a much lower yield than its operating assets. They concluded that, in many cases companies hold marketable securities for the same reasons they hold cash.

2.7.4.1 Criteria in Marketable Securities Selection

From the opinion of Block and Hirt (2000:183) and Kurfi (2003:113), the financial manager in making an investment in marketable securities should consider and evaluate such security as it relates to certain variables. These key variables include:

(i) Safety

(ii) Yield

(iii) Marketability

(iv) Maturity

(v) Taxability

(i) Safety: When a firm makes investment in marketable securities, the primary concern of the portfolio manager is the safety of the principal sum plus the return expected from the investment if possible. A firm would tend to invest in highest yielding marketable securities subject to the constraint that the securities have an acceptable level of risk.

(ii) Yield: This refers to the return or interest and the appreciation of principal provided by the security.

(iii) Marketability: This refers to the speed and convenience which a security or an instrument can be converted into cash. If a given security or investment can be quickly sold without loss of price, it is highly marketable or liquid.

(iv) Maturity: This refers to the life of the security, that is the time or period over which the principal and interest are to be collected back. Usually the longer the maturity period the more the return or yield but also the more exposure to yield risk.

(v) Taxability: The overall tax position of a firm influences the tax position of its marketable securities portfolio. But there are some kinds of securities that have some degrees of tax exemption.

2.7.5 Management of Trade Creditors

The management of trade creditors is the mirror image of the management of trade debtors. One firm's trade debtors are another firm's trade creditors. A company in managing trade creditors should attempt to obtain satisfactory credit periods form suppliers. However, care must be taken to maintain good relations with regular and important suppliers. A firm may incur badwill with suppliers if it extends credit period beyond the agreed limit.

The evaluation of discount policies for trade creditors is the same as that for trade debtors described earlier. Trade credit is an important source of free financing. However, if the supplier offers a cash discount and the firm does not take advantage of it, there is an implied interest cost of trade credit, (Olowe, 1997:489).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The success of any research depends to a large extent on the reliability and effectiveness of its methodology and instruments used in obtaining and analysing data, since they form the basis for drawing inference. This chapter made an attempt in identifying and describing the common types of research methods employed in order to address the problem of the study for the purpose of achieving the main objective of the research, and for that purpose the research population and sampling method were explained. It also describes the financial measures used in comparatively analysing the financial data of companies under study. Technique used in testing the significance of the hypotheses formulated for the research and justification for its use were also discussed. The secondary data collected from the published financial statements of the companies under study were mainly analysed using correlation coefficient technique, and the justification for its use was comprehensively stated. Sources and procedures for the collection of both primary and secondary data were discussed in details. In summary, the chapter is divided into six (6) sections. Section one is the overview of the chapter; section two focuses on the research design employed which is in conversant with the nature of the research conducted; section three discusses the research population and sampling method; section four discusses the sources of both primary and secondary data; section five focuses on the methodology adopted

in collection of data; finally, section six discusses the techniques employed in analysing both primary and secondary data collected for the study, from which the research inferences were made.

3.2 RESEARCH METHOD/DESIGN

The problem of the study obviously belongs to the present time and it is part of the basis on which a suitable research method would be chosen so as to facilitate a meaningful research. The problem is neither historical because we are not trying to find out what has happened nor is it prognostic or predictable because we are equally not trying to forecast what would happen in the future. It is rather a descriptive survey because we are trying to explore what is currently in practice. On that basis, a Descriptive Research Design was employed for the study with emphasis on correlational study design. The choice of this design was influenced by the fact that the main objective of the research was to find out the relationship that exists between working capital policies and profitability of manufacturing firms in Nigeria. The whole issue therefore lies in studying two (2) variables; dependent and independent, to express the degree of their relationship as correlation coefficient. Through this design, the researcher was able to describe and interpret the conditions, and opinions that are held, effects that are evident and trends that are developing with regard to working capital policies and profitability of firms.

Descriptive Research Design is one of the types of research methods identified by many scholars. It is the method that portrays an accurate profile of persons, events or situations, (Lewis et al, 1997:79).

Akuezuilo (1993:8-9), explains Descriptive Research Method as a non-experimental research which describes and interprets situations, find out relationships that exist and trends that are developing. Descriptive Research Design can further be classified into various categories, among these classifications is correlational study design which seeks to establish what relationship exists between two or more variables. It only indicates if relationship exists or not, but does not indicate causation.

According to Obodoeze (1996:11), Correlational Research involves establishing the extent of relationship between two variables or among three or more variables. Usually correlational study is undertaken so as to ascertain how far scores or frequencies of observation on two or more than two variables go together in some trend or are interdependent.

3.3 RESEARCH POPULATION AND SAMPLING METHOD

The research population of the Study comprises the entire manufacturing firms quoted by the Nigerian Stock Exchange as at the end of Year 2003. Manufacturing companies are considered for the purpose of this research to be those companies that their nature of business involves processing raw materials into finished foods, and therefore the total population of manufacturing companies on the list of Nigerian Stock

Exchange as at 2003 were identified to be eighty seven (87) from 10 industries as follows:

a.	Agricultural Products	6 Companies
b.	Breweries	7 Companies
c.	Building Materials	7 Companies
d.	Chemical & Paints	7 Companies
e.	Conglomerates	9 Companies
f.	Food/Beverages & Tobacco	14 Companies
g.	Health Care	11 Companies
h.	Industrial / Domestic Products	12 Companies
j.	Packaging	8 Companies
i.	Textiles	6 Companies
	Total	87 Companies

Source: Nigerian Stock Exchange (2004), **Fact Book.**

A Stratified Random Sampling technique was used to select the sample size of the study. The population of the study was grouped into three (3), based on the companies' working capital policies.

Companies with current liabilities higher then their current assets were categorized to be practicing aggressive working capital policy, those with current liabilities almost equal to their current assets were categorized to be practicing moderate working capital policy, and those with current liabilities

much lower than their current assets were classified under conservative working capital policy.

From the three (3) Strata, Six (6) Companies were selected, two (2) from each stratum randomly to form the sample size of the study.The sample size represents more than 10 percent of the manufacturing companies classified to be at the extreme of each stratum.

3.4 SOURCES OF DATA

The study made use of both primary and secondary data. The primary data used in this research were in form of responses gathered from the research questionnaires administered by the researcher. The secondary source of data comes from the following:

(i) Published Accounts: The published financial statements of the six (6) companies under study for five (5) years ranging from 1999 – 2003 were collected and financial data from balance sheet, profit and loss accounts, and five-year financial summary were mostly used.

(ii) Nigerian Stock Exchange: Data collected were from the publications of the Nigerian Stock Exchange such as reports, journals and factbooks. The researcher used mostly the data from the 2004 Factbook.

(iii) Professional Associations: Journals and periodicals of professional associations such as Institute of Chartered Accountants of Nigeria (ICAN), Association of National Accountants of Nigeria (ANAN), and Chartered

Institute of Taxation (CITN) were extensively used as a source of data for this research.

(iv) Research Projects: These are data from previous researches conducted by other researchers such as post graduate students of Accounting and Business Departments of higher institution.

(v) Text Books: So many textbooks written by reputable authors that are relevant to this research were used as a source of secondary data for this research.

3.5 DATA COLLECTION METHODS

Method of data collection was primarily of the administration of questionnaires. The researcher approached division managers, accounting officers, and other staff that would provide necessary information for the research with the data collection instrument (questionnaire) which was specifically designed for the purpose of this study. The questionnaires were designed to reflect the research hypotheses of the study and it consists two (2) sections: the first sought to collect bio data of the respondents while the second section was designed to collect data that would provide a basis for measuring specific variables that were fundamental to the research.

The other method of data collection used was through documentary research, this involves extraction of secondary data from existing records and documents such as published financial statements of the manufacturing companies selected for study, publications of the Nigerian Stock Exchange

such as factbooks, Journals of Professional Associations such as Institute of Chartered Accountants of Nigeria (ICAN) and Association of National Accountants of Nigeria (ANAN), previous research projects conducted by mostly post graduate students of higher institutions and text books written by reputable authors that are relevant to the research.

3.6 DATA ANALYSIS TECHNIQUE

So many data analysis techniques had been used in this study in order to come out with findings that would achieve the objectives of the research. Simple Descriptive Statistics were largely used for analysis of data gathered from the questionnaires administered in this research. This involved the use of tables, specifically frequency distribution and percentage score.

The research hypotheses were tested using T-test statistic. This is a formula designed to enable a decision regarding how far within the true difference the value obtained actually is. It makes use of the means of the two group, the standard deviation of the two groups, as well as the number of members of the two groups. It tests whether two groups (categories) are significantly different. The justification for its choice and usage in this study was because it enables the researcher if a quantifiable variable can be divided into two (2) distinct groups using a descriptive variable, to assess whether or not the groups are significantly different using an independent group t-test. This compares the difference in the means of the two groups using a measure of the spread of the scores. If the two variables are significantly different this

will be represented by a larger t-statistic with a probability of less than 0.05. The formulated hypotheses for the study were to test whether or not there is significant difference in the profitability of manufacturing companies adopting different working capital policies.

According to Obodoeze (1996:39) and Agburu (2001:123), the formula for calculating t-test statistic is as follows:

$$t = \frac{\bar{X} - \bar{X}_2 - (N_1 - N_2)}{\sqrt{\frac{(\sum X_1^2 - \bar{X}_1^2 + \sum x_2^2 - \bar{X}_2^2)}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Where:

X_1 = Variable 1

X_2 = Variable 2

$\bar{X}1$ = Mean of Variable 1

$\bar{X}2$ = Mean of Variable 2

$\sum$ = Summation

N_1 = Number of questions in (X_1) group

N_2 = Number of questions in (X_2) group

Degrees of freedom (df) = $N_1 + N_2 - 2$

Correlation coefficient is also used to determine the degree of relationship between working capital policies and profitability of firms. This is because it enables the researcher to quantify the strength of relationship between two ranked or quantifiable variables. Since the variables in this study are quantifiable and not ranked, Pearson's Product Moment Correlation

Coefficient (PMCC) would be applied. The coefficient (represented by the letter 'r') can take on any value between -1 and +1. A value of +1 represents a perfect positive correlation. This means that the two variables are precisely related and that as values of one variable increase, values of the other variable will increase. By contrast, a value of -1 represents a perfect negative correlation. Again, this means the two variables are precisely related, however, as the values of one variable increase, the other's decrease. A value of '0' means the variables are perfectly independent.

According to Nwana (2005:289) and Osuala (2001:109), the formula for calculating Pearson's Product Moment Correlation Coefficient (r) is as follows:

$$t = \frac{N\sum XY - \sum X \sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)\,(N\sum Y^2 - (\sum Y)^2)}}$$

Where X = value in one variable

Y = value in the other variable

$\sum$ = Summation

N = Number of paired observation

Finally, performance and profitability ratios of the companies under study were computed and comparatively analysed.

The Performance Ratios used were as follows:

(i) Return on Capital Employed (ROCE): According to Kurfi (2003:33) and Wariboko (1993:2), it is the key ratio as it relates the profit earned to the

amount of long term capital invested in the business. It is the test of the efficiency of management in the use of the resources of the firm.

The formula is given as follows:

$$\frac{\text{Earnings before interest and tax}}{\text{Capital Employed}} \times 100$$

(ii) Current Assets Turnover: Pandey (1999:129) explains it as the efficiency of utilising current assets.

The formula is: $\frac{\text{Sales}}{\text{Current Assets}}$

(iii) Total Assets Turnover: According to Pandey (1999:129), it is the efficiency of utilising total assets in a firm.

The formula is given as follows: $\frac{\text{Sales}}{\text{Total Assets}}$

The Profitability Ratios used are as follows:

(i) Gross Profit Margin: This shows the profit relative to sales after the direct production costs are deducted.

Gross Profit Margin is given by:

$$\frac{\text{Sales} - \text{Cost of Goods Sold}}{\text{Sales}} \times 100$$

(Kurfi, 2003:38)

(ii) Net Profit Margin: This is a measure of the proportion of profit to naira sales which remains after the deduction of all expenses. It indicates the net profit earned each naira of sales, a very low ratio shows that operating

expenses are eating deep into sales expenses revenue. The formula is given by:

$$\frac{\text{Net profit before interest \& tax}}{\text{Net sales}}$$

(Osisioma, 1996:340; Brealey et al, 2001:495)

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

This chapter is devoted to the presentation, analysis and interpretation of data collected for the purpose of this study. First is the historical background and features of the companies under study. Subsequently, the hypotheses of the study were tested for significance and conclusion was drawn from them. Secondary data were also analysed by appropriate techniques as mentioned in the preceding chapter. Finally, the findings of the research were also discussed in relation to the literature review of the study.

4.2 HISTORICAL BACKGROUND OF THE COMPANIES UNDER STUDY

This section summarises the historical background of the six (6) manufacturing companies under study. Emphasis was made on the date of incorporation, date listed on the Nigerian Stock Exchange, the companies' subsidiaries or branches, and the principal activities of the companies.

4.2.1 Benue Cement Company Plc

Benue Cement Company Plc was incorporated on the 16th July, 1975 and listed on the Nigerian Stock Exchange on the 8th April, 1991. The company has Benro Packaging Company Ltd and BCC Lions Football Company Ltd as subsidiaries as at the end of 2003.

The Company is principally involved in the production and sale of ordinary portland cement. Every other activity is ancillary to this. The Company's head office is situated at Km 72, Makurdi-Gboko Road, Tse-Kucha-Mbayion, Gboko, Benue State.

4.2.2 Cement Company of Northern Nigeria Plc

The Company was incorporated as a limited liability company on the 6th of August, 1962, but commenced business in 1967. The Company which became partially privatised in 1992 was listed on the Nigerian Stock Exchange on the 4th October, 1993.

SCANCEM International ANS of Norway are the core investors who acquired largest individual shares following divestment of the interest of the Federal Government in the ownership of the company under review. The Company has no any subsidiary or associate as at the end of 2003, and its main business is manufacturing of cement.

The Company's head office is situated at Km 10, Kalambaina Road, Sokoto State.

4.2.3 Jos International Breweries Plc

The Company (JIB) was incorporated in Nigeria as a private Company on the 26th July, 1975, and listed on the Nigerian Stock Exchange on 30th March, 1992. In 1977 an Investment Agreement was entered into by the Government of Plateau State of Nigeria, the Danish firm of A/S Cerekem International and the Industrialisation Fund for Development Countries ("IFU") also of Denmark. The primary objective was to establish a brewery to

produce and market high quality lager beer. In 1992, Guinness Brewing Worldwide (London, UK) acquired a minority shareholding in the Company and a management contract for the brewery, which terminated on 31st December, 1995.

The Company has Pioneer Miling Company Ltd, BARC Farms Limited, Dutse Estate Management Co. Ltd and Roc International Hotel Ltd as its subsidiaries as at the end of 2003.

The Company's head office is situated at No. 1, Brewery Road, Jos, Plateau State.

4.2.4 Paterson Zochonis Industries Plc

The Company was incorporated in Nigeria on 4th December, 1948 under the name of P. B. Nicholas and Company Limited. Its name was changed to Alagbon Industries Limited in 1953 and to Associated Industries Limited in 1960. The Company became a public company in 1972 and was granted a listing on the Nigerian Stock Exchange on 18th February, 1974. The name was changed to Paterson Zochonis Industries Limited on 24th November, 1976 and incompliance with the Companies and Allied Matters Act 1990, it adopted its present name of Paterson Zochonis Industries Plc on 22nd November, 1990.

The Company has Roberts Pharmaceuticals Ltd and HPZ Limited as its subsidiaries as at the end of 2003.

The principal activities of the group are the manufacture and sale of a wide range of consumer products and home appliances which are leading

brand names throughout the country in detergent, soap, pharmaceuticals, cosmetics, confectionary, refrigerators, freezers, air conditioners, plastic containers and components.

The Company's head office is situated at No. 45/47, Town Planning Way, Ilupeju Industrial Estate, Ikeja, Lagos.

4.2.5 Unilever Nigeria Plc

The Company was established in 1923 and was incorporated as a Private Company in 1924. In September, 1973, it became a Public Limited Company and listed on the Nigerian Stock Exchange. In 2001, the Company changed its name from Lever Brothers Nig. Plc to Unilever Nigeria Plc.

Okitipupa Oil Palm Co. Plc is the only subsidiary of the Company as at the end of 2003.

The Company is principally involved in the manufacture and marketing of fast moving consumer products. Its main factories for home, personal care products, and foods are located in Aba, Lagos and Agbara.

The Company's head office is situated at No. 1, Billingsway, Oregun, Ikeja, Lagos.

4.2.6 Vitafoam Nigeria Plc

Vitafoam Nigeria Plc was incorporated in Nigeria as a private Company on the 4th August, 1962, and listed on the Nigerian Stock Exchange in November, 1978 as a Public Limited Company. The Company was established to manufacture foam products having a liquid latex base such as moulded mattresses, cushions, pillows, and upholstery sheetings.

The Company opened its first factory of Ikeja in 1963 for the production of latex foam mattresses and cushions. This type of foam was later superseded by the development of polyurethane foam and in 1966, the Company installed its first urethane foam production plant in the Ikeja premises. Later, the Company added the manufacture of carpet underlay, fibre pillows, rigid urethane insulating materials and vitabond adhesive.

NIPOL Limited is the only subsidiary of the Company as at the end of 2003.

The Company's head office is situated at Oba Akran Avenue, Industrial Estate, Ikeja, Lagos.

4.3 FEATURES OF THE COMPANIES UNDER STUDY

This section focuses on the features of the companies under study. It identifies the industries to which companies belong to in the Nigerian Stock Exchange, the authorized and paid up share capital, total number of staff, shareholding analysis and the period to which companies end their financial accounting year.

4.3.1 Benue Cement Company Plc

Benue Cement Company Plc is classified under Building materials industry in the Nigerian Stock Exchange. It has an authorized share capital of ₦250,000,000 into 500,000,000 ordinary shares of 50k each and paid up capital of ₦247,500,000 as at the end of 2003. The Company has a total staff of 1,149 and shareholding analysis at the end of 2003 as follows: Federal

Government 29.53%, Benue State Government 20.73%, Bank of Industry 5.34%, Foreign (Cementia AG) 4%, other Nigerians 40.40%.

The Company ends its financial accounting year 31st December of every year.

4.3.2 Cement Company of Northern Nigeria Plc

Cement Company of Northern Nigeria Plc is classified under Building Materials Industry in the Nigerian Stock exchange. It has an authorized share capital of ₦505,000,000 into 1,010,000,000 ordinary shares of 50k each and paid up capital of ₦485,751,991 as at the end of 2003. The Company has a total staff of 301 and shareholding analysis at the end of 2003 as follows: SCANCEM International of Norway 51.42%, Sokoto State Government 4.11%, Kebbi State Government 7.13%, Kaduna State Government 3.12% and Katsina State Investment and Development Co. Ltd 1.04%.

The Company ends its accounting year 31st December of every year.

4.3.3 Jos International Breweries Plc

Jos International Breweries Plc is classified under Breweries Industry in the Nigerian Stock Exchange. It has an authorised share capital of ₦88,200,000 into 176,400,000 ordinary shares of 50k each and paid up capital of ₦84,250,000 as at the end of 2003. The Company has a total staff of 531 and shareholding analysis at the end of 2003 as follows: Plateau Investment and Property Development Co. Ltd 16.5%, Guinness Nigeria Plc 36.5%, Guinness Overseas Ltd 9.7%, Assets Management Nominee Ltd 37.3%.

The Company ends its accounting year 31st December of every year.

4.3.4 Paterson Zochonis (PZ) Industries

Paterson Zochonis (PZ) Industries Ltd is classified under Conglomerates Industry in the Nigerian Stock Exchange. It has an authorized share capital of ₦1,250,000,000 into 2,500,000,000 ordinary shares of 50k each and paid up capital of ₦871,236,106 as at the end of 2003. The Company has a total staff of 5,742 and shareholding analysis at the end of 2003 as follows: Nigerians 40.83%, foreigners 59.17%.

The Company ends its accounting year 31st May of every year.

4.3.5 Unilever Nigeria Plc

Unilever Nigeria Plc is classified under conglomerates industry in the Nigerian Stock Exchange. It has an authorized share capital of ₦1,513,318,750 into 3,026,637,500 ordinary shares of 50k each and paid up capital of ₦605,328,000 as at the end of 2003. The Company has a total staff of 2409 and shareholding analysis at the end of 2003 as follows: Nigerians 46.96%, Unilever Overseas Holdings 50.04%.

The Company ends its accounting year 31st December of every year.

4.3.6 Vitafoam Nigeria Plc

Vitafoam Nigeria Plc is classified under Industrial/Domestic Products Industry in the Nigerian Stock Exchange. It has an authorized share capital of ₦600,000,00 into 1,200,000,000 ordinary shares of 50k each and paid up capital of ₦327,600,000 as at the end of 2003. The Company has a total staff of 754 and shareholding analysis at the end of 2003 as follows: Individuals 39.16%, Employees 35.46%, Institutions/Governments 25.38%.

The Company ends its accounting year 30th September of every year.

4.4 SUMMARY OF DATA FROM RESEARCH QUESTIONNAIRES ADMINISTERED

This section summarises the data gathered from the questionnaires administered. It is divided into two sections; section one summarized the personal data responses of the respondents, which include their sex, religion, marital status, nationality, age, qualification and working experience; section two summarized the responses on data related to working capital policies and profitability of firms.

4.4.1 Personal Data Response Rate from Questionnaires Administered

The researcher had distributed one hundred and eighty (180) pieces of questionnaires for the purpose of this study, out of which one hundred and fifty (150) pieces were eventually retrieved and found usable for data analysis, which presents (83%) of the total number of questionnaires.

The results show that ninety five (95) or 63 percent of the respondents were males while fifty five (55) or 37 percent were females; 23 percent were single; 70 percent were married; 2 percent were divorced, and 2 percent were widowed while 5 percent were separated. All the respondents are Nigerians.

An attempt was made to classify the respondents by State of Origin. Analysis revealed that six (6) States of the Federation and Federal Capital Territory were represented. Thirty two (32) or 21 percent of the respondents were from Benue State; twenty five (25) or 17 percent were from Sokoto

State; forty (40) or 27 percent were from Lagos State; twenty eight (28) or 19 percent were from Plateau State; fifteen (15) or 10 percent were from Kebbi State; four (4) or 2 percent were from Kaduna State and six (6) or 4 percent were from Abuja.

Furthermore, data analysis revealed that eighty-two (82) or 55 percent of the respondents were Christians, sixty eight (68) or 45 percent practice Islam. Classification of the respondents by age group revealed that forty eight (48) or 32 percent were aged between 25 and 35 years; seventy five (75) or 50 percent were aged between 36 and 45 years; and twenty seven (27) or 18 percent were aged above 45 years.

Analysis on the basis of educational qualifications revealed that four (4) or 3 percent of the respondents had either National Certificate of Education (NCE) or National Diploma (ND); ninety nine (99) or 66 percent had a first degree or its equivalent; thirty nine (39) or 26 percent had master degree; and eight (8) or 5 percent had Doctor of Philosophy (Ph.D) degree.

The analysis also revealed that one hundred and fifteen (115) or 77 percent are professionals while thirty five (35) or 23 percent are non-professionals. Among the professional associations to which respondents belong are Association of National Accountants of Nigeria (ANAN) with twenty two (22) or 15 percent of the respondents, Institute of Chartered Accountants of Nigeria (ICAN) with forty (40) or 27 percent of the respondents, Chartered Institute of Taxation (CITN) with eighteen (18) or 12 percent of the respondents, Nigerian Institute of Management (NIM) with

eighteen (21) or 14 percent of the respondents, Associate of Certificate Chartered Accountants of England (ACCA) with two (2) or 1 percent of the respondents, Chartered Institute of Administration (CIA) with twelve (12) or 8 percent of the respondents and thirty five (35) or 23 percent are not professionals.

Sixty (60) pieces of the questionnaires were distributed each to the six (6) manufacturing companies under study and the following were retrieved. Twenty five (25) or 17 percent of the questionnaires were retrieved from Benue Cement Company Plc; twenty two (22) or 14 percent from Cement Company of Northern Nigeria Plc; twenty eight (28) or 19 percent from Jos International Breweries Plc; twenty three (23) or 15 percent from Paterson Zochonis (PZ) Industries Plc; twenty five (25) or 17 percent from Unilever Nigeria plc; and twenty seven (27) or 18 percent from Vitafoam Nigeria Plc.

It was revealed that eighteen (18) or 12 percent of the respondents were Division Managers; thirty five (35) or 23 percent were Accountants; eighteen (18) or 12 percent Chief Accountants; forty (40) or 27 percent were Operation Managers; twenty two (22) or 15 percent were Supervisors; thirteen (13) or 9 percent were Production Managers; and four (4) or 2 percent were General Managers. Subsequently, six (6) or 4 percent of the respondents were having less than 5 years working experience, seventy five (75) or 50 percent were having between 5 and 10 years working experience; forty five (45) or 30 percent were having between 11 and 20 years working experience; fifteen (15)

or 10 percent were having between 21 and 30 years working experience; and nine (9) or 6 percent have more than 30 years working experience.

4.4.2 Response Rate on Data Related to Working Capital Policies and Profitability of Firms from the Respondents

The major task of this research is to evaluate working capital policies and their impact on the profitability of manufacturing firms in Nigeria. Hence, the respondents were asked questions that would help the researcher to accomplish the research objectives. The responses were summarized as follows:

TABLE 4.1: SUMMARY OF RESPONSES TO QUESTION 2.1 ON THE MAJOR SOURCE OF FINANCING IN ORGANISATIONS.

SOURCES	NO. OF RESPONDENTS	PERCENTAGE (%)
Short term funds	47	31
Long term funds	51	34
Combination of Short or long term funds	52	35
TOTAL	150	100%

Source: Survey Data from the Questionnaires Administered (August, 2005).

From the table above, it can be seen that those Companies using mainly short-term funds are not as many as those that use mainly long term funds or the combination of the two.

TABLE 4.2: SUMMARY OF RESPONSES TO QUESTION 2.2 ON THE RELATIONSHIP BETWEEN FINANCING MIX AND PROFITABILITY IN ORGANISATIONS.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	128	85
No	22	15
TOTAL	150	100%

Source: Survey Data from the Questionnaires Administered (August, 2005).

This shows that there is significant relationship between financing mix and profitability.

TABLE 4.3: SUMMARY OF RESPONSES TO QUESTION 2.3 ON THE DIFFERENCE IN PROFITABILITY OF COMPANIES THAT USE AGGRESSIVE WORKING CAPITAL POLICY AND THOSE THAT USE CONSERVATIVE WORKING CAPITAL POLICY.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	138	92
No	12	8
TOTAL	150	100%

Source: Survey Data from the Questionnaires Administered (August 2005).

This shows that there is significant difference in the profitability of Companies that adopt aggressive working capital policy and those that adopt conservative working capital policy.

TABLE 4.4: SUMMARY OF RESPONSES TO QUESTION 2.6 ON THE EFFECT ON PROFITABILITY OF COMPANIES WHEN THEIR CURRENT LIABILITIES ARE INCREASED.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	95	63
No	55	37
TOTAL	150	100%

Source: Survey Data from the Questionnaire Administered (August, 2005).

This shows that there is always an effect on the profitability of firms when current liabilities are increased.

TABLE 4.5: SUMMARY OF RESPONSES TO QUESTION 2.7 ON THE EFFECT ON PROFITABILITY OF COMPANIES WHEN THEIR CURRENT LIABILITIES ARE DECREASED.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	95	63
No	55	37
TOTAL	150	100%

Source: Survey Data from the Questionnaires Administered (August, 2005).

This shows that there is always an effect on the profitability of firms when current liabilities are decreased.

TABLE 4.6: SUMMARY OF RESPONSES TO QUESTION 2.8 ON THE EFFECT ON PROFITABILITY OF COMPANIES WHEN THEIR LONG TERM CAPITAL IS INCREASED.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	122	81
No	28	19
TOTAL	150	100%

Source: Survey data from the questionnaires administered (August, 2005).

This shows that there is always an effect on the profitability of firms when long term capital is increased.

TABLE 4.7: SUMMARY OF RESPONSES TO QUESTION 2.9 ON THE EFFECT ON THE PROFITABILITY OF COMPANIES WHEN THEIR LONG TERM CAPITAL IS DECREASED.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	122	81
No	28	19
TOTAL	150	100%

Source: Survey data from the questionnaires administered (August, 2005).

This shows that there is always an effect on the profitability of firms when long term capital is decreased.

TABLE 4.8: SUMMARY OF RESPONSES TO QUESTION 2.10 ON THE EFFECT ON PROFITABILITY OF COMPANIES WHEN THEIR CURRENT LIABILITIES ARE MADE TO BE EQUAL WITH TEMPORARY CURRENT ASSETS.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Yes	124	83
No	26	17
TOTAL	150	100%

Source: Survey data from the questionnaires administered (August, 2005).

This shows that there is effect on profitability of firms when current liabilities are made to be equal with temporary current assets.

TABLE 4.9: SUMMARY OF RESPONSES TO QUESTION 2.11 ON THE RATING OF PERFORMANCE OF COMPANIES UNDER STUDY.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Excellent	15	10
Very Good	90	60
Good	30	20
Fair	10	7
Poor	5	3
TOTAL	150	100%

Source: Survey data from the questionnaires administered (August, 2005).

This shows that the performances of companies under study were mostly rated very good and good. Few were rated excellent and poor.

TABLE 4.10: SUMMARY OF RESPONSES TO QUESTION 2.12 ON THE RATING OF PROFITABILITY OF COMPANY WHEN IT IS USING SHORT TERM FUNDS TO FINANCE PART OF ITS FIXED ASSETS.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Very High	85	57
High	65	43
Average	-	-
Low	-	-
Very Low	-	-
TOTAL	150	100%

Source: Survey data from the questionnaires administered (August, 2005).

This shows that the profitability of company is high when short term funds are mainly use.

TABLE 4.11: SUMMARY OF RESPONSES TO QUESTION 2.13 ON THE RATING OF PROFITABILITY OF COMPANY WHEN IT IS USING LONG TERM FUNDS TO FINANCE PART OF ITS TEMPORARY CURRENT ASSETS.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Very High	-	-
High	10	7
Average	50	33
Low	70	47
Very Low	20	13
TOTAL	150	100%

Source: Survey data from the questionnaires administered (August, 2005).

This shows that the profitability of company is low when long term funds are mainly used.

TABLE 4.12: SUMMARY OF RESPONSES TO QUESTION 2.14 ON THE RATING OF PROFITABILITY OF COMPANY WHEN IT IS USING SHORT TERM FUNDS TO FINANCE PART OF ITS TEMPORARY CURRENT ASSETS AND LONG TERM FUNDS TO FINANCE ONLY FIXED ASSETS AND PERMANENT CURRENT ASSETS.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Very High	-	-
High	-	-
Average	126	84
Low	20	13
Very Low	4	3
TOTAL	150	100%

Source: Survey data from the questionnaires administered (August, 2005).

This shows that the profitability of company is mostly average when short term funds are used to finance temporary current assets and long term funds to finance fixed assets and permanent current assets.

Finally, respondents were asked questions about the risks involved in using either short or long term funds, and their responses were summarized as follows:

(a) Risks involved in using short term funds:

i. Owners can ask for their money even when the company is illiquid.

ii. Short term funds does not allow for long term strategic planning.

iii. Owners can take legal action against company in case of illiquidity at the time they requested for their money.

iv. Short term funds are always invested in short term assets that do not result to high return.

(b) Risks involved in using long term funds:

i. High interest rate.

ii. Long process in obtaining capital.

iii. Highly inflexible.

iv. Owners can exercise control over company.

4.5 TESTING OF HYPOTHESES

This section tested the significance of the three formulated null hypotheses for the study using the responses gathered from the questionnaires administered. The method used is presented in accordance with the outlined procedure as stated in section 3.5.

HYPOTHESIS 1

H_{01} – There is no significant difference in the profitability of manufacturing companies that adopt aggressive working capital policy and those that adopt conservative working capital policy.

TABLE 4.13: PRESENTATION OF THE OBSERVED RESPONSES/FREQUENCIES FROM RESPONDENTS FOR TESTING HYPOTHESIS 1.

QUESTION NUMBER	OBSERVED VALUES		TOTAL
	YES (X_1)	NO (X_2)	
2.2	128	22	150
2.3	138	12	150
2.6	95	55	150
2.7	95	55	150
2.8	122	28	150

Source: Survey data from the questionnaires administered (August, 2005).

Degrees of freedom (df) = $N_1 + N_2 - 2$

N1 = Number of questions in (X_1) group.

N2 = Number of questions in (X_2) group.

$\therefore$ 5 + 5 - 2

= 8

Level of significance = 0.05

Critical table value of 't' = 2.306

The formula for calculating 't' is:

$$t = \frac{\overline{X}_1 - \overline{X}_2 - (N_1 - N_2)}{\sqrt{\frac{(\sum X_1^2 - \overline{X_1}^2 + \sum x_2^2 - \overline{X_2}^2)}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Decision Rule:

1. If 't' is equal or greater than the critical table value, then the interpretation is that Null Hypothesis is rejected.
2. If 't' is less than the critical table value, then the interpretation is that Null Hypothesis is accepted.

TABLE 4.14: SOLUTION FOR VALUE OF 't' IN TESTING HYPOTHESIS 1.

X_1	X_1^2	X_2	X_2^2
128	16384	22	484
138	19044	12	144
95	9025	55	3025
95	9025	55	3025
122	14884	28	784
$\sum X_1 = 578$	$\sum X_1^2 = 68362$	$\sum X_2 = 172$	$\sum X_2^2 = 7462$

$\overline{X}_1 = {}^{578}/_{5} = 115.6$

$\overline{X}_2 = {}^{172}/_{5} = 34.4$

$$\sum X_1^2 - \overline{X}_1^2 = 68362 - \frac{(578)^2}{5} = 68362 - 66816.8 = 1545.2$$

$$\sum X_2^2 - \overline{X}_2^2 = 7462 - \frac{(172)^2}{5} = 7462 - 5916.8 = 1545.2$$

$$t = \frac{115.6 - 34.4 - (5 - 5)}{\sqrt{\frac{1545.2 + 1545.2}{8}\left(\frac{1}{5} + \frac{1}{5}\right)}}$$

$$= \frac{81.2}{12.43}$$

$$= \underline{6.53}$$

Decision: We now see that the calculated value of t = 6.53 is greater than the critical table value of t = 2.306, we reject the null hypothesis (Ho) at 0.05 level of significance. This shows that there is significant difference in the profitability of manufacturing companies that adopt aggressive working capital policy and those that adopt conservative working capital policy. (Refer to conclusion for reasons of difference).

HYPOTHESIS 2

H_{02} - There is no significant difference in the profitability of manufacturing companies that adopt aggressive working capital policy and those that adopt moderate working capital policy.

TABLE 4.15: PRESENTATION OF THE OBSERVED RESPONSES/ FREQUENCIES FROM RESPONDENTS FOR TESTING HYPOTHESIS 2.

QUESTION NUMBER	OBSERVED VALUES		TOTAL
	YES (X_1)	NO (X_2)	
2.2	128	22	150
2.4	139	11	150
2.6	95	55	150
2.7	95	55	150
2.10	124	26	150

Source: Survey data from the questionnaires administered (August, 2005).

Degrees of freedom (df) = $N_1 + N_2 - 2$

N1 = Number of questions in (X_1) group.

N2 = Number of questions in (X_2) group.

$\therefore\ 5 + 5 - 2$

= 8

Level of significance = 0.05

Critical table value of 't' = 2.306

The formula for calculating 't' is:

$$t = \frac{\bar{X}_1 - \bar{X}_2 - (N_1 - N_2)}{\sqrt{\frac{(\sum X_1^2 - \bar{X}_1^2 + \sum x_2^2 - \bar{X}_2^2)}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Decision Rule:

1. If 't' is equal or greater than the critical table value, then the interpretation is that Null Hypothesis is rejected.
2. If 't' is less than the critical table value, then the interpretation is that Null Hypothesis is accepted.

TABLE 4.16: SOLUTION FOR VALUE OF 't' IN TESTING HYPOTHESIS 2.

X_1	X_1^2	X_2	X_2^2
128	16384	22	484
139	19321	11	121
95	9025	55	3025
95	9025	55	3025
124	15376	26	676
$\sum X_1 = 581$	$\sum X_1^2 = 69,131$	$\sum X_2 = 169$	$\sum X_2^2 = 7331$

$\overline{X}_1 = {}^{581}/_{5} = 116.2$

$\overline{X}_2 = {}^{169}/_{5} = 33.8$

$\sum X_1^2 - \overline{X}_1^2 = 69131 - \frac{(581)^2}{5} = 69131 - 67512.2 = 1618.8$

$\sum X_2^2 - \overline{X}_2^2 = 7331 - \frac{(169)^2}{5} = 7331 - 5712.2 = 1618.8$

$$t = \frac{116.2 - 33.8 - (5 - 5)}{\sqrt{\frac{1618.8 + 1618.8}{8}\left(\frac{1}{5} + \frac{1}{5}\right)}}$$

$$= \frac{82.4}{12.72}$$

$$= \underline{6.48}$$

Decision: We now see that the calculated value of t = 6.483 is greater than the critical table value of t = 2.306, we reject the null hypothesis (Ho) at 0.05 level of significance. This shows that there is significant difference in the profitability of manufacturing companies that adopt aggressive working capital policy and those that adopt moderate working capital policy. (Refer to conclusion for reasons of difference).

HYPOTHESIS 3

H_{03} - There is no significant difference in the profitability of manufacturing companies that adopt conservative working capital policy and those that adopt moderate working capital policy.

TABLE 4.17: PRESENTATION OF THE OBSERVED RESPONSES/FREQUENCIES FROM RESPONDENTS FOR TESTING HYPOTHESIS 3.

QUESTION NUMBER	OBSERVED VALUES		TOTAL
	YES (X_1)	NO (X_2)	
2.2	128	22	150
2.5	140	10	150
2.7	95	55	150
2.8	122	28	150
2.9	122	28	150

Source: Survey data from the questionnaires administered (August, 2005).

Degrees of freedom (df) = $N_1 + N_2 - 2$

N1 = Number of questions in (X_1) group.

N2 = Number of questions in (X_2) group.

$\therefore$ 5 + 5 - 2

= 8

Level of significance = 0.05

Critical table value of 't' = 2.306

The formula for calculating 't' is:

$$t = \frac{\overline{X}_1 - \overline{X}_2 - (N_1 - N_2)}{\sqrt{\frac{(\sum X_1^2 - \overline{X_1}^2 + \sum x_2^2 - \overline{X_2}^2)}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

Decision Rule:

1. If 't' is equal or greater than the critical table value, then the interpretation is that Null Hypothesis is rejected.
2. If 't' is less than the critical table value, then the interpretation is that Null Hypothesis is accepted.

TABLE 4.18: SOLUTION FOR VALUE OF 't' IN TESTING HYPOTHESIS 3.

X_1	X_1^2	X_2	X_2^2
128	16384	22	484
140	19600	10	100
95	9025	55	3025
122	14884	28	784
122	14884	28	784
$\sum X_1 = 607$	$\sum X_1^2 = 74{,}777$	$\sum X_2 = 143$	$\sum X_2^2 = 5177$

$\overline{X}_1 = {}^{607}/_{5} = 121.4$

$\overline{X}_2 = {}^{143}/_{5} = 28.6$

$$\sum X_1^2 - \overline{X}_1^2 = 74{,}777 - \frac{(607)^2}{5} = 74{,}777 - 73689.8 = 1087.2$$

$$\sum X_2^2 - \overline{X}_2^2 = 5177 - \frac{(143)^2}{5} = 5177 - 4089.8 = 1087.2$$

$$t = \frac{121.4 - 28.6 - (5-5)}{\sqrt{\frac{1087.2 + 1087.2}{8}\left(\frac{1}{5} + \frac{1}{5}\right)}}$$

$$= \frac{92.8}{10.42}$$

$$= 8.9$$

Decision: We now see that the calculated value of t = 8.9 is greater than the critical table value of t = 2.306, we reject the null hypothesis (Ho) at 0.05 level of significance. This shows that there is significant difference in the profitability of manufacturing companies that adopt conservative working capital policy and those that adopt moderate working capital policy. (Refer to conclusion for reasons of difference).

4.6 EVALUATION OF WORKING CAPITAL POLICIES AND THEIR IMPACT ON PROFITABILITY OF FIRMS

4.6.1 The Relationship between Working Capital Policies and Profitability of Firms using Correlation Coefficient Analysis.

This section achieved one of the major objectives of this research, which is to determine the extent of relationship between working capital policies (independent variables) and profitability (dependent variables) of manufacturing firms in Nigeria. The method used was correlation coefficient (r) as stated in section 3.5 using information from the published financial statements of the companies under study. The companies under study were six (6), and these are Benue Cement Company Plc, Cement Company of Northern Nigeria Plc, Jos International Breweries Plc, Paterson Zochonis (PZ) Industries Plc, Unilever Nigeria Plc, and Vitafoam Nigeria Plc.

The use of short term funds (current liabilities) in the companies was used to categorise them according to different working capital policies. Companies with current liabilities much more higher than the current assets are assumed to be practising aggressive working capital policy, those with

current liabilities almost equal to current assets are assumed to be practicing moderate working capital policy, and those with current liabilities much more lower than the current assets are assumed to be practicing conservative working capital policy. The companies are therefore categorized as follows:

(a) Aggressive Working Capital Policy

i) Benue Cement Company Plc

ii) Cement Company of Northern Nigeria Plc

(b) Conservative Working Capital Policy

i) Jos International Breweries Plc

ii) Paterson Zochonis (PZ) Industries Plc

(c) Moderate Working Capital Policy

i) Unilever Nigeria Plc

ii) Vitaform Nigeria Plc.

In this section profitability of firms and quantum of current liabilities (use of short term funds) are to be used as yardstick or variables for measurement.

The Correlation Coefficient (r) is defined in a formula as follows:

$$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2 (N\sum Y^2 - (\sum Y)^2)}}$$

Where X = Value in one variable

Y = Value in the other variable

$\sum$ = Summation

N = Number of paired observation

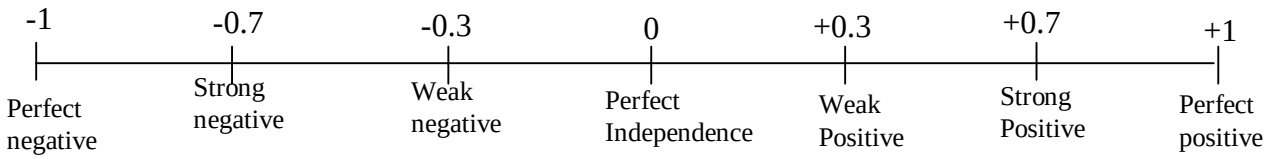
Decision Rule:

a) A value of 'r' being '0.00' means that there is no relationship whatsoever between the two variables.

b) A value of 'r' being '1.00' means that there is perfect positive relationship between the two variables; and

c) A value of 'r' being '-1.00' means that there is perfect negative relationship between the two variables.

Figure 4.1: Values of the Correlation Coefficient.



Source: Lewis, P., Thornhill, A., and Saunders, M. (1997:321), Research Methods for Business Students, Pitman Publishing Co. Ltd, London.

Firm (i) Benue Cement Company Plc.

TABLE 4.19: RELATIONSHIP BETWEEN WORKING CAPITAL POLICY AND PROFITABILITY OF BENUE CEMENT CO. PLC.

YEAR N	QUANTUM OF CURRENT LIABILITIES (Use of short term funds) X ₦'000,000	PROFIT B4 TAX Y ₦'000,000	X^2	Y^2	XY
1999	2595.694	(670.044)	6737627.342	448959.961	(1739229.191)
2000	3063.959	(499.160)	9387844.754	249160.705	(1529405.77)
2001	3352.260	(1067.331)	11237674.11	1139195.464	(3577971.018)
2002	5590.361	(2145.266)	31252136.11	4602166.211	(11992811.38)
2003	6038.104	(1624.038)	36458699.91	2637499.425	(9806110.34)
	$\sum X$ = 20640.37	$\sum Y$ = (6005.839)	$\sum X^2$ = 95073955.23	$\sum Y^2$ = 9076980.766	$\sum XY$ = (28645527.71)

Source: Published Financial Statements (1999 – 2003), (See Appendix B).

$$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)(N\sum Y^2 - (\sum Y)^2)}}$$

$$= \frac{5(-28645527.71) - (20640.378)(-6005.839)}{\sqrt{5(95073955.23) - (20640.378)^2)(5(9076980.766)-(-6005.83)^2)}}$$

$$= \frac{-143227638.6 - (-123962787.2)}{\sqrt{(475369776.2 - 426025204)(45384903.83 - 36070102.09)}}$$

$$= \frac{-19264851.4}{\sqrt{(49344572.2)(9314807.74)}}$$

$$= \frac{-19264851.4}{21439097.63}$$

$$= \frac{-0.89}{}$$

This shows that there is a strong negative relation between the use of short term funds and profitability of Benue Cement Company Plc.

Firm (ii) Cement Company of Northern Nigeria Plc.

TABLE 4.20: RELATIONSHIP BETWEEN WORKING CAPITAL POLICY AND PROFITABILITY OF CEMENT CO. OF NORTHERN NIGERIA PLC.

YEAR N	QUANTUM OF CURRENT LIABILITIES (Use of short term funds) X ₦'000,000	PROFIT B4 TAX Y ₦'000,000	X^2	Y^2	XY
1999	427.819	12.409	183029.096	153.983	5308.805
2000	588.434	(488.778)	346254.572	238903.933	(287613.59)
2001	1329.414	(1064.275)	1767341.583	1132681.276	(1414862.08)
2002	2067.220	(668.380)	4273398.528	446731.824	(1381688.50)
2003	2648.768	(93.351)	7015971.918	8714.409	(247265.14)
	$\sum X$ = 7061.655	$\sum Y$ = (2302.375)	$\sum X^2$ = 13585995.70	$\sum Y^2$ = 1827185.425	$\sum XY$ = (3326120.50)

Source: Published Financial Statements (1999 – 2003), (See Appendix C).

$$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)(N\sum Y^2 - (\sum Y)^2)}}$$

$$= \frac{5(-3326120.50) - (7061.655)(-2302.375)}{\sqrt{5(13585995.7) - (7061.655)^2)(5(1827185.425) - (-2302.375)^2)}}$$

$$= \frac{-16630602.5 - (-16258577.93)}{\sqrt{(67929978.5 - 49866971)(9135927.125 - 5300930.641)}}$$

$$= \frac{-372024.57}{\sqrt{(18063007.5)(3834996.484)}}$$

$$= \frac{-372024.57}{8322954.419}$$

$$= -0.04$$

This shows that there is a very weak negative relation between the use of short term funds and profitability of Cement Company of Northern Nigeria Plc.

Firm (iii) Jos International Breweries Plc.

TABLE 4.21: RELATIONSHIP BETWEEN WORKING CAPITAL POLICY AND PROFITABILITY OF JOS INTERNATIONAL BREWERIES PLC.

YEAR N	QUANTUM OF CURRENT LIABILITIES (Use of short term funds) X ₦'000,000	PROFIT B4 TAX Y ₦'000,000	X^2	Y^2	XY
1999	180.548	34.163	32597.58	1167.11	6168.06
2000	221.142	46.270	48903.78	2140.91	10232.24
2001	249.604	151.059	62302.15	22818.82	37704.93
2002	248.647	55.020	61825.33	3027.20	13680.55
2003	313.748	39.357	98437.80	1548.97	12348.18
	$\sum X = 1213.68$	$\sum Y = 325.869$	$\sum X^2 = 304066.64$	$\sum Y^2 = 30703.01$	$\sum XY = 80133.96$

Source: Published Financial Statements (1999 – 2003), (See Appendix D).

$$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)\,(N\sum Y^2 - (\sum Y)^2)}}$$

$$= \frac{5(80133.96) - (1213.68)(325.869)}{\sqrt{5(304066.64) - (1213.68)^2)(5(30703.01) - (325.869)^2)}}$$

$$= \frac{400669.8 - 395500.68}{\sqrt{(1520333.2 - 1473019.1)(153515.05 - 106190.60)}}$$

$$= \frac{5169.12}{\sqrt{(47314.1)(47324.4)}}$$

$$= \frac{5169.12}{47319.24}$$

$$= 0.10$$

This shows that there is a weak positive relation between the use of short term funds and profitability of Jos International Breweries Plc.

Firm (iv) Paterson Zochonis (PZ) Industries Plc.

TABLE 4.22: RELATIONSHIP BETWEEN WORKING CAPITAL POLICY AND PROFITABILITY OF PATERSON ZOCHONIS (PZ) INDUSTRIES PLC.

YEAR N	QUANTUM OF CURRENT LIABILITIES (Use of short term funds) X ₦'000,000	PROFIT B4 TAX Y ₦'000,000	X^2	Y^2	XY
1999	6133.459	1177.435	37619319.30	1386353.17	7221749.29
2000	5122.541	1353.024	26240426.30	1830673.945	6930920.91
2001	5006.387	1787.337	25063910.79	3194573.552	8948100.72
2002	5243.332	2430.740	27492530.46	5908496.948	12745176.83
2003	7526.39	2859.678	56646546.43	8177758.264	21523051.90
	$\sum X$ = 29032.109	$\sum Y$ = 9608.214	$\sum X^2$ = 173062733.30	$\sum Y^2$ = 20497855.88	$\sum XY$ = 57368999.65

Source: Published Financial Statements (1999 – 2003), (See Appendix E).

$$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)\,(N\sum Y^2 - (\sum Y)^2)}}$$

$$= \frac{5(57368999.65) - (29032.102)(9608.214)}{\sqrt{5(173062733.30) - (29032.109)^2)(5(20497855.88) - (9608.214)^2)}}$$

$$= \frac{286844998.3 - 278946716.1}{\sqrt{(865313666.5 - 842863353)(102489279.4 - 92317776.2)}}$$

$$= \frac{7898282.2}{\sqrt{(22450313.5)(10171503.2)}}$$

$$= \frac{7898282.2}{15111367.76}$$

$$= \underline{0.52}$$

This shows that there is a weak positive relation between the use of short term funds and profitability of Paterson Zochonis (PZ) Industries Plc.

Firm (v) Unilever Nigeria Plc.

TABLE 4.23: RELATIONSHIP BETWEEN WORKING CAPITAL POLICY AND PROFITABILITY OF UNILEVER NIGERIA PLC.

YEAR N	QUANTUM OF CURRENT LIABILITIES (Use of short term funds) X ₦'000,000	PROFIT B4 TAX Y ₦'000,000	X^2	Y^2	XY
1999	2027.173	594.046	4109430.37	352890.65	1204234.01
2000	2659.283	1294.780	7071786.07	1676455.24	3443186.44
2001	3993.489	1585.738	15947954.39	2514565.00	6332627.26
2002	5351.758	2053.089	28641313.69	4215174.44	10987635.48
2003	9775.992	2778.116	95570019.58	7717928.50	27158839.79
	$\sum X$ = 23807.695	$\sum Y$ = 8305.769	$\sum X^2$ = 151340504.10	$\sum Y^2$ = 16477013.83	$\sum XY$ = 49126522.98

Source: Published Financial Statements (1999 – 2003), (See Appendix F).

$$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)\,(N\sum Y^2 - (\sum Y)^2)}}$$

$$= \frac{5(49126522.98) - (23807.695)(8305.769)}{\sqrt{5(151340504.10) - (23807.69)^2)(5(16477013.83) - (8305.769)^2)}}$$

$$= \frac{245632614.9 - 197741215.10}{\sqrt{(756702520.5 - 566806103.10)(82385069.15 - 68985798.68)}}$$

$$= \frac{47891399.8}{\sqrt{(189896417.4)(13399270.47)}}$$

$$= \frac{47891399.8}{50442774.09}$$

$$= 0.94$$

This shows that there is a very strong positive relation between the use of short term funds and profitability of Unilever Nigeria Plc.

Firm (vi) Vitafoam Nigeria Plc.

TABLE 4.24: RELATIONSHIP BETWEEN WORKING CAPITAL POLICY AND PROFITABILITY OF VITAFOAM NIGERIA PLC.

YEAR N	QUANTUM OF CURRENT LIABILITIES (Use of short term funds) X ₦'000,000	PROFIT B4 TAX Y ₦'000,000	X^2	Y^2	XY
1999	536.671	204.897	288015.76	41982.78	109962.27
2000	742.653	240.239	551533.47	57714.77	178414.21
2001	842.254	396.781	709391.80	157435.16	334190.38
2002	1024.679	413.601	1049967.05	171065.78	423808.25
2003	1519.539	485.659	2308998.77	235864.66	737977.79
	$\sum X = 4665.79$	$\sum Y = 1741.177$	$\sum X^2 = 4907906.85$	$\sum Y^2 = 664063.15$	$\sum XY = 1784352.9$

Source: Published Financial Statements (1999 – 2003), (See Appendix G).

$$r = \frac{N\sum XY - \sum X\sum Y}{\sqrt{(N\sum X^2 - (\sum X)^2)(N\sum Y^2 - (\sum Y)^2)}}$$

$$= \frac{5(1784352.9) - (4665.79)(1741.177)}{\sqrt{5(4907906.85) - (4665.79)^2)(5(664063.15) - (1741.177)^2)}}$$

$$= \frac{8921764.5 - 8123966.2}{\sqrt{(24539534.25 - 21769596.32)(3320315.75 - 3031697.34)}}$$

$$= \frac{797798.3}{\sqrt{(2769937.93)(288618.41)}}$$

$$= \frac{797798.3}{894122.52}$$

$$= 0.89$$

This shows that there is a very strong positive relation between the use of short term funds and profitability of Vitafoam Nigeria Plc.

4.6.2 Comparative Analysis of Profitability and Performance Ratios of Companies under Study

Profitability and activity/performance ratios of the manufacturing companies under study were computed and analysed comparatively to ascertain their behaviour with the alternative ways of financing current assets.

Some of the ratios used are as follows:

(a) Gross Profit Margin

This ratio reflects the efficiency with which management produces each unit of product. It indicates the average spread between the cost of goods sold and the sales revenue. The ratio is calculated as:

$$= \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$

(b) Net Profit Margin

This shows the relative efficiency of the business after taking into account all revenues and expenses. The ratio is one of the secondary ratios and is calculated as:

$$= \frac{\text{Profit before Interest \& Tax}}{\text{Sales}} \times 100$$

(c) Return on Capital Employed (ROCE)

This ratio shows the overall profitability of the business. We also call the ratio return on investment or primary ratio. The ratio is calculated as:

$$\text{ROCE} = \frac{\text{Profit before Interest \& Tax}}{\text{Capital Employed}} \times 100$$

(d) Current Assets Turnover

The ratio shows the efficiency of utilizing current assets in generating sales. It is calculated as:

$$= \frac{\text{Sales}}{\text{Current Assets}}$$

(e) Total Assets Turnover

This ratio shows the efficiency of utilization of total assets in generating sales. The ratio is calculated as:

$$= \frac{\text{Sales}}{\text{Total Assets}}$$

Firm (i) Benue Cement Company Plc

TABLE 4.25: PROFITABILITY AND PERFORMANCE FINANCIAL RATIOS OF BENUE CEMENT CO. PLC FOR THE RELEVANT YEARS OF STUDY.

RATIOS	YEARS				
	1999 ₦'000,000	2000 ₦'000,000	2001 ₦'000,000	2002 ₦'000,000	2003 ₦'000,000
Gross Profit Margin	408.5 x 100 1412.6 = 28.9%	279.7 x 100 791.4 = 35.3%	238.3 x 100 1115.1 = 21.3%	77.3 x 100 583.0 = 13.2%	(589.6) x 100 390.9 =-150%
Net profit Margin	(371.5) x 100 1412.6 = -26.2%	(348.7) x 100 791.4 = -44%	(649.8) x 100 1115.1 = -58.2%	(1319.3)x 100 583.0 = -226.2%	(1118.4)x 100 390.9 = -286%
Return on Capital Employed	(371.5) x 100 1569.9 = -23.6%	(348.7) x 100 2098.0 = -16.6%	649.8) x 100 227.0 = -286.2%	(1319.3)x 100 1920.3 = -68.7%	(1118.4)x 100 (2646.9) =42%
Current Assets Turnover	1412.6 1359.5 = 1.03times	791.4 1332.6 = 0.59times	115.1 1430.9 = 0.77times	583.0 119.2 = 0.52times	390.9 396.1 = 0.98times
Total Assets Turnover	1412.6 5131.24 = 0.27times	791.4 4874.8 = 0.16times	115.1 4820.4 = 0.23times	583.0 4322.1 = 0.13times	390.9 3432.1 = 0.11times

Source: Published Financial Statements (1999 – 2003), (See Appendix B).

Firm (ii) Cement Company of Northern Nigeria Plc

TABLE 4.26: PROFITABILITY AND PERFORMANCE FINANCIAL RATIOS OF CEMENT COMPANY OF NORTHERN NIGERIA PLC FOR THE RELEVANT YEARS OF STUDY.

RATIOS	YEARS				
	1999 ₦'000,000	2000 ₦'000,000	2001 ₦'000,000	2002 ₦'000,000	2003 ₦'000,000
Gross Profit Margin	162.6 x 100 702.1 = 23.1%	(206.1) x 100 537.6 = -38.3%	5.2 x 100 574.2 = 0.9%	751.5 x 100 1913.9 = 39.2%	920.2 x 100 3305.8 =27%
Net profit Margin	21.4 x 100 702.1 = 3.04%	(327.3) x 100 537.6 = -60.8%	(425.9) x 100 574.2 = -74.1%	(53.8)x 100 1913.9 = -2.8%	(23.1)x 100 3305.8 = -0.69%
Return on Capital Employed	21.4 x 100 771.9 = 2.77%	(327.3) x 100 288.80 = -113.3%	(425.9) x 100 495.2 = -86.0%	(53.8)x 100 1170.1 = -4.5%	(23.1)x 100 995.6 =-2.3%
Current Assets Turnover	702.1 5215.1 = 1.3times	537.6 233.0 = 2.3times	574.2 662.1 = 0.86times	1913.9 1627.6 = 1.17times	3305.8 1563.9 = 2.11times
Total Assets Turnover	702.1 1199.7 = 0.58times	537.6 877.2 = 0.6times	574.2 1824.6 = 0.31times	1913.9 3237.3 = 0.59times	3305.8 36644.4 = 0.9times

Source: Published Financial Statement (1999 – 2003), (See Appendix C).

Firm (iii) Jos International Breweries Plc

TABLE 4.27: PROFITABILITY AND PERFORMANCE FINANCIAL RATIOS OF JOS INTERNATIONAL BREWERIES PLC FOR THE RELEVANT YEARS OF STUDY.

RATIOS	YEARS				
	1999 ₦'000,000	2000 ₦'000,000	2001 ₦'000,000	2002 ₦'000,000	2003 ₦'000,000
Gross Profit Margin	232.21 x 100 469.64 = 49%	278.9 x 100 558.4 = 49.9%	377.5 x 100 826.3 = 45%	412.7 x 100 766.2 = 53.8%	458.5 x 100 836.0 =54.8%
Net profit Margin	44.0 x 100 469.64 = 9.3%	52.8 x 100 558.4 = 9.4%	72.3 x 100 826.3 = 8.7%	58.4x 100 766.2 = 7.6%	65.3x 100 836.0 = 7.8%
Return on Capital Employed	44.0 x 100 251.0 = 17%	52.8 x 100 284.7 = 18.5%	72.3 x 100 212.6 = 34%	58.4x 100 256.4 = 22.7%	65.3x 100 285.6 =22.8%
Current Assets Turnover	469.64 311.01 = 1.5times	558.4 377.3 = 1.4times	826.3 520.6 = 1.58times	766.2 521.7 = 1.46times	836.0 612.6 = 1.3times
Total Assets Turnover	469.64 59338.24 = 0.79times	558.4 667.6 = 0.83times	826.3 627.7 = 1.3times	766.2 681.4 = 1.12times	836.0 775.6 = 1.07times

Source: Published Financial Statement (1999 – 2003), (See Appendix D).

Firm (iv) Paterson Zochonis (PZ) Industries Plc

TABLE 4.28: PROFITABILITY AND PERFORMANCE FINANCIAL RATIOS OF PATERSON ZOCHONIS (PZ) INDUSTRIES PLC FOR THE RELEVANT YEARS OF STUDY.

RATIOS	YEARS				
	1999 ₦'000,000	2000 ₦'000,000	2001 ₦'000,000	2002 ₦'000,000	2003 ₦'000,000
Gross Profit Margin	2984.81x 100 14662.29 = 20.3%	3249.72x 100 15362.25 = 21.1%	3568.12x 100 16089.20 = 22%	5209.10x 100 20,614.76 = 25%	6668.19x 100 24029.72 =27.7%
Net profit Margin	1536.71x 100 14662.29 = 10.4%	1689.85x 100 15362.25 = 11%	1779.73x 100 16089.20 = 11.06%	2625.99x 100 20614.76 = 12.7%	3396.12x 100 24029.72 = 14.12%
Return on Capital Employed	1536.71x 100 10,528.98 = 14.5%	1689.85x 100 10,877.89 = 15.5%	1779.73x 100 13493.03 = 13%	2625.99x 100 14349.55 = 18.3%	3395.14x 100 15210.98 =22.3%
Current Assets Turnover	14662.29 11069.54 = 1.3times	15362.25 10810.64 = 1.4times	16089.20 13678.26 = 1.1times	20614.76 14543.54 = 1.4times	24029.72 16659.97 = 1.4times
Total Assets Turnover	14662.29 17966.24 = 0.8times	15362.25 17543.13 = 0.87times	16089.20 20224.85 = 0.79times	20614.76 21658.88 = 0.95times	24029.72 25001.61 = 0.96times

Source: Published Financial Statements (1999 – 2003), (See Appendix E).

Firm (v) Unilever Nigeria Plc

TABLE 4.29: PROFITABILITY AND PERFORMANCE FINANCIAL RATIOS OF UNILEVER NIGERIA PLC FOR THE RELEVANT YEARS OF STUDY.

RATIOS	YEARS				
	1999 ₦'000,000	2000 ₦'000,000	2001 ₦'000,000	2002 ₦'000,000	2003 ₦'000,000
Gross Profit Margin	2636.33x 100 9365.24 = 28%	3521.32x 100 11215.04 = 31.3%	4996.401x100 15,203.51 = 32.8%	6510.26x 100 19003.35 = 34%	9144.23x 100 23693.9 =38.5%
Net profit Margin	599.74 x 100 9365.24 = 6.4%	1296.39x 100 11215.04 = 11.5%	1588.96x 100 15203.51 = 10.45%	2164.61x 100 19003.35 = 11.39%	3263.83x 100 23693.9 = 13.7%
Return on Capital Employed	599.74 x 100 3659.73 = 16.3%	1296.39x 100 3484.76 = 37.2%	1588.96x 100 4109.06 = 38.6%	2164.61x 100 4167.66 = 51.9%	3263.83x 100 3905.55 =83.5%
Current Assets Turnover	9365.24 3506.94 = 2.6times	11215.04 3881.01 = 2.8times	15203.51 5489.36 = 2.76times	19003.35 6243.91 = 3.04times	23693.9 10571.7 = 2.24times
Total Assets Turnover	9365.24 6145.47 = 1.5times	11215.04 6824.70 = 1.6times	15203.51 9087.39 = 1.6times	19003.35 10742.11 = 1.76times	23693.9 15394.58 = 1.5times

Source: Published Financial Statements (1999 – 2003), (See Appendix F).

Firm (vi) Vitafoam Nigeria Plc

TABLE 4.30: PROFITABILITY AND PERFORMANCE FINANCIAL RATIOS OF VITAFOAM NIGERIA PLC FOR THE RELEVANT YEARS OF STUDY.

RATIOS	YEARS				
	1999 ₦'000,000	2000 ₦'000,000	2001 ₦'000,000	2002 ₦'000,000	2003 ₦'000,000
Gross Profit Margin	440.15 x 100 / 1900.87 = 23%	504.36x 100 / 2304.67 = 21.8%	678.00x 100 / 3364.19 = 20%	694.82 x 100 / 3391.28 = 20.4%	766.88 x 100 / 3887.02 =19.7%
Net profit Margin	236.65x 100 / 1900.879 = 12%	272.3x 100 / 2304.6 = 11.8%	428.98x 100 / 3364.19 = 12.75%	445.80x 100 / 3391.28 = 13%	517.85x 100 / 3887.02 = 13.3%
Return on Capital Employed	236.65x 100 / 376.98 = 62.77%	272.3x 100 / 418.8 = 65%	428.98x 100 / 501.94 = 85%	445.80 x 100 / 585.90 = 76%	517.85x 100 / 696.86 =74%
Current Assets Turnover	1900.87 / 698.28 = 2.7times	2304.67 / 935.19 = 2.46times	3364.19 / 1071.47 = 3.1times	3391.28 / 1299.23 = 2.6times	3887.02 / 1977.20 = 1.96times
Total Assets Turnover	1900.87 / 1016.73 = 1.8times	2304.67 / 1316.42 = 1.75times	3364.19 / 1559.13 = 2.15times	3391.28 / 1897.62 = 1.78times	3887.02 / 2564.26 = 1.5times

Source: Published Financial Statements (1999 – 2003), (See Appendix G).

4.7 INTERPRETATION OF RESULT

The data collected and analysed were mainly from the questionnaires administered and the published financial statements of the six (6) companies under study for 5 years; 1999 to 2003. The interpretation of the results from data analysis was as follows:

The three(3) formulated hypotheses of the study were tested using t-statistic method on the responses gathered from respondents and found that

there is significant difference in the profitability of manufacturing companies that adopt different working capital policies.

Similarly, the responses from the respondents show that there is significant relationship between financing mix and profitability of manufacturing firms; the profitability of companies using mostly short term funds in financing is always very high; the profitability of companies using mostly long term funds in financing was rated between average and low; and those companies using short term funds to finance only short term assets, and long term funds for long term assets, their profitability was rated to be average. The risks involved in using short term funds were generalised to be:

(a) Short term funds are mostly invested in short term assets that do not bring high return.

(b) Owners of capital can request for their capital even when company is illiquid.

(c) Short term funds do not give much room for long term strategic planning.

The risks involved in using long term funds were generalized to be:

(a) High interest rate for lending.

(b) Highly inflexible.

(c) Owners of capital exercise control over the affairs of firm.

The relationship between working capital policies and profitability of manufacturing companies in Nigeria was ascertained using correlation

coefficient on information from the published financial statements of the six (6) companies under study. The quantum of current liabilities and profitability of the companies were used as variables in calculating correlation coefficient. The interpretation of the result obtained was:

(1) Benue Cement Company Plc.

The correlation coefficient shows that there is strong negative relation between the use of short term funds and profitability of the company. This means that with increase in the use of more short term funds (current liabilities) in financing, profitability decreases or vice versa.

(2) Cement Company of Northern Nigeria Plc.

The correlation coefficient shows that there is weak negative relation between the use of short term funds and profitability of the company. This means that with increase in the use of more short term funds (current liabilities) in financing, profitability slightly decreases.

(3) Jos International Breweries Plc.

The correlation coefficient shows that there is weak positive relation between the use of short term funds and profitability of the company. This means that with increase in the use of ore short term funds (current liabilities) in financing profitability slightly increases.

(4) Paterson Zochonis (PZ) Industries Plc.

The correlation coefficient shows that there is weak positive relation between the use of short term funds and profitability of the company. This

means that with increase in the use of more short term funds (current liabilities) in financing, profitability slightly increases.

(5) Unilever Nigeria Plc.

The correlation coefficient shows that there is strong positive relation between the use of short term funds and profitability of the company. This means that with increase in the use of more short term funds (current liabilities) in financing, profitability increases to that same effect.

(6) Vitafoam Nigeria Plc.

The correlation coefficient shows that there is strong positive relation between the use of short term funds and profitability of the company. This means that with increase in the use of more short term funds (current liabilities) in financing, profitability increases to that same effect.

Finally, some profitability and performance financial ratios of the companies under study were computed and the results obtained are as follows:

(1) Benue Cement Company Plc.

The Gross Profit margin increased from 28.9% in 1999 to 35.3% in 2000, and decreased drastically in 2001, 2002, and 2003 to 21.3%, 13.2% and -150%. This shows that the efficiency with which management produces its products was poor compared to that of 1999 and 2000.

Net Profit Margin decreased from -26.2% in 1999 to -44%, -58.2%, -226.2% and -286% in 2000, 2001, 2002, and 2003 respectively which indicates improper administration of expenses.

Return On Capital Employed shows negative ratio of -23.6%, -16.6%, -286.2% and -68.7% in 1999, 2000, 2001, and 2002. It increased to 42% in 2003. The firm's operating performance were better in 2003.

Current Assets Turnover decreased from 1.03 times in 1999 to 0.59 times, 0.77 times, 0.52 times, and 0.98 times in 2000, 2001, 2002 and 2003 respectively, which indicates more effectiveness in utilization of firm's current assets.

Total Assets Turnover decreased from 0.27 times in 1999 to 0.16 times, 0.23 times, 0.13 times, and 0.11 times in 2000, 2001, 2002 and 2003. This shows that the effectiveness in utilization of firm's total assets was better in 1999 and 2001.

(2) Cement Company of Northern Nigeria Plc.

The Gross Profit margin of the firm improved to 39% and 27% in 2002 and 2003 respectively, from 23.1%, -38.3%, and 0.9% in 1999, 2000, and 2001. This shows more efficiency in production in 2002 and 2003.

Net Profit Margin decreased from 3.04% in 1999 to -60.8%, 74.1%, -2.8% and -0.69% in 2000, 2001, 2002, and 2003 respectively, which indicates more proper administration of expenses in 1999.

Return On Capital Employed decreased from 2.77% in 1999 to -113.3%, -86.0%, -4.5% and -2.3% in 2000, 2001, 2002 and 2003. The firm's operating performance was better in 1999.

Current Assets Turnover of the firm shows 1.3 times, 2.3 times, 0.86 times, 1.17 times, and 2.11 times in 1999, 2000, 2001, 2002 and 2003

respectively. The firm utilized its current assets much more effectively in 2000 and 2003 than in the other years of study.

Total Assets Turnover increased from 0.58 times, 0.6 times, 0.31 times and 0.59 times in 1999, 2000, 2001 and 2002 to 0.9 times in 2003. This shows more effectiveness of total assets utilization in 2003.

(3) Jos International Breweries Plc.

Gross Profit Margin shows 49%, 49.9%, 45%, 53.8% and 54.8% in 1999, 2000, 2001, 2002 and 2003 respectively. The firm proved efficiency in production, good spread of cost of goods sold and sales especially in 2002 and 2003.

Net Profit Margin decreased from 9.3% and 9.4% in 1999 and 2000 to 8.7%, 7.6% and 7.8% in 2001, 2002, and 2003, which indicates more efficiency in the administration of expenses in 1999 and 2000.

Return On Capital Employed increased from 17% in 1999 to 18.5%, 34%, 22.7% and 22.8% in 2000, 2001, 2002, and 2003 respectively. This shows improvement in operating performance from 1999 to 2003.

Current Assets Turnover shows 1.5 times, 1.4 times, 1.58 times, 1.46 times, and 1.3 times in 1999, 2000, 2001, 2002 and 2003 respectively. The firm utilization of current assets was impressive through the years 1999 to 2003.

Total Assets Turover increased from 0.79 times in 1999 to 0.83 times, 1.3 times, 1.12 times, and 1.07 times in 2000, 2001, 2002 and 2003. The effectiveness in utilization of total assets improved from 1999 to 2003.

(4) Paterson Zochonis (PZ) Industries Plc.

The Gross Profit Margin of the firm increased from 20.3% in 1999 to 21.1%, 22%, 25% and 27.7% in 2000, 2001, 2002 and 2003. Its efficiency in production kept on increasing through 1999 to 2003.

Net Profit margin increased from 10.4% in 1999 to 11%, 11.06%, 12.7% and 14.12% in 2000, 2001, 2002, and 2003 respectively. This shows improvement in the efficiency of management of expenses through the years 1999 to 2003.

Return on Capital Employed increased from 14.5% in 1999 to 15.5% in 2000, it decreased to 13% in 2001, and increased to 18.3% and 22.3% in 2002 and 2003 respectively. The operating performance of the firm started with impressive result in 1999 and 2000, it declined in 2001, and rose in 2002 to 2003.

Current Assets Turnover increased from 1.3 times in 1999 to 1.4 times in 2000, it decreased to 1.1 times in 2001, and increased to a stable figure of 1.4 times in 2002 and 2003. This shows the trend of effectiveness in utilisation of current assets in 1999, 2000, 2002 and 2003, compared to the result in 2001.

Total Assets Turnover increased from 0.8 times in 1999 to 0.87 times in 2000, it decreased to 0.79 times in 2001 and increased to 0.95 times and 0.96 times in 2002 and 2003. The effectiveness in utilization of total assets improved in 1999 and 2000, it decreased in 2001, and continued improving in 2002 and 2003.

(5) Unilever Nigeria Plc.

Gross Profit Margin increased continuously from 28% in 1999 to 31.3%, 32.8%, 34%, and 38.5% in 2000, 2001, 2002, and 2003 respectively. The firm's efficiency in management of cost of goods sold and sales was impressive especially with the improvement every year from 1999 to 2003.

Net Profit Margin increased from 6.4% in 1999 to 11.5% in 2000, it decreased to 10.45% in 2001, and increased in 2002 and 2003 to 11.39% and 13.7% respectively. The efficiency in management of expenses in 2001 decreased compared to the result obtained in 1999, 2000, 2002 and 2003.

Return On Capital Employed increased from 16.3% in 1999 to 37.2%, 38.6%, 51.9%, and 83.5% in 2000, 2001, 2002, and 2003. The operating performance of the firm improved continuously through the years 1999 to 2003.

Current Assets Turnover increased from 2.6 times in 1999 to 2.8 times in 2000. it slightly decreased to 2.76 times in 2001 and improved to 3.04 times in 2002, it further decreased to 2.24 times in 2003. Generally, the performance of the firm in utilization of its current assets was impressive, even though it was poor in 2003 compared to the other years of study.

Total Assets Turnover increased from 1.5 times in 1999 to 1.6 times in 2000 and 2001, 1.76 times in 2002, and decreased to 1.5 times in 2003. The firm's efficiency in utilization of its total assets was better in year 2002 compared to the other years of study.

(6) Vitafoam Nigeria Plc.

Gross Profit Margin decreased from 23% in 1999 to 21.8%, 20%, 20.4%, and 19.7% in 2000, 2001, 2002, and 2003 respectively. This shows decline in production efficiency through out the years.

Net Profit Margin fluctuated throughout the years. It shows 12%, 11.8%, 12.75%, 13% and 13.3% in 1999, 2000, 2001, 2002 and 2003 respectively. This shows improvement in management of expenses in 2001, 2002, and 2003 compared to the result of 1999 and 2000.

Return On Capital Employed increased from 62.77% in 1999 to 65% and 85% in 2000 and 2001. It slightly decreased to 76% and 74% in 2002 and 2003. The operating performance of the firm was better in 2001, 2002, and 2003 compared to that of 1999 and 2000.

Current Assets Turnover decreased from 2.7 times in 1999 to 2.46 times in 2000, it increased to 3.1 times in 2001, and further decreased to 2.6 times and 1.96 times in 2002 and 2003. Generally the efficiency in utilization of current assets was impressive, though it declined in 2003.

Total Assets Turnover slightly decreased from 1.8 times in 1999 to 1.75 times in 2000, it increased to 2.15 times in 2001 and continued decreasing in 2002 and 2003 to 1.78 times and 1.5 times respectively. The efficiency in utilization of firm's total assets was better in 2001 and poor in 2003 compared to other years of study.

4.8 DISCUSSION OF FINDINGS

The above data analyses revealed that there is significant relationship between working capital policy and profitability of a manufacturing company. This proves the findings of scholars such as Pandey (1999), Osisioma (1996), Brigham and Houston (2001), and Keown et al. (1999). But the difference is in the cause and effect of the relationship. The research shows that the relationship depends only on the operating performance of the firm, and therefore, a firm can use long term funds which is more costly than short term funds in financing most of its assets and still maximizes its profitability based on its efficiency in the utilization of those assets. Relating to specifically the findings of Brigham and Houston (2001:697), the relationship is such that the cost of short term funds is lower than that of long term funds, and whenever short term funds is mostly used, the profitability of a firm is maximized. The findings of Osisioma (1996:318), shows that the relationship is determined by the importance of liquidity in a firm. A weak liquidity position poses a threat to the solvency of the company and makes it unsafe and unsound. At the same time, excessive liquidity is also bad and may arise from mismanagement of current assets. Osisioma (1996) concluded that optimum profitability is obtained by taking prompt and timely action in keeping proper balance in firm's liquidity position, that is maintaining balanced current assets position; neither so much nor so less.

The research also discovered that manufacturing companies that adopted conservative working capital policy, that is keeping high level of

current assets compared to current liabilities by using mostly long term funds in financing, are more profitable throughout the years under study compared to that of the companies that used either aggressive or moderate working capital policy. This is contrary to the opinion of Keown et al. (1999:612), which believes that as the firm's net working capital decreases, the firm's profitability tends to rise at the expense of an increased risk of illiquidity, because according to the findings of the research, with efficiency in utilization of current assets, increase in firm's net working capital tends to increase firm's profitability. It is also contrary to the findings of Pandey (1999:823), which states that, to have higher profitability, a manufacturing firm may sacrifice solvency and maintain a relatively low level of current assets.

It was part of the objectives of this research to find out the limitations associated with the use of any of the working capital policies, and it was revealed that companies that use aggressive working capital policy are always faced with high risk and insolvency, which result to low current assets and sales. This confirms the studies of Brokington (1987), Osisioma (1996) and Keown et al. (1999).

The study also shows that companies that use conservative working capital policy are always faced with high cost of capital and inflexibilities or difficulties when changing their capital structure, which confirms the study of Brigham and Houston (2001), Van Horne (1998) and Block and Hirt (2000).

In conclusion, the research also discovered that conservative working capital policy is more appropriate in the period of high demands for

manufactured products, and aggressive working capital more appropriate in period of low demands for the products. This is relatively of the same opinion with the findings of Pandey (1999:816–819), which identifies factors that determine the working capital requirements of a firm, considering Sales and Demand Conditions to be an important factor that determines the level of current assets to be kept in a manufacturing firm. That is, with anticipation of high sales and demand for manufactured products, current assets should be high, and vice versa.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY OF FINDINGS

The findings of the researcher were summarised as follows:

(1) There is significant relationship between financing mix (working capital policy) and profitability of manufacturing companies.

(2) The relationship that exists between the financing mix (working capital policy) and profitability depends on the company's performance or management efficiency to be positive or negative.

(3) The research revealed that manufacturing companies that use conservative working capital policy are more profitable than those that use moderate or aggressive working capital policy.

(4) Excessive use of short term funds in financing long term assets results to low profitability and poor management of current assets.

(5) The operating performance and management efficiency in manufacturing, administering and selling products in manufacturing companies are much more important in determination of profitability than working capital policy.

(6) Manufacturing companies that use aggressive working capital policy are faced with high risk, even though they enjoyed cost and flexibility advantage.

(7) Manufacturing companies that use conservative working capital policy are always very liquid, and face lesser risks but meet higher cost of capital.

(8) It was also discovered that conservative working capital policy is appropriate in period of high demand for companies' products, since there is large sales, and with efficient management of cost of production, profit can be able to cover high cost of capital at a lower risk. And when there is no much demand for the manufactured products, aggressive working capital policy should be employed so as to minimize the cost of capital.

5.2 CONCLUSION

In line with the findings of this research, the following conclusions are drawn.

It was generally acknowledged that financing mix plays a crucial role in the attainment of the objective of profit maximization of the manufacturing companies. Managers in such companies should ensure operating efficiency and appropriate combination of short and long term funds based on the conditions at a particular point in time. Most of the problems of manufacturing companies using excessive short term funds in financing is due to lack of good control of cost of production and inefficient management of current assets. It was also concluded that excessive use of either short or long

term funds in financing assets of manufacturing companies is not good for healthy and vibrant operation of such companies.

The consideration for factors that determine the working capital needs of a firm, such as nature of business, sales and demand conditions, technology and manufacturing policy, credit policy, operating efficiency and price-level changes, is also very important in determining appropriate financing mix that can maximize profit of manufacturing companies in Nigeria. Managers should also be trained on how to manage the trade off between risk and return at a lower cost for the overall benefit of their firms. Experts in assets management should be employed to ensure efficient management of current assets, which affects tremendously the turnover and profitability of manufacturing companies.

It was also acknowledged that there is room for improving the performance of Nigerian manufacturing companies through training managers on how they can effectively use funds from different sources at their disposal for profit maximization. A strategy can also be set to identify at a glance the working capital policy a company is using in a particular time and its direct impact on profitability. This would allow managers to avoid the combination of short and long term funds that would minimize their profit.

It was also concluded that those companies that adopt conservative working capital policy are using considerable amount of long term capital in their financing, as such they are more efficient in Assets/Investment

management which will yield more profit compared to those that use mostly aggressive working capital policy.

5.3 LIMITATIONS OF THE STUDY

In conducting this research work, some unavoidable constraints were encountered. The major ones include:

1. **Lack of Adequate Knowledge on Working Capital Policies by Respondents:**

   The respondents selected who are employees of the companies under study for the administration of questionnaires were not very much conversant with the main issue this research was addressing, that is working capital policies.

2. **Inaccuracy from Secondary Source of Data:**

   The data gathered for this research was mostly obtained through documentation. The degree of correctness and reliability of the study would, to a large extent, depend on the reliability and accuracy of the results published and documented in companies' financial statements. The reliability of the research would be at stake if the published financial statements used were not showing true financial positions.

3. **Limitations of Ratio Analysis:**

   Another constraint was from the computation of financial ratios to arrive at the conclusion of the study. The ratios calculated at a point of time could be less reliable than expected as they suffer from short term changes. The price level changes make the interpretations of ratios

fairly difficult. They are also generally calculated from past financial statements which are based on historical cost convention, and thus, are a bit less dependable than desired.

Nevertheless, the study was conducted in the most intellectual and academic standard possible under the circumstances

5.4 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

1. Factors affecting working capital needs should be critically studied, so that investment in working capital would be appropriate to avoid high risk of uncertainties.
2. Manufacturing companies should employ qualified financial managers so as to effectively control cost of production and balance the trade off between cost of sales and quality of products manufactured so as to maintain reasonable level of sales.
3. Financial managers in manufacturing companies should set a strategy to create more awareness on how financing mix affects profitability and how to identify the working capital policy in use at a particular point in time.
4. Manufacturing companies are advised to consider investment in current assets as important as investment in fixed or long term assets.

REFERENCES

1. Agburu, J. I. (2001), Modern Research Methodology, Solid Printing and Publishing Company, Makurdi, Benue State.

2. Akuezuilo, E. O. (1993), Research Methodology and Statistics, Nuel Centi (Nig.) Publisher, and Christon Printing and Publishing Company, Aba, Abia State.

3. Block, S. B. and Hirt, G. A. (2000), Foundation of Financial Management 9th Edition, Irwin McGraw-Hill, U.S.A.

4. Brealey, R. A. and Myers, S. C. (1996), Principles of Corporate Finance, McGraw-Hill Companies Inc., U.S.A.

5. Brealey, R.A., Marcus, A.J., and Myers, S.C. (2001), Fundamentals of Finance 3rd Edition, McGraw Hill Irwin, U.S.A.

6. Brigham, E. F. and Houston, J. F. (2001), Fundamentals of Financial Management 9th Edition, Harcourt Asia PTC Ltd., India.

7. Brockington, R. B. (1987), Financial Management 4th Edition, Guernsey Press Co. Ltd, Great Britain.

8. Keown, A. J., Martin, J. D., Petty, J. W., and Scott, D. F. (1999), Basic Financial Management 8th Edition, Prentice Hall, Upper Saddle River, New Jersey, U.S.A.

9. Kurfi, A. K. (2003), Principles of Financial Management, Benchmark Publishers Ltd, Kano, Nigeria.

10. Lasher, W. R.(2000), Practical Financial Management 2nd Edition, South Western College Publishing, Thomson Learning, U. S. A.

11. Lewis, P., Thornhill, A., and Saunders, M. (1997), Research Methods for Business Students, Pitman Publishing Co. Ltd, London.

12. Nigerian Stock Exchange (2004), FactBook.

13. Nwana, O. C. (2005), Introduction to Educational Research, Heineman Educational Books (Nigeria) Plc, Ibadan.

14. Obodoeze, F. O. (1996), Research Methodology, Academic Publishing Company, Enugu, Nigeria.

15. Olowe, R. A. (1997), Financial Management, Beverly Jones Nigeria Limited, Lagos.

16. Osisioma, B. C. (1996), Studies in Accountancy, Acena Publishers, Enugu, Nigeria.

17. Osuala, E.C. (2001), Introduction to Research Methodology 3rd Edition, Africana-Feb Publishers Limited, Onitsha, Nigeria.

18. Pandey, I. M. (1999), Financial Management 8th Edition, Vikas Publishing House PVT Ltd., India.

19. Peterson, P. P. (1994), Financial Management and Analysis, McGraw-Hill Inc., U.S.A.

20. Ross, S. A., Westerfield, R. W., and Jaffe, J. (1996), Corporate Finance 4th Edition, McGraw-Hill Companies Inc., U.S.A.

21. Van Horne, J. C. (1998), Financial Management and Policy, Prentice Hall of India Private Ltd, New Delhi.

22. Wariboko, N. (1993), Financial Statement Analysis, Spectrum Books Limited, Ibadan, Nigeria.