CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Financial institution can be considered as the catalyst to the economic growth of a country. The development process of a country involves the mobilization and developed of resources. Development of trade, commerce and industry are the prime requisite for the attainment of the economic political and social goals. To fulfill the purpose of planning, financial functions more often dominate the other functions. “There is always lack of finance in underdeveloped economy because natural resources are either underutilized or unutilized in productive sectors or even other purposes i.e. social welfare and so on. Likewise, underdeveloped countries are not deficient in land, water, mineral, forest or power resources, though they may be untapped; constituting for the rapid development of the economic, there should be proper mobilization of resources. Due to various difficulties or even ignorance of the people, such resources have not been properly utilized. Hoarding could be one of the reasons for this. So, banks and other financial institutions play a vital role to ecourage thrift and discourage hoardings by mobilizing the resources ad removing the habit of hoarding. They pursue rapid economics growth, developing the banking habit among the people, collecting the small-scattered resources in one bulk and utilizing them in further productive purposes and rending other valuable services to the country. Thus, this gives the individuals an opportunity to borrow funds against future income, which may improve the economic well being of the borrower.

Financial institution in the economy plays a crucial role in the process of economic growth of the country. Financial institution refers to a business concern that is mainly confined to finance for the development of the trade, commerce and industry. Trade, commerce and industry are the prime factors of the economic development. Bank is a financial institution, which primarily deals in borrowing and lending. Banking is a vital part of national economy and a vehicle for the mobilization of economy’s financial resources and extension of credit to the business and service enterprises.

Nepal is basically an agricultural country. Agriculture provides employment to over 80% of labor force and contributes about 40% of gross domestic product. Agricultural

production technologies are primitive and the production system is subsistence based. Today, foreign employment and other industrial development are the major sources of income besides agriculture. In the economic development of a country financial institution can be considered as the catalyst. The development process of a country involves the mobilization and deployment of resources. Development of trade, commerce and industry are the prime requisite for the attainment of the economic, political and social goals. To fulfill the purpose of planning, financial functions more often dominate the other functions.

"There is always lack of finance in underdeveloped economy because natural resources are either underutilized or unutilized in productive sectors or even other purposes i.e.; social welfare and so on. Likewise, underdeveloped countries are not deficient in land, water, mineral, forest or power resources, though they may be untapped; constituting only potential resources.'' (Dewett, 1995: 454). And in the underdeveloped countries like Nepal there is always lack of financial resources not only because of its real absence but because of the available resources are not properly mobilized and are not fully utilized for the productive purposes. Even though, the process of economic development depends upon various factors. However, economists are now convinced that capital formation and its proper utilization play a paramount role for the rapid economic development. So, for the rapid economic development in the underdeveloped countries like Nepal there should be proper utilization of resources. So, financial institutions play a vital role to encourage thrift and discourage hoardings by mobilizing the resources and removing the habit of hoarding. They pursue rapid economic growth, developing the banking habit among the people, collecting the small-scattered resources in one bulk and utilizing them in further productive purposes and rendering other valuable services to the country. Thus, this gives the individuals an opportunity to borrow funds against future income, which may improve the economic well being of the borrower. In this course the banks play the most important role in modern economic organization.

Today each and every managerial decision is based on financial analysis. It covers the acquisition, utilization, control and administration of fund. Finance is concerned with the conversion of capital funds to meet the financial need of business organization. Financial management led to the decision making most skillfully. In a short period, the field of finance has developed considerably; securities raise funds in capital

markets that certainly help to expand the national economy. The network of a well-organized financial system of the country has great bearing in capital formation. It collects scattered financial resources form the mass and invests them among those engaged in commercial and economic activities of the country. To develop well established economic activities of any country can hardly be carried forward without the assistance and support of financial institution.

Bank is the main financial institution, which plays an important role in the economic development of the nation. Its principal operations are concerned with the accumulation of temporary idle money of the public for advancing others for expenditure. Banks accept deposits and make loans and derive a profit from the difference in the interest rates paid and charged, respectively. Depositors may be either individual or institutions. These deposits may be current, saving or fixed and the tenure depends upon the mutual agreements between the bank and depositors. Similarly, the borrowers who borrow this money from the bank may be either an individual or institutions. The tenure of the loan may vary as per the demand, criteria and the usefulness of the loan.

A commercial banker is a dealer in money and in substitutes for money, such as checks or bills of exchange. The banker also provides a variety of other financial services. The banker makes profit by borrowing at one rate of interest and lending at a higher rate and by charging commissions for services rendered. They also provide an opportunity in the development of individual industries, trade and business organization by investing savings and collected deposits. By investing the savings and collected deposits in the productive sectors, they help in the formation of capital. Besides they also render numerous services to its customers in a view of providing facilities to their economic and social life in the community. All the economic activities are greatly influenced by the commercial banking business of that country. Thus, commercial banks have become the heart of financial system. Mobilization and utilization of domestic resources is the key factor in the economic development of the country that can be achieved through the help of commercial banks. To make the role of commercial banks more effective and efficient government and respective organization should come up with sound investment policy, which will lead quality and quantity of investment and eventually will contribute to the economic growth of country.

Nepal became full-fledged member of WTO on 23 April 2004. Similarly Nepal is now a member of two regional trading arrangements; South Asian Free Trade Agreement (SAFTA) and BIMST-EC. The signing of SAFTA framework treaty in 6 January 2004 and BIMST-EC free trade area on 8 February, 2004 has been a landmark in the economic history of Nepal as these would help to integrate the Nepalese trade and economy at the regional and trans-regional level, (FNCCI, 2060 /2061).

Nepali economy that had around 6% growth rate in the second half of 1990s happened to get negative growth rate in the year 2001 with -0.44 growth rate. Nonetheless, the succeeding years are recovering the horrible down turn in Nepali economy with 2. 7 % growth rate in the subsequent fiscal year 2005/06. This growth rate is now projected to be 4.5% in the fiscal year 2007/08

The Economic Survey 2006/07 paints a mixed picture. Although there are signs of economic revival, there also are signs of stagnation in social indicators. The annual socio-economic indicators document of the country projects the Gross Domestic Product growth rate for 2003/04 to be 3.6 %. Although lower than the government's budgetary target of 4.5 %, it is better than that of the last fiscal year, which was only 2.7 %. The growth, coupled with over 6 % appreciation of the Nepali currency against the greenback, has significantly raised the per capita income of the Nepalese in terms of dollars. It has increased to US $ 269 compared to last year's US $ 242. Despite a lean export earnings, the foreign currency reserves have shot up to Rs.125.39 billion, enough to cover imports for 11 months - thanks to strong remittance inflow. The per capita foreign debt burden of Nepalese has also increased by over 5 % to reach Rs.9,911. This is over half of the GDP per capita at current prices. The social sector development, on the other hand, did not fare well in the current fiscal year as well, indicating that the government's "development within conflict" strategy is yet to make any impact.

The law and order situation of the country did not improve in this year too. However, some improvement in certain economic indicators has been pointed out in the economic survey. "The Nepalese economic growth rate in the fiscal year 2002/03 was initially estimated to be 2.3 %. However, this has been revised and it is now estimated to be 3.1 %. Fiscal year 2003/04 from the security view point has been a turbulent year, however, compared to the fiscal year 2002/03 the economic indicators like gross

national income, savings, investment and consumption have shown improving trend and it have been estimated that the economic growth rate has reached 3.7 %.", (Security Board, 2003/04).

1.2 Evolution of Banking Sector in Nepal:

The banking system in Nepal has no far away history. It was started during the period of Rana Prime Minister Ranaddip Singh. “Tejarath Adda” was established during the year 1877 A.D. It was the first step in institutional development of banking sector of Nepal and considered as the father of the today’s modern banking institution of Nepal, which rendered a good services to government servant and the general public by providing loan at cheaper rate and mobilizing scattered resources from the public. Before its establishment, there was no any official unit for this type of service. People used to go to the local moneylender, goldsmith, landlord etc. They used to charge high interest rate against the collateral of gold, silver, land, house etc. Consequently, the major parts of the country remain untouched from these banking activities. The trade with India and other countries increase the necessity of the institutional banker, which can act more widely to enhance the trade and commerce and to touch the remote banking sector in the economy. Reviewing this situation, the “Udhyog Parishad” was constituted in 1936 A.D. One year after its formulation, it formulated a “Company Act” and “Nepal Bank Act” in 1937 A.D. Nepal Bank Limited was established under Nepal Bank Act in 1937 A.D. as a first commercial bank of Nepal with 10 million authorized capital. The central bank of Nepal, Nepal Rastra Bank was established in 1956 A.D (2013-01-14) under the Nepal Rastra Bank Act 1956 A.D. The second commercial bank of Nepal is Rastriya Banijya Bank which was established in 1966 (2022 B.S), twenty-nine years later the establishment of the first commercial bank. For industrial development, industrial development center was set up in 1956 A.D. (2013 B.S) which was converted to Nepal Industrial Development Corporation (NIDC) in 1959 A.D (2016 B.S). Similarly, Agricultural Development Bank (ADB) was established in 1976 A.D (2024 B.S.) with an objective to provide agricultural loan so that agricultural productivity could be enhanced through introduction of modern agricultural techniques. During Nineties, the banks and financial institutions have been increasing rapidly. As an open policy of the HMG’s to get permission to invest in banking sector from private and foreign investor under

commercial bank Act 1957 (2013), different private banks are getting permission to establish with the joint venture of other countries. Currently, there are 20 commercial banks operating in Nepali financial market along with 9 joint ventures with foreign investors.

The first joint venture of Nepal is Nabil Bank Limited established in 1984 A.D, joint ventures with United Arab Emirates Bank. Then two other banks Nepal Indosuez Bank Ltd. with Indosuez Bank of France and Nepal Grindlays Bank Limited with Grindlays Bank of London were established in 1986 A.D. But, currently these banks name changed as Nepal Investment Bank Limited and Standard Chartered Bank Limited respectively. Himalayan Bank Limited Bank is joint ventured with Habib Bank of Pakistan and SBI Bank Limited is joint ventured with State Bank of India were established in 1993 A.D. Everest Bank limited is joint ventured with Punjab National Bank India (early it was joint ventured with United Bank of Calcutta). Nepal Bangladesh Bank is joint ventured with I.F.I.C Bank Limited of Bangladesh which was established in 1993. Bank of Katmandu is joint ventured with SIAM commercial Bank public co. Thailand which was established in 1995 A.D. Nepal Bank of Ceylon is joint ventured with Nepal Credit and Commerce Bank which was established in 1997 A.D. Likewise, Lumbini Bank Limited and NIC bank Limited both was established in 1998 A.D. Others private commercial banks, namely Kumari Bank Limited was established in 1999, Machhapuchhere Bank Limited was established in 2000 A.D, Laxmi Bank Limited was established in 2001 A.D and Siddhartha Bank Limited was also established in 2001 A.D, Global Bank, Citizen Bank, Prime Bank, Sunrise Bank, Bank of Asia, Nepal Merchant Bank, Kist Bank are the newly established commercial bank.

During the mid 1980s the adopted the policy of liberalization, which attracted the foreign banks to come to Nepal. In 1984 Nepal Arab Bank Limited was established as the first joint venture bank. After the restoration of democracy in1990, Nepal adopted democratic constitution that was lauded as the best social-legal document in the world. Further the economic liberalized with a view of enhancing private sector participation in various spheres. As consequence, as in the most to the countries, Nepalese financial sector is largely dominated by the banking sector. Under the commercial banking sphere, majority occupied by large number of joint venture banks.

Introduction of Nabil Bank Limited (NABIL)

The first commercial joint venture bank of Nepal, Nepal Arab Bank Limited, was established on July 12th 1984 under a technical service agreement with Dubai Bank Limited and was renamed as Nabil Bank Limited (NABIL) on 1st January 2002. In the beginning, the authorized capital of this bank was Rs.100 million and paid up capital was Rs.28 million 400 thousand. The 50% share of NABIL owned by Dubai Bank Limited was transferred to Emirates Bank International Limited, Dubai by virtue of its annexation with the later. Later on, Emirates Bank International Limited sold its entire 50% share to National Bank Ltd, Bangladesh. Now National Bank Limited is managing the bank in accordance with the Technical Services Agreement signed between it and the bank on June 1995. Its present shareholding pattern is as follows:

N.B. International Limited, Ireland	50%
Nepal Industrial Development Corporation	10%
Rastriya Beema Sansthan	5%
Security Purchase and Sales Corporation	5%
General Public	30%
Authorized Capital	Rs.500,000,000.00
Issued Capital	Rs.491,654,400.00
Paid-Up Capital	Rs.491,654,400.00

Introdunction of Nepal Investment Bank Limited (NIBL)

Nepal Investment Bank Limited (NIBL), previously Nepal Indosuez Bank Limited, was established on 21st January 1986 as a second commercial joint venture bank with an agreement between Nepalese and French partners under the company act 1964. Initially Banque Indosuez Pares managed the bank in accordance with joint venture and technical services. With the decision of Credit Agricole Indosuez to divest, a group of companies comprising of bankers, professionals, industrialists and businessmen of Nepal, has acquired on 25th April 2002 the 50% shareholding of Credit Agricole Indosuez in Nepal Indosuez Bank Limited The name of the bank has been changed to Nepal Investment Bank Limited (NIBL) upon approval of bank's 15th Annual General Meeting, Nepal Rastra Bank and Company Registrar's office on 31st May 2002. The present shareholding pattern of NIBL is as follows:

A Group of Companies	50%
Rastriya Banijya Bank	15%
Rastriya Beema Sansthan	15%
General Public	20%
Authorized Capital	Rs.590,000,000.00
Issued Capital	Rs.295,293,000.00
Paid-Up Capital	Rs.295,293,000.00

Introduction of Standard Chartered Bank Limited (SCBNL)

Under the company act of 1964, Nepal Grindlays Bank Limited, renamed as Standard Chartered Bank Nepal Limited (SCBNL) in 16th July 2001 was established as a third commercial joint venture bank of Nepal in 1985. The bank originally started its operation in 1986. The 50% of the equity share capital was originally owned by ANZ Grindlays Bank, which managed and controlled the overall activities of the bank. Later on, the ownership of 50% share of ANZ Grindlays Bank has been transferred to Standard Chartered Bank Limited, U.K. in August 2000. The bank, at present is managed and controlled by Standard Chartered Bank Limited, U.K. The present shareholding structure of SCBNL is as follows:

Standard Chartered Bank Limited, U.K.	75%
General Public	25%
Authorized Capital	Rs.339,548,800.00
Issued Capital	Rs.339,548,800.00
Paid-Up Capital	Rs.339,548,800.00

1.3 Statement of the Problem

Working capital is a crucial capital, which is compared as lifeblood of the human beings for any organization. In most enterprises the management of working capital has been misunderstood as the management of money rather that its efficient utilization. The management of working capital is synonymous to the management to short term liquidity. It has bee regarded as one of the conditioning factor in the decision making issues. It is no doubt, very difficult to point out as to how much

working capital is needed by a particular business organization. An organization, which is not willing to take more financial risks, can go for mare short term liquidity. The more of short term liquidity means more of current assets and less of current liabilities. The less current liabilities implies less short term financing heading to the lower returns resulting from the use of more high cost ling term financing. So it is very essential to analyze and find out problems and its solution to make efficient use of funds for minimizing the risk of loss to attain profit objective.

Under and over allocation of working capital is harmful to an enterprise to achieve its primary objectives. Therefore, maintaining optimal level of working capital is the crux of the problem as it is strongly related to the trade off between risk and return. But, it is difficult to point out as to how much working capital needed by a particular business organization. An organization which is not willing to take more financial risks can go for more short-term liquidity. The more of short-term liquidity means more of current assets and less of current liabilities. The less current liabilities implies less short-term financing heading to the lower returns resulting from the use of more high cost long-term financing. So it is very essential to analyze and find out problems and its solutions to make efficient use of funds for minimizing the risk of loss to attain profit objective. Inadequate investment in working capital threatens the solvency of enterprise as well as affects its growth. On the other hand, excessive investment in working capital yields nothing. Therefore, working capital should be determined in such a way that total cost i.e. cost of liquidity and cost of non-liquidity is minimum. Hence, the goal of working capital management is to manage the firm's current assets and current liabilities in such a way that it should maintain satisfactory level. Working capital management of banks is more difficult than that of manufacturing and non-manufacturing business organizations. Commercial banks are great monetary institutions which are playing important role to general welfare of the economy. To get higher return, banks must try to increase funds from deposits as well as their investment. The first motive of banking business is to borrow public saving and lend to needy people. But commercial banks always face the problem for utilizing more deposits as investment fully and productively. The gap between collection of deposits and disbursement of loans increase the cash balance on bank, which require paying its large amount of liabilities on its depositors' demand without notice. But large amount of idle cash balance also decrease profitability of banks.

NABIL, NIBL and SCBNL seen well in comparison to other joint venture banks on the account of their performance and profitability as well. It is the question of the study that whether there is any relationship of working capital management with regard to their performance and profitability among these banks.

So, following are the major problems that have been identified for the purpose of this study.

- How to utilize the liquidity in NABIL, SCBNL and NIBL?
- What is the management attitude towards risk?
- How to build the image of Bank through working capital management?
- Which of current assets are more problematic in NABIL, SCBNL and NIBL?
- What lending pattern of loan and advances and other investment will be profitability?
- What components of working capital that affect the operating income of NABIL, SCBNL and NIBL?
- Which of the current assets are more problematic in sample banks?
- What are the components of working capital, which affect the operating income of sample banks?

1.4 Objectives of the Study

Every research study is conducted with a view of achieving some objectives and this study is of no exception. The main objective of this study is to examine of the management of working capital of sample banks. The specific objectives of this study are as follows:

- To analyze the liquidity, assets utilization, long-term solvency and profitability position of sample banks.
- To analyze & evaluate composition of working capital. Assets utilization and profitability.
- To examine and evaluate the position of current assets and current liabilities their impact on liquidity position and profitability.
- To analyze the comparative study of working capital management of NABIL, SCBNL and NIBL.
- To provide recommendation and suggestions on the basis of major findings.

1.5 Significance of the Study

Nepalese commercial banks are operating in the competitive environment. In this situation, banks have to adopt suitable strategies for their existence. They should balacnce and co-ordinate the different functional areas of business concern. The success or failure of any organization depends on its strategy, Which is affected by working capital management. Working capital management is crux of problem to prepare proper strategy on its favors.

Working capital is regarded as the life blood and nerve of a business concern and is essential to accommodate the smooth operations of any organizations. Under and over allocation of working capital is harmful to an enterprise to achieve its primary objectives. Inadequate investment in working capital threatens the solvency of enterprise as well as affects its growth. On the other hand, excessive investment in working capital yields nothing.

The study has multidimensional significance, which can be divided into four broader headings.

1. Its significance to shareholders: the study might be helpful to aware the shareholders regarding the working capital management, i.e. liquidity and profitability of their banks. The comparison will help them to identify the productivity of their funds in each of these three banks.
2. Its significance to the management: the study might be helpful to go deep into the matters as to why working capital management of their banks is better (or worse) than their competitors.
3. Its significance to the outsiders: among outsiders mainly the customers, financing agencies, stock exchanges and stock traders are interested in the performance of banks and the costumers (both depositors and debtors0 can identify to which bank they should go. The financial agencies can understand where is more secured and , stock exchange, stockbrokers ad stock traders can find out the relative worth the stocks of each bank.
4. Its significance to the policy makers: policy makers here refer to the government and Nepal Rastra Bank. The study will be helpful to them while formulating the policy regarding commercial banks.

Therefore, considering all these facts, the study of working capital management of NABIL, SCBNL and NIBL is considerably important.

1.6 Limitations of the study

The scope of the present study has been limited in terms of period of study as well as sources and nature of data. The period covered by the study extent over 5 years from 2060/61 to 2064/65 at the time of study. The data could be available up to 2064/65 only. The limitations of this study are as folls;

- This study has been confined to only three of the joint venture banks, namely NABIL, SCBNL and NIBL.
- The study is mainly based on secondary data. It is done mostly on the basis of the published financial documents, like balance sheet, profit and loss account and other related journals, magazines and books etc.
- The study follows with specific tools such as ratio analysis, mean, CV, correlation, and hypothesis.
- The whole study is based on the current five years (*F/Y 2060/61* to *F/Y 2064/65)* data and conclusion drawn confines only to the above period.
- Out of various commercial banks, this study is concerned with the first three commercial joint venture banks viz. sample banks.
- The truth of research is based upon the available data from the banks
- Although there are various aspects of financial management, this study is mainly concerned with the working capital aspect of the sample banks.
- The study is limited from the point of view of submission on partial fulfillment for the master degree in business study.

1.7 Organization of the study

The study has been divided into five chapters. They are:

1. Chapter One: Introduction
2. Chapter Two: Literature Review
3. Chapter Three: Research Methodology
4. Chapter Four: Presentation and Analysis of Data and Findings
5. Chapter Five: Summary, Conclusion and Recommendations

The first chapter covers background of the study, overview of national economy, evolution of banking sector in Nepal, about the institutions under study, focus of the study, statement of the problem, objectives of the study, research hypothesis, and

significance of the study, limitation of the study and organization of the study. Therefore, this chapter is for brief introduction of the topic and it highlights the fundamental objectives.

The second chapter is for pertinent literature and studies. This chapter is the backbone of study, where relevant studies have been reviewed.

The third chapter presents the research methodology used in the study. It encompasses research design, nature and sources of data, data processing procedure, tools and techniques of analysis.

The fourth chapter is the main part of this research that deals with the presentation, analysis and interpretation of data. Different types of tools and technique have been used to analyze the available data in order to achieve the set objectives.

The last chapter presents the summary and conclusion of the study based on the analysis of data and also provides recommendation to the sample banks viz. NABIL, NIBL and SCBNL.

After all, the bibliography and appendices are included.

CHAPTER TWO

REVIEW OF LITERATURE

The purpose of literature of review is to find out what research studies have been conducted in one chosen field of study and what remain to be done. It provides the student with the knowledge of the status of their field of research and foundation for developing a comprehensive theoretical framework which hypothesis can be developed for festing.

This chapter consists of two parts-Conceptual Framework and Review of Related Studies. In conceptual framework, review of what has been written in academic books is carried out while review of related studies is further dividend into review of journals and review of master degree thesis.

This chapter in concerned with the review of relevant literatures available in the books, journals, articles, research reports, newspapers, magazines, policy documents which are published or unpublished. Every study is very much based on past knowledge, study and experiences. The past knowledge or the previous studies should not be ignored as it provides foundation to the present study. Various thesis works have done in different aspects of working capital of different organization are also reviewed for the purpose of justifying the study.

2.0 Conceptual Framework

2.1 Meaning of Banks

Banks are very important financial intermediaries in financial market. “Financial intermediaries not only transfer money and securities between users and savers but also they create new financial products. They gain economics of scale in analysis of credit worthiness of potential borrowers, in processing and collecting loan, and minimize cost of information and make easy flow of transactions.” (Rose, 1999: 4).

Banks are the principal source of credit to household: individuals and family, business: all forms and local units of government. Furthermore, they are the source of financial information, planning and controlling. “Banking institution is inevitable for

resource mobilization and all-round development of the country. It is resource for economic development; it maintains economic confidence of various segments and extends credit to people." (Grywishki,1993:87). Banks deal with money by accepting various types of deposits, disbursing loans and investing in productive sectors and rendering other financial services as the primary function

Banks are channels between saving surplus and saving deficit people and thus, they are the bridge of utilized scatter fund to productive sectors. Hence, they represent a vital role in the transmission of government economic policies (especially monitory policies) to the economy. When bank credit is expensive, the investment slows down and unemployment rises. Bank deposit represents the most significant component of the money supply used by the public. Commercial banks play an important role for economic development of the country as they provide capital for the development of industry, trade and business by investing the saving collected as deposits from public. They render various services to their customers facilitating their economic and social life.

2.2 Meaning of Commercial Banks

It is difficult to give concise and accurate definition of bank. It is so because a modern bank renders various functions. It is difficult to include all those functions in a single and concise definition. Even though, it can be said that a bank is an institution whose business is to trade in money. Trading in money relates to activities such as taking deposit, granting loans, discounting bills, issuing cheques to be drawn upon and other various functions on behalf of customers. Any institution will be known as bank if it renders all or some of these functions. It is quite impossible to discharge all these functions by a single bank. So they specialize in certain set of functions. Banks are classified on the basis of their functions, which are as follows:

1. Central Bank
2. Commercial Bank
3. Agriculture Bank
4. Industrial Bank
5. Exchange Bank
6. Saving Bank etc.

American Institute of Banking defines commercial bank as “Commercial Bank is a corporation which accepts demand deposits subject to cheques and makes short-term loans to business enterprises, regardless of the scope of its other services” (American Institute of Banking, USA 1972:345). The institution also aid down the four functions of commercial bank as receiving and handling deposits (Deposit Function), handling payments of money (Payment Function), making loans, and investments (Loan Function) and creating money by extension of credit (Money Function).

In today’s concern the operating function of the commercial banks are, (a) to collect working capital (b) to utilize the working capital in various purposes (c) by utilizing the working capital, it earns profit and (d) part of the profit is distributed as dividend and part of the profit is retained for the expansion of banking transactions (Garg, 1977: 271).

Commercial Bank Act, 2031 BS of Nepal has defined it as a commercial bank is one which exchanges money, deposits money, accepts deposits, grants loans and performs commercial banking functions and which is not a bank meant for co-operative agriculture, industries or for such specific purpose. The Commercial Bank Act 2031 also pointed the functions of commercial banks commercial banks provide short-term debts necessary for trade and commerce. They take deposits from the public and grants loans in different forms. They purchase and discount bills of exchange, promissory note, and exchange foreign currency. They discharge various functions on behalf of their customers provided that they are paid for their services, Commercial Bank Act, 2031

2.3 Meaning of Joint Venture Banks

“A Joint Venture is forming of two forces between two or more enterprises for the purpose of carrying out of specific operation (industrial or commercial investments, production trade)”, (Gupta, 1984:15-25). Joint Venture Banks are the commercial banks formed by joining a two or more enterprises, for the purpose of carrying out of specific operation such as investment in trade, business and industry as well as in the form of negotiation between various group of industries or traders to achieve mutual exchange of goods and services.

2.4 Meaning of Working Capital

A bank must always have cash balances in hand in order to pay its depositors upon demand or when the amounts credited to them become due. It must also keep a proportion of its assets in forms that can readily be converted into cash. Only in this way can confidence in the banking system be maintained. Working capital is regarded as the life blood and nerve of a business concern and is essential to accommodate the smooth operations of any organizations. To sustain the belief of the people & customer, the organization should always get ready to meet the obligations.

According to I.M. Pandey, there are two concepts of working capital gross concept and net concept. The gross working capital, simply called as working capital, refers to the firm's investment in current assets. Current assets are the assets which can be converted into cash within an accounting year (or operating cycle) and include cash, short-term securities, debtors, bill receivable and stocks. The term 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 and include creditors, bills payable, bank overdraft and outstanding expenses or accrued income. A positive net working capital will arise when current assets exceed current liabilities and a negative net working capital occurs when current liabilities are in excess of current assets. Net working capital concept also covers the question of judicious mix of long-term and short-term funds for financing current assets (Pandey, 1992:796-797).

Working Capital refers to the resources of the firm that are used to conduct day-to-day operation that makes business successful. Without cash, bills cannot be paid, without receivable the firm can not allow timing different between delivering goods to services and collecting the money to pay for them, without inventories the firm cannot engage in production nor can it stock goods to provide immediate deliveries. As a result of the critical nature of current assets the management of working capital is one of the most important areas in determining whether a firm will be successful. Need of working capital is directly related to firms growth. The term working capital refers to the current assets of the firm's those items that can be converted into cash with in the year. Net working capital is defined as the difference between current assets and current liabilities (Hamption and Wagner, 1989:34).

"Working capital may be defined as the funds deployed by the company in the form of cash, stock, sundry debtors and other currents assets. The total sum of funds deployed in such assets is termed as gross working capital. Net working capital is defined as the difference between gross working capital and current liabilities. The term working capital generally means net working capital. The liquidity position of a company is dependent of the investment in the working capital." (Mahat, Volume 2, Number 2, P. 22).

2.5 Issues of Working Capital

In the management of working capital, the most posing questions are how much working capital to maintain? What type of financing to use? How to adjust the working capital when there is a change in the level of business activities? In particular, they face the following issues with respect to the management of working capital, (Pradhan, 1992:148).

- Size of working capital to maintain size of each type of current assets
- Size of permanent & seasonal working capital investment
- Source of financing: Short-term or Long-term Financing
- Cost of financing: Cost of Short-term Vs Long-term Financing
- Risk associate with types of financing: Trade-off between cost and risk
- Maintenance of current ratio: Minimizing the risk of cash flow problem

2.6 Objectives of Working Capital in Banks

A bank undertakes many transactions daily. Sometimes, customers deposit large quantity and sometimes customers withdraw from their deposits in high quantity. Investment fund of bank is covered by deposit collections of different types of account holder. A bank should have to pay the money to depositors when they want to withdraw. For daily operation of office and to meet the administrative expenses, a bank should have certain level of working capital. Working capital is required to run the business smoothly and efficiently in the context of the set objectives. It is no doubt that no company can achieve its goals without proper use of working capital. Therefore, it can compare as lifeblood to the organization. The main objectives of arranging capital are as follows;

- To pay to depositors,
- To maintain Cash Reserve Ratio (CRR) & Statutory Liquidity Ratio (SLR),

- To satisfy the customers by granting loans promptly and increase the attraction of business etc.,
- To meet the administrative expenses, perform the task as per objectives of business and run the business smoothly,
- To fulfill the present need of business as well as get ready for risk & economic fluctuation in future.

2.7 Determinants of Working Capital of Banks

Working capital in banks is basically concerned with the liquidity management. Thus, the working capital of banks is synonymous to liquidity of banks. Many factors affect the liquidity or working capital of banks. They are:

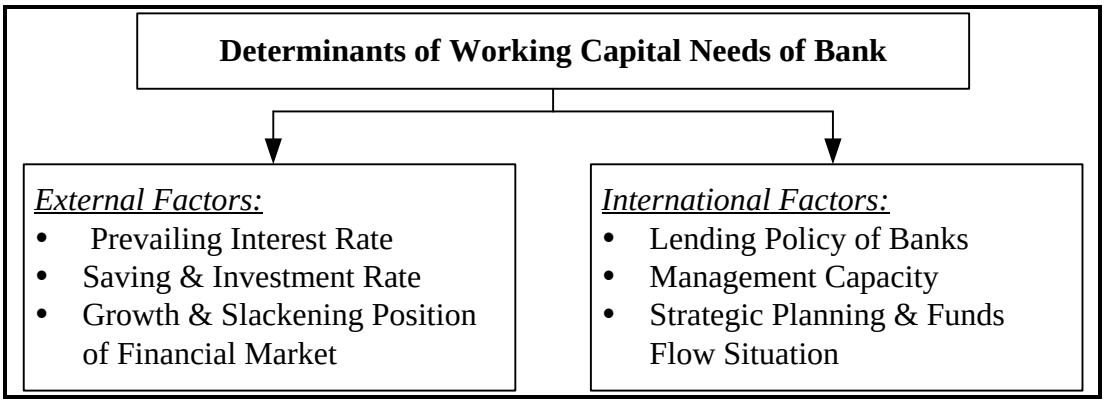
a. ***External Factors:***

- Prevailing interest rate of bank: If interest rate is high cash demand is low & liquidity need is low.
- Savings & investment situation: If income & saving scale of people is high, low liquidity. If investment in commercial field is high, high liquidity.
- Growth & scheming position of the financial market: If financial market of bank is in growth & prosperity, then low liquidity and if opposite, high liquidity.

b. ***Internal Factors:***

- Lending policy of bank: Great quantity for long-term investment needs high liquidity and if short-term loan policy, low liquidity.
- Management capacity: If management is efficient & ready to bear risk, low liquidity.
- Strategic planning & funds flow situation: Liquidity depends upon planning, & strategy. Current A/C needs high liquidity & payment. On the other hand fixed deposit needs low liquidity.

Figure 1: Determinants of Working Capital Needs of Bank

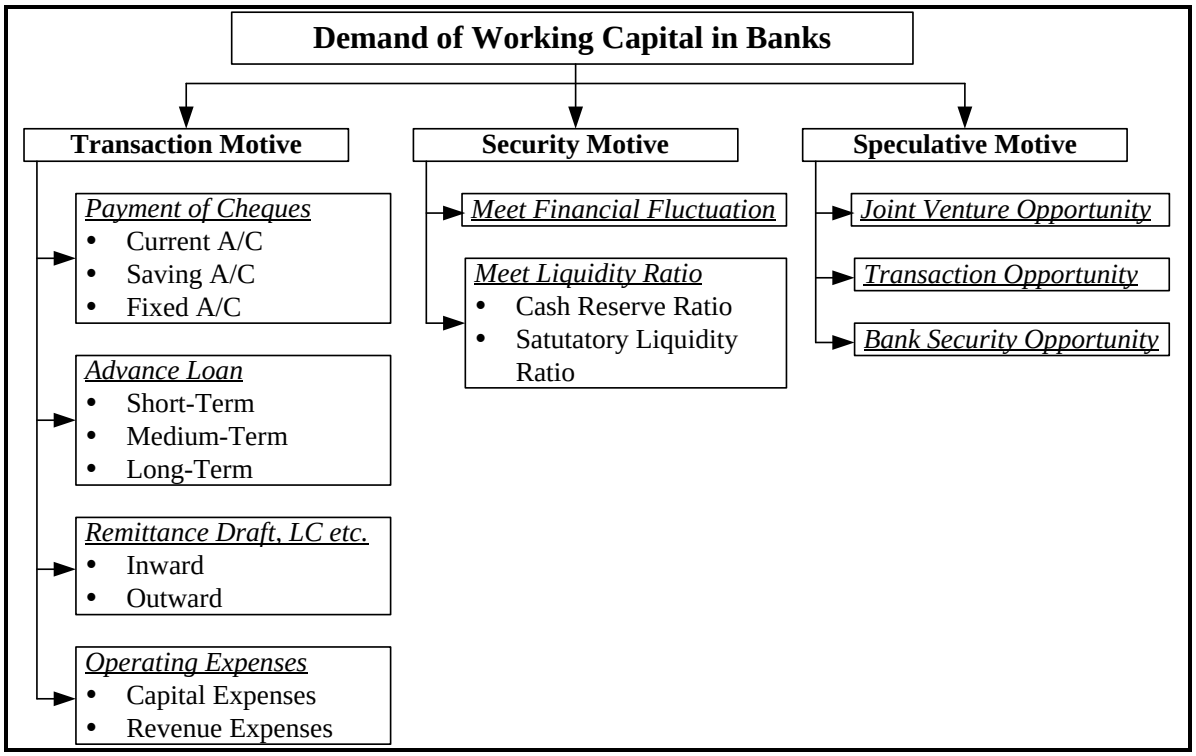


2.8 Demand of Working Capital in Banks

Working capital is maintained at bank by current saving, & fixed deposit collection. Specially, to grant loan and to pay cheques, creditors & account holders demand the liquidity. Generally, banks need liquidity for maintaining following goals

- Transaction motive
- Security motive
- Speculative motive

Figure 2: Demand of Working Capital in Banks



2.9 An Overview of Working Capital Management

Working Capital Management refers to the administration of all aspects of current assets, namely cash, marketable securities, stock and current liabilities. It is the functional area of finance that covers all the current accounts of the firm. It is concerned with the adequacy of current assets as well as the level of risk posed by current liabilities. It is a discipline that seeks proper policies for managing current assets by current liabilities and practical technique for maximizing the benefits from managing working capital.

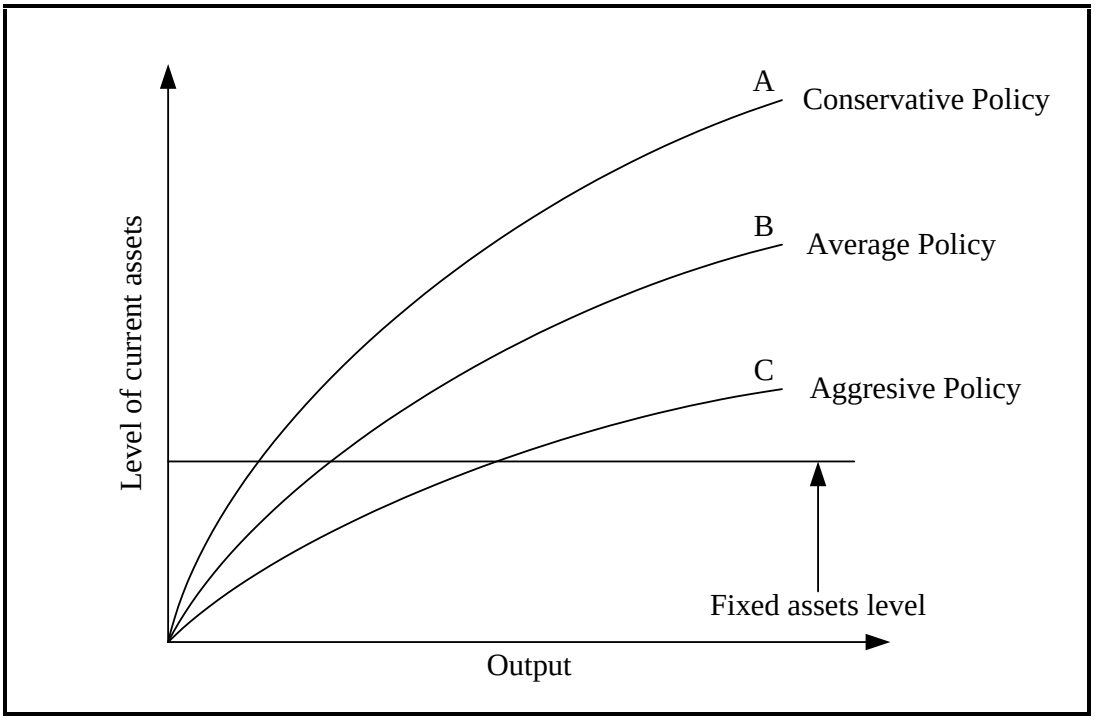
In the words of K.V. Smith, The term working capital management closely relates with short-term financing; it is concerned with collection and allocation of resources. Working capital management relates to problems that arise in attempting to manage the current assets, the current liabilities and interrelationships that exist between them (Smith, 1974:5).

Working capital management is the crucial aspect of the financial management. It is the life-blood and controlling nerve center for any types or business organization because without the proper control upon it no business can run smoothly. The management of current assets and current liabilities is necessary for daily operations of any organizations. Thus, it plays the vital role in the success and failure of the organizations as it deals with the part of assets, which are transformed from one form to another form during the course of manufacturing cycle. Therefore, the role of working capital management is more significant for every business organization irrespective to their nature.

By the definition of various experts of working capital management, we conclude that, all institution, whether private or public, financial institution, manufacturing or non-manufacturing that need just adequate working capital to compete with competitive market. It is because over or under adequacy of working capital is dangerous from the firms objective points of view. Over investment on working capital affects the firm's profitability just as idle investment. On the other hand, under investment on working capital affects the liquidity position of the firm and causes to financial hindrance and failure of the company. It is therefore, a recognized fact that any mistake made in management of working capital can cause to adverse effects in business and reduces the liquidity, turnover and profitability and increases the cost of financing of the organization.

Need of working capital is directly related to firms growth. A firm can have different level of current assets to support the same level of output. The level of current assets can be measured by relating current assets to fixed assets. Its proportion upon the fixed assets of the firm indicates the working capital policy of the firm namely conservative and aggressive in two extreme ends. Dividing current assets by fixed assets gives Current Assets to Fixed Assets (CA/FA) ratio. Assuming a constant level of fixed assets, a higher CA/FA ratio indicates a conservative current assets policy and a lower CA/FA ratio means an aggressive current assets policy assuming other factors to be constant. A conservative policy implies greater liquidity or lower risk, while an aggressive policy indicates higher risk and poor liquidity, (Panday, 1992:822). Higher level of current assets implies greater liquidity and solvency of the firm. There is less risk of technical insolvency, but a considerable amount of funds will be tied up in current assets, which causes to lower the profitability. On the other side, to have a higher profitability, a firm can take an aggressive current assets policy maintaining lower lever of current assets, which will lower the solvency of the firm and the level of risk in the same manner. Thus the reasonable approach is to balance the cost of maintaining current assets and risk associated in such a way that the trade off between risk and return is minimized.

Figure 3: Alternative Current Assets Policies



Source: I. M. Panday, *Financial Management*, New Delhi: Vikash Publishing House, 1992, P. 822

When the firm follows the matching policy or average policy long-term financing will be used to finance fixed assets and permanent current assets and short-term financing to finance temporary or variable current assets (Pandey, 1992: 828).

The financing policy of the firm is said to be conservative when it depends more on long-term funds for financing needs. Under a conservative plan, the firm finances its permanent assets and a part of temporary current assets with long-term financing (Pandey, 1992: 828).

An aggressive policy is said to be followed by the firm when it uses more short-term financing than warranted by the matching plan. Under an aggressive policy, the firm finances a part of its permanent current assets with short-term financing (Pandey, 1992:828).

Proper management of working capital must ensure, adequate amount of working capital as per need of business firms. It should be in good health and efficiently circulated. To have adequate healthy and efficient circulation of working capital it is necessary that working capital be properly determined and allocated to its various segments, effectively controlled and regularly reviewed.

The objective of managing working capital is to aid in the value maximization of the firm by minimizing the cost of working capital. The level of working capital also differs by the types and nature of the business. The cost of maintaining the working capital depends on the source of finance used. The short-term sources generally cost less than the long-term sources, but they are riskier, (Pradhan, 1992:148).

2.10 Review of Books

The well known professors, *Weston and Brigham 1984,* in their book "Managerial Finance" have given theoretical insights into working capital management. The bond conceptual findings of their study provide sound knowledge and guidance for the further study in the field of management of working capital of any enterprise and naturally to this study as well. They explain, in the beginning, the importance of working capital, concept of working capital, financing of working capital, the use of short term versus long-term debt, relationship of current assets to fixed assets. In the next chapter they have dealt with the various components of working capitals and their effective management techniques. The components of working capital they have

dealt with the cash, marketable securities, receivable and inventory for the efficient management of cash, they have explained the different cash management models. They have also explained the major sources and forms of short term financing, such as trade credit, loans from commercial banks and commercial paper.

Van Horne, 2000, another well known expert of financial management and writer in his book "Financial Management and Policy", has given the concept of capital management, it is usually described as involving the administration of these assets namely cash, marketable securities, receivables, inventories and the administration of current liabilities. It means the working capital management is concerned with the problem that arises in attempting to manage the current assets, the current liabilities and the inter-relationship that exist between them. He has also described the different methods for efficient management of cash and marketable securities and various models for balancing cash and marketable securities. For the management of receivable, different credit and collection policies have been described and various principles of inventory have been examined for inventory management and control.

Shrestha 1995, has published "Portfolio Behavior of Commercial Banks in Nepal" based on the study of two local commercial banks, three joint-venture banks and one development bank as a sample for the study. Some major findings of her study are hereunder.

- Total deposits have been the major sources of fund for all the banks.
- Capital and reserve funds do not seem to have changed much over the year.
- The user of fund analysis shows that the resources of commercial banks are allocated in the liquid funds, investment on securities, loans and advances. Bills purchased and discounted.
- Among the portfolio, for Nepalese banks loan and advances share highest volume of the resources and the bills purchased and discounted the least over the year.
- The excess reserves of the commercial banks show unused resource. The cash reserve exceeds much more than the required cash reserve.

Pradhan, 1986, has published a book on management of working capital in Nepalese PEs. This book is based on the study of nine manufacturing public enterprises of Nepal for the duration of ten years from 1973 to 1982 AD. In his study, he aimed at

examining the various aspects of management of working capital in selected manufacturing public enterprises of Nepal. The specific objectives undertaken in his study were:

- To conduct risk return analysis of liquidity of working capital position.
- To assess the short term financial liquidity position of the enterprises.
- To assess the structure and utilization of working capital and
- To estimate the transaction demand functions of working capital and its various components.
- His study has mentioned the following findings.
- It was found that most of the selected enterprises have been activating a trade off between risk and return thereby following neither an aggressive nor a conservative approach.
- It has showed a poor liquidity position of most of the enterprises. This poor liquidity position has been noticed as the enterprises have either negative cash flows or negative earnings before tax or they have excessive net current debts which cannot be paid within a year.
- The Nepalese manufacturing public enterprises have on an average half of their total assets in the form of current assets. Of all the different components of current assets, on an average, the share of inventories in total assets is the largest followed by receivables and cash in most of the selected enterprises.
- The economics of scale have been highest for inventories followed by cash and gross working capital, receivable and net working capital.
- The regression results also show that the level of working capital and its components and enterprise desires to hold depend not only on sales but on holding costs also.

His study is concerned with interrelationships that exist between managing current assets and current liabilities. The study manages to focus on net working capital concept. The study has employed ratio analysis, discriminate analysis and econometric models for its analysis.

2.11 Review of Related Journals/Articles

Shrestha, (ISDOC Bulletin, Vol.8, No.1-4, July 1982 - June 1983), in his study "Working capital management in public enterprises", based on ten selected public

enterprises, states that manager often lacks basic knowledge of working capital and its overall impact on the operative efficiency and financial viability of public enterprises. The sample public enterprises are Birgunj Sugar Factory, Janakpur Cigarette Factory, Raghupati Jute Mills, Dairy Development Corporation, National Trading Ltd., Royal Drugs Ltd., National Construction Company of Nepal, Harisiddhi Brick and Tile Factory, Nepal Cheeuri Ghee Industry Ltd., and Chandeswori Textile Ltd. Specially, his study is focused on the liquidity turnover and profitability position of those enterprises. In this analysis, he found that four public enterprises have maintained adequate liquidity position, two public enterprises have excessive and remaining others public enterprises had failed to maintain desirable liquidity position. On the turn over side, two public enterprises had negative turnover, four had adequate turnover, and one had higher turnover on net working capital. He had also found that out of ten public enterprises six were operating in loss while only four were setting some percentage of profit. With the reference of his findings, he has pointed certain policy flaws such as deficient financial planning, negligence of working capital management, deviation between liquidity and turnover of assets and inability to show the positive relationship between turnover and return on net working capital. At the end, he has made some suggestive measures to overcome from the above policy issues. These are identification of management information system, positive attitude towards risk and profit and determination of right combinations of short-term and long-term sources of funds to finance working capital needs.

Acharya,(ISDOC Bulletin, Vol. 10, No. 3, Jan - Mar, 1985), has published an article relating on working capital management. He has defined the two major problem i.e. operational problems and organizational problems, regarding the working capital management in Nepalese public enterprises. The operational problems; he found were increase of current liabilities than current assets, not allowing the current ratio 2:1 and slow turnover of inventories. Similarly, change in working capital in relation to fixed capital had very low impacts over the profitability, than transmutation of working capital employed to sales, absent of apathetic management information system. Break-even analysis, funds flow analysis and ratio analysis were either undone or ineffective for performance evaluation. Finally, monitoring of the proper functioning of working capital management has never been considered as managerial job.

In the second part, he has listed the organizational problems in the public enterprises. In most of the public enterprises, there is lack of regular internal and external audit system as well as evaluation of financial results. Similarly very few public enterprises have been able to present their capital requirement functioning of finance department is not satisfactory and some public enterprises are even facing the under utilization of capacity.

Pradhan, (Vol.8, No. l, 1988), has published another article relating to working capital management. He studied on 'the demand for working capital by Nepalese corporation'. He analyzed the selected nine manufacturing public corporation with the 12 years data from 1973-1984. Regression equation has been adopted for the analysis. His study has summarized that the earlier studies concerning about the demand for cash and inventories by business firm did not report unanimous findings. A lot of controversies exist in respect to the presence of economics of scale, roles of capital cost, capacity utilization rates and the speed with which actual cash and inventories adjusted to describe cash and inventories respectively. To pooled regression, result shows the presence of economics of scale with respect to the demand for working capital and its various components. The regression results suggest strongly that the demand for working capital and its components is function of both sales and their capital cost. The estimated results show that the inclusion of capacity utilization variable in model seems to have contributed to the demand function cash and net working capital only. The effect of capacity utilization on the demand for inventories, receivables and gross working capital is doubtful.

Mahat (Vol. XII, No. 98, May 26 2004), also has published article relating to spontaneous resources working capital management. He has defined the three major sources of working capital i.e. equity financing, debt financing and spontaneous sources of financing, regarding the working capital management. Debt financing include short-term bank financing such as bank overdraft, cash credit, bills purchase and discounting, letter of credit etc. whereas spontaneous sources of working capital include trade credit, provisions and accrued expenses.

Mr. Mahat has defined that working capital management is one of the important pillars of corporate finance. However, Nepalese industries are facing difficulty in their survival by the cause of recession, which can bring best and worst in corporate finance such an environment should be efficient enough to cope with the possible

worst happenings in future for working capital management. He has said that managing the working capital resources for a profit making industries are routine affairs of just making payment and arranging collection of debtors. In contrast, the company in debt trouble, it is rather difficult to meet its working capital gap by way of debt financing, the company should have to bear interest, which may cause to increase in the percentage of operating expenses to the turnover and depletion in the profits. Therefore, spontaneous sources of working capital will be a better source for working capital in order to improve its performance.

Consequently, in a changed economic scenario, every company should realize that inability to manage working capital might land them in a vicious circle that can be hard to get out from. It is indeed essential for industries to tighten their belts and checks their financial stability to face and stand in forthcoming competitive day.

2.12 Review of Research Studies

Joshi, Thesis, T.U., 1986. has conducted study relating to Working Capital Management. He has analyzed the financial statement of Biratnagar Jute Mill for five years (2036/037 to 2040/41). This study has focused on problem of working capital management, and the current assets and current liabilities. He has used financial ratios as the major tool of his study. He found that inventories held the major share of current assets followed by debtors and very negligible cash balance. Mill's had poor liquidity position and financed by short-term sources. He found mills had not earned sufficient profit even to pay the interest on short-term loans. Moreover, he found the operation deficiencies caused by managerial imprudence and gross negligence in working capital management.

Giri, Thesis, T.U., 1986, in his study has attempted to evaluate working capital management of Balaju Textile Industry Limited (BTIL). The major findings of his study are no significant improvement in working capital during study period. Increased working capital was financed by sales of fixed assets or sources of share capital: Current Assets were financed by long term financing and high level of sluggish inventory’s amount to unnecessary tied-up of funds, impairment of profit and increased costs.

He has suggested for efficient working capital management of BTIL. It is better to fix a minimum target rate of return, make regular check to identify both excess and

deficient current assets to avoid risk in management of working capital, financing current assets from the appropriate combination of short term and long term sources to preserve liquidity and maintain stability; take necessary actions for disposing a huge inventory with tied up working capital, involved huge carrying cost risk of losses; sick position and working inefficiency of corporation should improve.

He has set only three research questions to analyze working capital management of BTIL, which is insufficient. He has used ratio analysis as a research tools. But he has not done analysis to evaluate the relationship of current assets components with total current assets. Similarly, he has set null hypothesis but has not tested it through appropriate tools to find out whether null hypothesis is accepted or rejected. So we can say it is not fully analytical type of research.

Shrestha, Thesis, T.U., 1988, has also conducted an analytical study of working capital management in Public sector brick factory. In his study he tried to make a comparative assessment of working capital management of public sector brick factories in Nepal. He has analyzed various components of working capital like cash, inventory, receivable and current liabilities. The study is based on two government brick factories; Harisiddhi and Bhaktapur brick factory. He found that there is no proper relation between liquidity turnover and profitability of two brick factories. There is no combination between fixed capital and working capital. The analysis indicates that the working capital portion is totally neglected. He has suggested using financial tools to forecast the working capital. The factories have to keep the record up to date according to standard format. The management must have to be serious regarding working capital management.

Bhandhari, Thesis, T.U., 2043, in his thesis entitled "Working Capital Management (A case study of Nepal Bank Limited), has done research work for the ten years period, 2034 to 2043 BS The major findings he has drawn from his study are as follows. The bank has heavy liquid assets that reflect the improper utilization of the banks fund due to heavy growth in deposit and other borrowed capital, the volume of share capital became insufficient. Rate of return on shareholders investment is considered insufficient; the bank could not fully utilize its fund and not paid attention to the portfolio management in investment.

Likewise, *Amatya, Thesis, T.U., 1993,* in his thesis entitled "An Appraisal of financial position of Nepal Bank Limited" has analyzed, examined and interpreted the financial position of the bank from FY1980/81 to 1989/90. The major findings of his appraisal are as follows:

- Regarding the liquidity management, the bank is in a bettor position. But the bank has been following a traditional credit policy to finance current assets.
- The bank is successful in deposit collection but it has always adopted conservative and traditional credit policy.
- The trade and commerce advances are playing major role in the credit composition of the bank. Although, the reserve of the bank is increasing gradually, the reserve plays a nominal role in the credit expansion control.
- The major portion of investment of the bank is in HMG's securities. And the volume of transaction is high in all respects but the bank does not show higher ratio of profit or it shows a decreasing trend of profit.

Shrestha, Thesis, T.U., 2049, has carried out a study on working capital management of Dairy Development Corporation Nepal (DDC). He has analyzed the financial statement of DDC for five fiscal years [1985-1989]. He has focused on the working capital management with respect to cash, credit and inventory, and analyzed the relationship between sales and different variables of working capital. For the purposes of the analysis, he has used ratio analysis and t-test as the major tools of his study.

He found the high level of current assets. Inventory has held the major share of current assets followed by cash and receivable respectively. He found the high liquidity positions and low-level of working capital turnover of DDC. Finally he found no functional relationship between total assets and current assets, current assets and cash, and current assets and receivable. There was proper relationship between current assets and share of inventory. He also found that DDC has followed the conservative working capital policy.

Pathak, Thesis, T.U., 1994, has carried out another study relating to working capital management. He has tried to make an evaluation of working capital management of Nepal Lube Oil Ltd. He analyzed the working capital management of the Oil Ltd. for five fiscal years from 2043/44 to 2047/48. He has focused on the working capital management with respect to cash credit and inventory management, and relationship

between sales and different variable of working capital. He has used ratio analysis; Karl Pearson's co-efficient of correlation (r) and t-test.

Major findings of his study were high portion of current assets, unfavorable liquidity position and very low level of cash. Inventories have occupied the major portion of current assets, but the share of finished goods stock is very low. Receivable has the second place in current assets and it is continuously growing. Finally he concluded that this company had adopted the moderate financing policy.

Poudel, Thesis, T.U., 1997, in his thesis entitled "A Comparative Analysis of Financial Performance between Nepal Bank Ltd. (NBL) and Nepal Grindlays Bank Ltd. (NGBL)." has drawn some major findings. Although the liquidity position of NBL is better than NGBL but on the whole the current assets of these banks are adequate to meet the current liabilities. NGBL has better credit position than NBL, in terms of short-term investment. It also found that NBL has better turnover and highly levered than NGBL. Joint-venture banks such as NGBL are rapidly growing, the overall profitability are higher but government owned commercial banks such as NBL has higher expenditure and the profit making capacity is lower and gradually decreasing.

K.C, Thesis, SDC, 2000, in his thesis entitled "Comparative Study of Working Capital Management of NBL and NABIL", aims to examine the management of working capital in NBL and NABIL. The specific objectives undertaken in his study are:

- To study the current assets and current Liabilities and their impact and relationship to each other of NBL and NABIL
- To analyze the comparative study of working capital management of NBL and NABIL.
- Recommendation & Suggestions for the improvement of working capital management NBL & NABIL in the future.

In his study he has mentioned the following findings:

- The average cash & bank balance and loan & advance are higher on NABIL than NBL. Management of loan and advances is more problematic in NBL than NABIL
- Interest income of NBL is better than NABIL.
- Liquidity management policy of these two banks are significantly different

- NABIL has the better utilization of deposits in income generating activity than NBL. It also shows that NABIL has better investment efficiency in loan and advances.
- Due to more conservative working capital policy, risk of insolvency is lesser but cost of fund is higher on NBL than NABIL.
- Profitability position of NABIL is far better although, NBL earned higher interest than NABIL.

Similarly, *Lamsal, Thesis, SDC, 2004*, had undertaken a study entitled "A Comparative Study of Working Capital Management of NABIL and Standard Chartered Bank Nepal Limited". The main objective of his study was to study the current assets and current liabilities and their impact on liquidity and profitability as well as to analyze the liquidity, assets utilization, long-term solvency and profitability position of selected banks.

He had analyzed five years published data from 2054/55 to 2060/61 of selected banks and mostly used statistical and financial tools to analyze them in order to achieve the set objectives.

After analyzing the secondary data of NABIL and SCBNL, *Mr. Lamsal* summarized his findings as "NABIL and SCBNL had maintained Current Ratio of 1.55 and 1.31 in an average respectively. Trend values of current ratios were negative. The average quick ratio of NABIL and SCBNL were 0.64 and 0.75 respectively. Liquidity of SCBNL was always better then NABIL during study period."

Furthermore, SCBNL had more short term and less costly resources of fund than NABIL. NABIL had better investment efficiency on loans and advances. Both banks follow conservative working capital policy though NABIL has more. SCBNL has better profitability than NABIL.

From the review of above mentioned bunch of research works, it is clear that there are very few of research work on comparative study of working capital management of commercial banks, especially between joint venture banks. And this study of working capital management of Nabil Bank Limited, Nepal Investment Bank Limited and Standard Chartered Bank Nepal Limited has been carried out with a view to fulfill that gap.

CHAPTER THREE

RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem. It refers to the various sequential steps that are to be adopted by a researcher during the course of studying the problem with certain objectives. This chapter refers to the overall research method from the theoretical aspects to the collection and analysis of data. This study covers quantitative methodology in a greater extent and also uses the descriptive part based on both technical aspects and logical aspect.

"Research methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objectives in view" (Kothari, 1994,:19). Therefore, we can conclude that research methodology tries to make clear view of the method and process adopted in the entire aspect of the study. It is also considered as the path from which researcher can systematically solve the research problem. This research tries to perform a well-designed quantative and qualitative research in a very clear and direct way using both financial and statistical tools. Detail research methods are described in the following headings

3.1 Research Design

This researcher is descriptive and analytical case study in nature. Selection of appropriate research design is necessary to meet the study objectives of any research. "Research design is a plan structure and strategy of investigation conceived so as to obtain answer to research questions and to control variances"(Kothari,1994: 43).

The study aims to portraying accurately on the working capital (or current assets and current liabilities) and its impact on overall financial position of sample banks. It is based on recent 5 years data from ***F/Y 2060/61*** **to** ***F/Y 2064/65***. The study has been conducted to assess the existing situation of working capital management of commercial joint venture banks of Nepal and describe the situation and events occurring at present. The research design followed for this study is basically a historical, empirical and descriptive-cum-analytical.

3.2 Population and Sample

The large group about which the generalization is made is called population under study, or the universe and small portion on which the study is made is called the sample of the study.

Nowadays a number of commercial banks have been emerging rapidly. Some have already been established and others are in the process of establishment. Currently, there are 25 commercial banks are in Nepal. In this study, all the commercial banks are population of the study. Among them NABIL, NIBL and SCBNL Banks have been selected as samples for the present study on the basis of good financial performance. The sample banks are the pioneer leading bank in the Nepal.

Financial statements of last five fiscal years from ***F/Y 2060/61*** **to** ***F/Y 2064/65*** have been taken as sample data for the comparative study of working capital management. These joint venture banks are chosen as they account for the considerable market share of the banking sectors.

3.3 Sources of data

Generally this study is based on secondary data. Published annual reports of the concerned banks are taken as basis source of data. The data relating to financial performance are directly obtained from the concerned banks. Similarly, related books, magazines, journals, articles, reports. Bulletins, data from Nepal Stock Exchange and Nepal Rastra Bank, Central Bureau of statistics, related website from internet etc. as well as other supplementary data and various economic surveys are also used. Previous related studies to the subject are also counted as source of information.

3.4 Nature of data

In case of data, some personal views and ideas of individual's respondent are collected. But in case of entire secondary data used in the study are basically of the following nature.

- Most of the data taken for the analysis is collected in the form of published by the concerned banks through their annual reports
- Since all the banks taken account in NEPSE, the figures are all most reliable and suitable tool

3.5 Tools and Techniques of Analysis.

Under this study, financial as well as statistical tools have been used to analyze the gathered data and information.

3.5.1 Financial Tools

In this research study various financial tools are employed for the analysis. There are various ratios but in this study some selected ratios among them are used. The main focus will be on Ratio Analysis. Ratio analysis is the most important tools of the financial analysis, which help to ascertain the financial conditions of the organizations. "Ratio analysis is such a power full tool of financial analysis that thought the help of it economic and financial position of business unit can be fully x-rayed." (Kothari, 1994, P 187). Ratios are calculated to obtain the better insight into real situation of working capital management of sample banks viz. NBL, NIBL and SCBNL. Various ratios are employed and grouped for the analysis of composition of working capital, liquidity position, activity or turnover position, profitability position and capital structure or leverage position

A. Composition of Working Capital

Working Capital refers to the resources of the firm that are used to conduct day to day operation that makes business successful. Simply, working capital refers to the current assets of the firms that can be converted into cash within a year. The main components are cash and bank balance, money at call or short notice, loan and advances and government securities.

Composition of working capital is analyzed by calculating the following ratios.

i. Current Assets to Total Assets Ratio

$$\text{Current Assets Ratio} = \frac{\text{Current Assets}}{\text{Total Assets}} \times 100\%$$

It measures what portion of total assets used in the current assets. Lower ratio shows the risk and profitability will increase and vice-versa

ii. Current Assets to Fixed Assets Ratio

$$\text{Current Assets to Fixed Assets Ratio} = \frac{\text{Current Assets}}{\text{Fixed Assets}} \times 100\%$$

The relation between current assets and fixed assets is shown by this ratio. Higher ratio of this means the company has sounds working capital position and vice-versa.

iii. Cash and Bank Balance to Current Assets Ratio

$$\text{Cash and Bank Balance to Current Assets Ratio} = \frac{\text{Cash \& Bank Balance}}{\text{Current Assets}} \times 100\%$$

What percent of current assets cover cash & bank balance is shown by this ratio. Lower the ratio means higher will be risk, profitability, and vice-versa.

iv. Cash and Bank Balance to Total Assets Ratio

$$\text{Cash and Bank Balance to Total Assets Ratio} = \frac{\text{Cash \& Bank Balance}}{\text{Total Assets}} \times 100\%$$

What percent of total assets cover cash & bank balance is shown by this ratio. Lower the ratio means higher will be risk, profitability, and vice-versa.

B. Liquidity Position

Liquidity position of a company is identified with the help of liquidity ratio, which measures the company's ability to pay its current obligations. It is employed to determine the short-term solvency position of the company. In other words, this ratio provides insight into the present cash solvency in the event of adverse financial condition. This ratio is used to measure the company's short-term obligations with short-term resources available at a given point of time. Therefore, it plays important role in the company.

i. Current Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

This ratio measures the short-term solvency, i.e. its ability to meet short-term obligations. Current ratio is calculated by dividing the current assets by current liabilities.

ii. Quick/Acid Test Ratio

$$\text{Quick/Acid Test Ratio} = \frac{\text{Quick assets}}{\text{Current Liabilities}}$$

Quick ratio is the ratio of quick/liquid assets to current liabilities. It establishes a relationship between quick/liquid assets and current liabilities. An asset is quick/liquid if it can be converted into cash immediately or reasonably soon without a loss of value. It is computed by deducting inventory and prepaid expenses from current assets.

iii. Cash and Bank Balance to Total Deposit Ratio (Excluding fixed deposit).

Cash and Bank Balance to Cash and Bank Balance

$$\text{Total Deposit Ratio} = \frac{\text{Total Deposit (Excluding Fixed Deposit)}}{} \times 100\%$$

This ratio is employed to measure whether cash and bank balance is sufficient to cover its current calls margin including deposits. It is calculated by dividing cash and bank balance by saving margin and current deposits (excluding fixed deposits).

iv. Saving Deposit to Total Deposit Ratio:

$$\text{Saving Deposit to Total Deposit Ratio} = \frac{\text{Saving Deposit}}{\text{Total Deposit}} \times 100\%$$

Saving deposit is interest bearing short-term deposit. The ratio is developed in order to find out the proportion of saving deposit, which is interest bearing and short-term in nature. It is find out by dividing the total amount of saving deposits by the amount of total deposit.

C. Activity or Turnover Position

Turnover Position/Activity Position shows the efficiency in assets management as well as effectiveness of the investment of resources in the company. These ratios are intended to measure the effectiveness of the employment of the resources in a business concern. Through these ratios, it is known whether the funds employed have been used effectively in the business activities or not.

i. Loan and Advances to Total Deposit Ratio

$$\text{Loan and Advances to Total Deposit Ratio} = \frac{\text{Loan and Advances}}{\text{Total Deposits}} \times 100\%$$

This ratio assesses to what extent, the banks are able to utilize the depositor's funds to earn profit by providing loans and advances. It is computed dividing the total amounts of loans and advances by total deposited funds. High ratio is the symptom of higher/proper utilization of funds and low ratio is the signal of balance remained unutilized or idle.

ii. Loan and Advances to Fixed Deposit Ratio:

$$\text{Loan and Advances to Fixed Deposit Ratio} = \frac{\text{Loan and Advances}}{\text{Fixed Deposits}} \times 100\%$$

This ratio examines that how many times the funds is used in loans and advances against fixed deposits. For commercial banks, fixed deposits are long-term interest bearing obligations, whereas investment in loans and advances are the main sources of earning. This ratio is computed dividing loans and advances by fixed deposit as under. A low ratio indicates idle cash balance. It means total funds not properly

utilized. This ratio examines to what extent the fixed deposits are utilized for income earning purpose.

iii. Loan and Advances to Saving Deposit Ratio:

$$\text{Loan and Advances to Savings Deposit Ratio} = \frac{\text{Loan and Advances}}{\text{Savings Deposits}} \times 100\%$$

This ratio assesses, how many times the fund is used to loans and advances against saving deposits. Saving deposits are interests bearing short-term obligation and the major sources of investment in loan and advances for income generation and the major sources of investment in loan and advances for income generating purpose by CBs. This ratio indicates how many times the short-term interest bearing deposits are utilized for generating the income. It is calculated by dividing the amount of loan and advances by total deposit in saving account.

D. Profitability Position

Profitability Position indicates the degree of success in achieving desired profit. It helps to find the efficiency of the organization. Various profitability ratios are calculated to measure the operating efficiency of business enterprises. Through profitability ratios the lender and investors want to decide whether to invest in a particular business or not. Some of the important profitability ratios used is as follows:

i. Interest Earned to Total Assets Ratio:

$$\text{Interest Earned to Total Assets Ratio} = \frac{\text{Interest Earned}}{\text{Total Assets}} \times 100\%$$

It is the ratio, which is formed to find out the percentage of the interest earned to total assets. This is derived by dividing the amount of interest earned by the total assets of the firms.

ii. Net Profit to Total Assets Ratio

$$\text{Net Profit to Total Assets Ratio} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \times 100\%$$

This ratio is very much crucial for measuring the profitability of funds invested in the banks assets. This ratio is commonly known as return on assets (***ROA***). It measures the return on assets. It is computed dividing the net profit after tax by total assets.

iii. Net Profit to Shareholders' Equity Ratio:

$$\text{Net Profit to Shareholders' Equity Ratio} = \text{Net Profit} \times 100\%$$

Net Worth

This ratio is calculated to see the profitability of owners' investment. In other words it tells us the earning power on shareholders' book investment and is frequently used in comparing two or more firms in an industry. This ratio is commonly known as return on equity (***ROE***). The return on equity is net profit divided by net worth.

iv. Net Profit to Total Deposit Ratio:

$$\text{Net Profit to Total Assets Ratio} = \frac{\text{Net Profit}}{\text{Total Deposit}} \times 100\%$$

This ratio is used for measuring the internal rate of return from deposits. It is computed dividing the net profit by total deposits. Higher ratio indicates the return from investment on loans and advances are desirable and lower ratio indicates the funds are not properly mobilizing.

v. Cost of Services to Total Assets Ratio:

$$\text{Cost of Services to Total Assets Ratio} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \times 100\%$$

A sound management always tries to utilize its larger amount of assets with minimum cost. This ratio is useful in measuring the assets utilization with cost of services. The ratio is computed dividing the cost of services by total assets.

E. Capital Structure or Leverage Position

Leverage refers to the ratio of debt to equity in the capital structure of the firm. Debt and equity are long-term obligations and remaining parts in the liability side of the balance sheet are termed as short-term obligations. Both types of obligations are required in forming the capital structure or the firm. The long-term financial position of the firm is determined by the leverage or capital structure. The different leverage ratios are maintained to measure the financial risk or proportion of outsiders fund and owners' capital used by the firm

i. Long-term Debt to Net worth Ratio:

$$\text{Long-term Debt to Net worth Ratio} = \frac{\text{Long-term Debt}}{\text{Net Worth}} \times 100\%$$

Long-term debt refers to the amount of fixed deposits and loans of the banks. The ratio measures the proportion of outsiders and owners fund employed in the capitalization of banks. It is calculated by dividing the fixed obligations of the banks by owners claim.

ii. Net Fixed Assets to Long-term Debt Ratio:

$$\text{Net Fixed Assets to Long-term Debt Ratio} = \frac{\text{Net Fixed Assets}}{\text{Long-term Debt}} \times 100\%$$

Net fixed assets are applied to both physical and financial assets. This ratio is calculated to find out how many times not fixed assets are compared to the fixed liabilities. It is computed dividing net fixed assets by long-term debt.

3.5.2 Statistical Tools:

In this research study some statistical tools are also used for analysis to support the objective of the research work. The tools are as follows.

A. Trend Analysis

The tools that are used to show grandly increase or decrease of variables over a period of time is known as trend analysis. With the help of trend analysis the tendency of variables over the period can be seen clearly.

B. Correlation Analysis

Correlation is the statistical tools that we can use to describe the degree to which one variable is linearly related to another (1991, P. 505). The coefficient of correlation measures the degree of relationship between two sets of figures. Among the various methods of finding out coefficient of correlation, Karl Person's method is applied in the study. The result of co-efficient of correlation is always between +1 and -1, when r is +1 it means there is perfect relationship between two variables and vice versa. When r is 0, it means there is no relationship between two variables. In this study, simple coefficient of correlation is used to examine the relationship of different factors with working capital and other variables. Under this study following co-efficient of correlation are calculated.

- Co-efficient of correlation between Investment on Government Security and Total Deposits.

- Co-efficient of correlation between Loan and Advances and Total Deposits.
- Co-efficient of correlation between Loan and Advances and Net Profit.
- Co-efficient of correlation between Cash and Bank Balance and Current Liabilities.

C. Hypothesis Test

Hypothesis test is one of the important applications of statistical interference in decision making. In hypothesis test, an assumption is made about the population parameter. To test whether the assumption or hypothesis is right or not, a sample is selected from the population and the sample statistic is obtained. The main goal of hypothesis test it to test the characteristics of hypothesized population parameter based on sample information whether the difference between the population parameter and sample static is significant or not. Smaller the difference, the sample mean is close to the hypothesized value and, large the difference the hypothesized value has low chance to be correct.

Generally, two complementary are set up at one time i.e. a) Null Hypothesis (H_0) and b) Alternative Hypothesis (H_1). A statistical hypothesis or assumption made about the population parameter to testing its validity for the purpose of possible acceptance is called null hypothesis and a complementary hypothesis to the null hypothesis is called alternative hypothesis. Among these two hypotheses if one is accepted, then the other hypothesis is rejected and vice versa.

In this study following three hypothesis sets are set:

- There is no significant difference in composition of working capital among NABIL, NIBL and SCBNL.
- There is no significant difference in liquidity position among NABIL, NIBL and SCBNL.
- There is no significant difference in profitability position among NABIL, NIBL and SCBNL.

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Nepal Investment Bank Limited: - *http://www.nibl.com.np*

Standard Chartered Bank Nepal Limited: - *http://www.standardchartered.com*

ANNEXES

Appendix-1

Nabil Bank Limited (NABIL)
Kantipath, Kathmandu
Comparative Balance Sheet for Five Fiscal Years

(Rs. in million)

PARTICULARS/YEARS	2060/61	2061/62	2062/63	2063/64	2064/65
TOTAL ASSETS (Working Funds)	**15024.20**	**18367.15**	**17629.25**	**16562.61**	**16745.49**
A. CURRENT ASSETS	14788.91	13161.68	13313.40	13868.30	14244.04
1. Cash & Bank Balance	1088.75	812.90	1051.82	1144.77	970.49
2. Money at Call & Short Notice	4631.83	522.55	31.37	670.20	918.73
3. Loans & Advances	7334.76	8324.44	7437.90	7755.95	8189.99
i. Loans, Cash Cr. & Overdrafts	6902.19	7993.28	7135.54	7454.26	7953.76
ii. Bill Discounted & Purchase	432.57	331.16	302.36	301.69	236.23
4. Investment	1234.82	2733.96	4121.29	3588.77	3672.63
i. Govt. Securities	1233.82	2732.96	4120.29	3588.77	3672.63
ii. Other	1.00	1.00	1.00	0.00	0.00
5. Interest Receivable	373.01	372.35	171.09	177.60	174.49
6. Misc. Current Assets	125.74	395.48	499.93	531.01	317.71
B. FIXED ASSET (NET)	219.17	235.12	237.63	251.91	338.13
7. Gross Block	327.55	364.13	395.66	433.12	540.17
8. Less Depreciation	108.38	129.01	158.03	181.21	212.04
9. INVESTMENTS	16.12	4970.35	4078.22	2442.40	2163.32
i. Shares	16.12	18.82	22.22	22.22	22.22
ii. Debentures	0.00	0.00	0.00	0.00	0.00
iii. Other	0.00	4951.53	4056.00	2420.18	2141.10
C. MISC. ASSETS	0.00	0.00	0.00	0.00	0.00
TOTAL LIABILITIES	14040.13	17304.31	16482.83	15248.43	15263.80
D. CURRENT LIABILITIES	13977.29	17226.21	16384.73	15135.42	15153.00
10. Deposit & Other A/C'S	12779.51	15839.01	15506.44	13447.65	14119.03
i. Saving	4150.19	4917.14	4972.06	5229.72	5994.12
ii. Fixed	5278.27	7667.54	2446.85	2252.54	2310.57
iii. Current	2880.65	2850.97	2703.82	3034.00	2688.97
iv. Call & Short Deposit	0.00	0.00	4944.96	2540.70	2801.41
v. Other	470.40	403.36	438.75	390.69	323.97
11. Short Term Loan	285.20	0.00	417.30	961.46	229.66
12. Bills Payable	38.07	69.70	67.75	108.94	173.50
13. Tax Provision	0.00	0.00	0.00	0.00	0.00
14. Staff Bonus	54.97	52.60	44.12	66.36	71.94
15. Dividend Payables	12.32	143.52	11.80	94.14	36.87
16. Misc. Current Liabilities	807.22	1121.38	337.32	456.86	522.00
E. DEFERRED LIABILITIES	62.84	78.10	98.10	113.01	110.80
i. Long Term Loan	0.00	0.00	0.00	0.00	0.00
ii. Other Differed Liabilities	62.84	78.10	98.10	113.01	110.80
NET WORTH	**984.07**	**1062.83**	**1146.42**	**1314.18**	**1481.69**
F. SHARE CAPITAL	392.80	491.65	491.65	491.65	491.65
17. Ordinary Share	50.00	50.00	50.00	50.00	50.00
18. Bonus Share	342.80	441.65	441.65	441.65	441.65
19. Preference Share	0.00	0.00	0.00	0.00	0.00
G. SHAREHOLDERS' RESERVES	591.27	571.18	654.77	822.53	990.03
20. General Reserve	456.23	514.50	568.83	652.08	743.20
21. Capital Reserve	0.07	0.07	49.24	103.32	162.87
22. Exchange Fluctuation Reserve	22.19	25.11	28.26	30.01	33.90
23. Other Reserve	4.33	5.33	6.33	7.33	20.27
24. Un-appropriated Profit(Loss)	108.45	26.17	2.11	29.79	29.79
Bills for Collection(contra)	**61.67**	**51.83**	**0.00**	**0.00**	**0.00**
Acceptances etc.(contra)	**228.87**	**389.91**	**0.00**	**0.00**	**0.00**
BALANCE SHEET TOTAL	**15314.74**	**18808.88**	**17629.25**	**16562.61**	**16745.49**

Source: Official website of Nepal Stock Exchange (http://www.nepalstock.com) and Annual Reports of NABIL.

Appendix-2

Nepal Investment Bank Limited (NIBL)
Durbar Marg, Kathmandu
Comparative Balance Sheet for Five Fiscal Years

(Rs. in million)

PARTICULARS/YEARS	2060/61	2061/62	2062/63	2063/64	2064/65
TOTAL ASSETS (Working Funds)	**3796.70**	**5127.36**	**4973.90**	**9014.24**	**13255.50**
A. CURRENT ASSETS	3744.09	3423.11	3340.25	7517.89	11144.33
1. Cash & Bank Balance	362.92	522.86	338.92	926.53	1226.92
2. Money at Call & Short Notice	1170.72	0.00	0.00	40.00	310.00
3. Loans & Advances	2070.68	2429.03	2564.43	5772.14	7130.13
i. Loans, Cash Cr. & Overdrafts	1984.24	2318.91	2518.06	5648.03	6917.80
ii. Bill Discounted & Purchase	86.44	110.12	46.37	124.11	212.33
4. Investment	0.00	300.00	224.40	400.00	2001.10
i. Govt. Securities	0.00	300.00	224.40	400.00	2001.10
ii. Other	0.00	0.00	0.00	0.00	0.00
5. Interest Receivable	71.25	103.50	55.64	83.47	77.01
6. Misc. Current Assets	68.52	67.72	156.86	295.75	399.17
B. FIXED ASSET (NET)	39.92	33.98	35.89	191.11	249.79
7. Gross Block	83.53	83.94	84.56	245.55	326.88
8. Less Depreciation	43.61	49.96	48.67	54.44	77.09
9. INVESTMENTS	12.69	1670.27	1597.76	1305.24	1861.38
i. Shares	12.69	12.69	13.89	13.89	13.89
ii. Debentures	0.00	0.00	0.00	0.00	0.00
iii. Other	0.00	1657.58	1583.87	1291.35	1847.49
C. MISC. ASSETS	0.00	0.00	0.00	0.00	0.00
TOTAL LIABILITIES	3386.46	4658.27	4450.43	8375.71	12526.45
D. CURRENT LIABILITIES	3362.44	4629.02	4410.21	8359.46	12506.95
10. Deposit & Other A/C'S	2983.28	4256.21	4174.76	7922.75	11524.68
i. Saving	997.48	1259.57	1278.79	2434.05	4886.10
ii. Fixed	1093.65	1658.66	945.93	1672.82	2294.68
iii. Current	581.91	769.01	785.40	979.01	1500.11
iv. Call & Short Deposit	221.69	502.51	1051.89	2610.41	2556.81
v. Other	88.55	66.46	112.75	226.46	286.98
11. Short Term Loan	140.00	120.00	98.50	6.83	361.50
12. Bills Payable	8.85	5.18	6.82	31.63	57.84
13. Tax Provision	0.00	0.00	2755.76	3326.70	1.46
14. Staff Bonus	11.77	10.43	8.68	18.91	25.72
15. Dividend Payables	4.35	5.38	1.81	1.69	5.25
16. Misc. Current Liabilities	214.19	231.82	119.64	377.65	530.50
E. DEFERRED LIABILITIES	24.02	29.25	40.22	16.25	19.50
i. Long Term Loan	0.00	0.00	0.00	0.00	0.00
ii. Other Differed Liabilities	24.02	29.25	40.22	16.25	19.50
NET WORTH	**410.24**	**469.08**	**523.46**	**638.53**	**729.05**
F. SHARE CAPITAL	135.35	169.98	169.98	295.29	295.29
17. Ordinary Share	60.00	60.00	60.00	116.66	116.66
18. Bonus Share	75.35	109.98	109.98	178.63	178.63
19. Preference Share	0.00	0.00	0.00	0.00	0.00
G. SHAREHOLDERS' RESERVES	274.89	299.10	353.48	343.25	433.75
20. General Reserve	222.48	233.78	245.20	268.70	299.24
21. Capital Reserve	33.84	0.00	67.99	29.53	59.06
22. Exchange Fluctuation Reserve	13.56	15.40	16.61	16.58	17.90
23. Other Reserve	0.00	0.03	0.03	0.03	0.03
24. Un-appropriated Profit(Loss)	5.01	49.89	23.65	28.40	14.66
Bills for Collection(contra)	**70.77**	**31.16**	**0.00**	**0.00**	**0.00**
Acceptances etc.(contra)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
BALANCE SHEET TOTAL	**3867.47**	**5158.51**	**4973.89**	**9014.24**	**13255.50**

Source: Official website of Nepal Stock Exchange (http://www.nepalstock.com) and Annual Reports of NIBL.

Appendix-3

Standard Chartered Bank Nepal Limited (SCBNL)
Naya Baneshwor, Kathmandu
Comparative Balance Sheet for Five Fiscal Years

(Rs. in million)

PARTICULARS/YEARS	2060/61	2061/62	2062/63	2063/64	2064/65
TOTAL ASSETS (Working Funds)	**16832.23**	**19357.18**	**18443.07**	**21000.50**	**23642.06**
A. CURRENT ASSETS	16650.32	19224.18	18330.82	20797.60	23494.66
1. Cash & Bank Balance	1020.46	961.05	825.26	1512.30	2023.17
2. Money at Call & Short Notice	7243.16	2612.00	2061.96	1657.91	2218.60
3. Loans & Advances	4857.17	5763.13	5364.00	5695.82	6410.24
i. Loans, Cash Cr. & Overdrafts	4658.17	5660.80	5248.36	5574.06	6322.85
ii. Bill Discounted & Purchase	199.00	102.33	115.64	121.76	87.39
4. Investment	3338.67	9547.98	9264.68	10346.49	11349.14
i. Govt. Securities	3338.67	4811.01	5784.72	6722.83	7948.22
ii. Other	0.00	4736.97	3479.96	3623.66	3400.92
5. Interest Receivable	154.69	139.03	105.21	121.64	146.57
6. Misc. Current Assets	36.17	200.99	709.71	1463.44	1346.92
B. FIXED ASSET (NET)	170.72	121.81	101.06	191.71	136.23
7. Gross Block	296.55	262.04	261.87	415.22	404.48
8. Less Depreciation	125.83	140.23	160.81	223.51	268.25
9. INVESTMENTS	11.19	11.19	11.19	11.19	11.19
i. Shares	11.19	11.19	11.19	11.19	11.19
ii. Debentures	0.00	0.00	0.00	0.00	0.00
iii. Other	0.00	0.00	0.00	0.00	0.00
C. MISC. ASSETS	0.00	0.00	0.00	0.00	0.00
TOTAL LIABILITIES	**15817.40**	**18245.18**	**17207.63**	**19631.59**	**22146.31**
D. CURRENT LIABILITIES	15781.19	18196.01	17150.05	19569.38	**22086.19**
10. Deposit & Other A/C'S	12568.49	15430.05	15835.75	18755.64	21161.44
i. Saving	6632.70	8404.61	9441.91	10633.16	12771.83
ii. Fixed	2651.65	3236.03	2264.77	1948.60	1428.49
iii. Current	2417.09	3279.43	3808.39	5768.62	5816.94
iv. Call & Short Deposit	274.59	235.62	101.12	185.20	941.00
v. Other	592.46	274.36	219.56	220.06	203.18
11. Short Term Loan	2430.21	1666.71	684.72	79.16	78.28
12. Bills Payable	25.99	35.21	51.40	54.84	59.02
13. Tax Provision	0.00	0.00	0.00	0.00	0.00
14. Staff Bonus	72.78	85.48	72.15	76.08	85.95
15. Dividend Payables	5.30	212.80	8.11	9.47	10.72
16. Misc. Current Liabilities	678.42	765.76	497.92	594.19	690.78
E. DEFERRED LIABILITIES	36.21	49.17	57.58	62.21	60.12
i. Long Term Loan	0.00	0.00	0.00	0.00	0.00
ii. Other Differed Liabilities	36.21	49.17	57.58	62.21	60.12
NET WORTH	**1014.85**	**1112.02**	**1235.49**	**1368.91**	**1495.75**
F. SHARE CAPITAL	339.55	339.55	339.55	339.55	1000.00
17. Ordinary Share	50.00	50.00	50.00	50.00	678.26
18. Bonus Share	289.55	289.55	289.55	289.55	321.74
19. Preference Share	0.00	0.00	0.00	0.00	0.00
G. SHAREHOLDERS' RESERVES	675.30	772.47	895.94	1029.36	1121.10
20. General Reserve	508.88	595.05	679.10	679.10	749.28
21. Capital Reserve	0.00	0.00	0.00	33.95	37.46
22. Exchange Fluctuation Reserve	71.89	77.78	85.97	100.32	116.77
23. Other Reserve	0.00	0.00	0.00	0.00	0.00
24. Un-appropriated Profit(Loss)	94.53	99.64	130.87	215.99	217.59
Bills for Collection(contra)	**159.56**	**136.24**	**0.00**	**0.00**	**0.00**
Acceptances etc.(contra)	**163.13**	**209.98**	**0.00**	**0.00**	**0.00**
BALANCE SHEET TOTAL	**17154.94**	**19703.42**	**18443.12**	**21000.50**	**23642.06**

Source: Official website of Nepal Stock Exchange (http://www.nepalstock.com) and Annual Reports of SCBNL.

Appendix-4

Nabil Bank Limited (NABIL)
Kantipath, Kathmandu
Comparative Profit & Loss A/C for Five Fiscal Years

(Rs. in million)

PARTICULARS/YEARS	2060/61	2061/62	2062/63	2063/64	2064/65
A. OPERATING INCOME	**1309.11**	**1573.31**	**1639.11**	**1340.51**	**1333.66**
1. Interest (Earned)	1047.03	1266.70	1120.18	1017.87	1001.62
2. Commission & Discount	139.59	146.84	114.34	144.41	135.96
3. Exchange Income	122.19	159.51	154.22	144.08	157.32
4. Dividend	0.30	0.26	0.00	0.00	0.00
5. Other	0.00	0.00	250.37	34.15	38.75
B. COST OF SERVICES	**530.93**	**724.22**	**606.96**	**527.93**	**463.78**
6. Interest Paid	432.96	578.36	462.08	317.35	282.94
i. On Borrowings	18.68	13.57	5.31	9.85	17.47
ii. On Deposit	414.28	564.79	456.77	307.50	265.47
iii. Others	0.00	0.00	0.00	0.00	0.00
7. Salaries, Allowances & P.F.	97.97	145.86	144.88	210.58	180.84
C. 8. Provision for Bonus	54.97	52.60	44.12	66.36	71.94
D. 9. Other General Expenses	203.77	298.50	538.70	182.73	187.38
E.10. GROSS PROFIT	**519.44**	**497.99**	**449.33**	**563.49**	**610.56**
F.11. Depreciation	25.01	26.27	39.75	35.04	46.27
G.12. OPERATING PROFIT	**494.43**	**471.72**	**409.58**	**528.45**	**564.29**
H.13. Income From Other Sources	0.31	1.64	0.00	86.95	92.78
I.14. PRE-TAX PROFIT	**494.74**	**473.36**	**409.58**	**615.40**	**657.07**
J.15. Provision For Taxes	165.62	181.99	137.95	199.15	201.76
K.16. NET PROFIT	**329.12**	**291.37**	**271.63**	**416.25**	**455.31**

Source: Official website of Nepal Stock Exchange (http://www.nepalstock.com) and Annual Reports of NABIL.

Appendix-5

Nepal Investment Bank Limited (NIBL)
Durbar Marg, Kathmandu
Comparative Profit & Loss A/C for Five Fiscal Years

(Rs. in million)

PARTICULARS/YEARS	2060/61	2061/62	2062/63	2063/64	2064/65
A. OPERATING INCOME	**350.25**	**421.58**	**415.68**	**577.44**	**911.94**
1. Interest (Earned)	279.86	349.75	326.22	459.51	731.40
2. Commission & Discount	18.35	16.20	16.20	40.81	55.75
3. Exchange Income	44.80	49.83	42.86	50.83	87.98
4. Dividend	0.00	0.00	0.00	0.00	0.00
5. Other	7.24	5.80	30.40	26.29	36.81
B. COST OF SERVICES	**138.98**	**194.25**	**172.16**	**250.50**	**415.95**
6. Interest Paid	115.73	163.15	130.44	189.21	311.19
i. On Borrowings	2.76	2.05	2.12	5.91	1.16
ii. On Deposit	112.97	161.10	128.32	183.30	310.03
iii. Others	0.00	0.00	0.00	0.00	0.00
7. Salaries, Allowances & P.F.	23.25	31.10	41.72	61.29	89.75
C. 8. Provision for Bonus	11.77	10.43	8.68	18.91	25.72
D. 9. Other General Expenses	84.40	114.25	151.25	126.50	127.42
E.10. GROSS PROFIT	**115.10**	**102.65**	**83.59**	**181.53**	**253.10**
F.11. Depreciation	9.32	8.82	8.59	11.87	23.40
G.12. OPERATING PROFIT	**105.78**	**93.83**	**75.00**	**169.66**	**229.70**
H.13. Income From Other Sources	0.11	0.00	3.10	0.49	1.77
I.14. PRE-TAX PROFIT	**105.89**	**93.83**	**78.10**	**170.15**	**231.47**
J.15. Provision For Taxes	33.23	37.44	21.01	53.33	78.80
K.16. NET PROFIT	**72.66**	**56.39**	**57.09**	**116.82**	**152.67**

Source: Official website of Nepal Stock Exchange (http://www.nepalstock.com) and Annual Reports of NIBL.

Appendix-6

Standard Chartered Bank Nepal Limited (SCBNL)
Naya Baneshwor, Kathmandu
Comparative Profit & Loss A/C for Five Fiscal Years

(Rs. in million)

PARTICULARS/YEARS	2060/61	2061/62	2062/63	2063/64	2064/65
A. OPERATING INCOME	**1366.92**	**1640.26**	**1441.72**	**1499.21**	**1578.35**
1. Interest (Earned)	1052.36	1242.00	1013.64	1001.36	1042.18
2. Commission & Discount	154.34	179.46	163.46	215.20	198.95
3. Exchange Income	157.08	214.86	228.10	232.52	273.05
4. Dividend	0.00	0.00	0.00	0.00	0.00
5. Other	3.14	3.02	36.52	50.13	64.17
B. COST OF SERVICES	**513.48**	**574.49**	**424.87**	**383.46**	**406.92**
6. Interest Paid	425.93	472.37	298.36	255.13	272.24
i. On Borrowings	49.16	97.99	22.67	10.70	15.53
ii. On Deposit	376.77	374.38	275.69	244.43	256.71
iii. Others	0.00	0.00	0.00	0.00	0.00
7. Salaries, Allowances & P.F.	87.55	102.12	126.51	128.33	134.68
C. 8. Provision for Bonus	72.78	85.48	72.15	76.08	85.95
D. 9. Other General Expenses	162.93	269.27	258.96	261.27	253.96
E.10. GROSS PROFIT	**617.73**	**711.02**	**685.74**	**778.39**	**831.52**
F.11. Depreciation	29.90	47.74	27.40	67.61	66.20
G.12. OPERATING PROFIT	**587.83**	**663.28**	**658.34**	**710.78**	**765.32**
H.13. Income From Other Sources	5.88	10.98	5.10	4.39	8.27
I.14. PRE-TAX PROFIT	**593.71**	**674.26**	**663.44**	**715.17**	**773.59**
J.15. Provision For Taxes	201.12	243.43	184.23	208.22	235.79
K.16. NET PROFIT	**392.59**	**430.83**	**479.21**	**506.95**	**537.80**

Source: Official website of Nepal Stock Exchange (http://www.nepalstock.com) and Annual Reports of SCBNL.

Appendix-7

Calculation of Trend Value of Cash and Bank Balance to Current Assets Ratio

FY (X)	X^2	NABIL			NIBL			SCBNL		
		Y_1	XY_1	$Yc_1=a+bx$	Y_2	XY_2	$Yc_2=a+bx$	Y_3	XY_3	$Yc_3=a+bx$
-2	4	7.36	-14.72	7.11	9.69	-19.39	11.75	6.13	-12.26	4.86
-1	1	6.18	-6.18	7.20	15.27	-15.27	11.72	5.00	-5.00	5.58
0	0	7.90	0.00	7.30	10.15	0.00	11.69	4.50	0.00	6.30
1	1	8.25	8.25	7.40	12.32	12.32	11.66	7.27	7.27	7.03
2	4	6.81	13.63	7.50	11.01	22.02	11.63	8.61	17.22	7.75
	$\sum X^2=10$	$\sum Y_1=36.51$	$\sum XY_1=0.98$		$\sum Y_2=58.45$	$\sum XY_2=-0.32$		$\sum Y_3=31.51$	$\sum XY_3=7.24$	

NABIL

$$a = \frac{\sum Y_1}{N} = \frac{36.51}{5} = 7.30$$

$$b = \frac{\sum XY_1}{\sum X^2} = \frac{0.98}{10} = 0.10$$

NIBL

$$a = \frac{\sum Y_2}{N} = \frac{58.45}{5} = 11.69$$

$$b = \frac{\sum XY_2}{\sum X^2} = \frac{-0.32}{10} = -0.03$$

SCBNL

$$a = \frac{\sum Y_3}{N} = \frac{31.51}{5} = 6.30$$

$$b = \frac{\sum XY_3}{\sum X^2} = \frac{7.24}{10} = 0.72$$

Appendix-8

Calculation of Trend Value of Money at Call or Short Notice to Current Assets Ratio

FY (X)	X^2	NABIL			NIBL			SCBNL		
		Y_1	XY_1	$Yc_1=a+bx$	Y_2	XY_2	$Yc_2=a+bx$	Y_3	XY_3	$Yc_3=a+bx$
-2	4	31.32	-62.64	19.14	31.27	-62.54	18.20	43.50	-87.00	31.90
-1	1	3.97	-3.97	14.25	0.00	0.00	12.56	13.59	-13.59	24.52
0	0	0.24	0.00	9.36	0.00	0.00	6.92	11.25	0.00	17.15
1	1	4.83	4.83	4.47	0.53	0.53	1.27	7.97	7.97	9.78
2	4	6.45	12.90	-0.41	2.78	5.56	-4.37	9.44	18.89	2.40
	$\sum X^2=10$	$\sum Y_1=46.81$	$\sum XY_1=-48.88$		$\sum Y_2=34.58$	$\sum XY_2=-56.44$		$\sum Y_3=85.75$	$\sum XY_3=-73.73$	

NABIL

$$a = \frac{\sum Y_1}{N} = \frac{46.81}{5} = 9.36$$

$$b = \frac{\sum XY_1}{\sum X^2} = \frac{-48.88}{10} = -4.39$$

NIBL

$$a = \frac{\sum Y_2}{N} = \frac{34.58}{5} = 6.92$$

$$b = \frac{\sum XY_2}{\sum X^2} = \frac{-56.44}{10} = -5.64$$

SCBNL

$$a = \frac{\sum Y_3}{N} = \frac{5.75}{5} = 17.15$$

$$b = \frac{\sum XY_3}{\sum X^2} = \frac{-73.73}{10} = -7.37$$

Appendix-9

Calculation of Trend Value of Loan and advances to Current Assets Ratio

FY (X)	X^2	NABIL			NIBL			SCBNL		
		Y_1	XY_1	$Yc_1=a+bx$	Y_2	XY_2	$Yc_2=a+bx$	Y_3	XY_3	$Yc_3=a+bx$
-2	4	49.60	49.60	49.60	55.31	-110.61	64.13	29.17	-58.34	29.89
-1	1	63.25	63.25	63.25	70.96	-70.96	66.44	29.98	-29.98	29.25
0	0	55.87	55.87	55.87	76.77	0.00	68.76	29.26	0.00	28.62
1	1	55.93	55.93	55.93	76.78	76.78	71.08	27.39	27.39	27.98
2	4	57.50	115.00	124.35	63.98	127.96	73.39	27.28	54.57	27.34
	$\sum X^2=10$	$\sum Y_1=282.14$	$\sum XY_1=339.63$		$\sum Y_2=343.80$	$\sum XY_2=23.17$		$\sum Y_3=143.08$	$\sum XY_3=-6.37$	

NABIL

$$a = \frac{\sum Y_1}{N} = \frac{282.14}{5} = 56.43$$

$$b = \frac{\sum XY_1}{\sum X^2} = \frac{339.63}{10} = 33.96$$

NIBL

$$a = \frac{\sum Y_2}{N} = \frac{343.80}{5} = 68.76$$

$$b = \frac{\sum XY_2}{\sum X^2} = \frac{23.17}{10} = 2.32$$

SCBNL

$$a = \frac{\sum Y_3}{N} = \frac{143.08}{5} = 28.62$$

$$b = \frac{\sum XY_3}{\sum X^2} = \frac{-6.37}{10} = -0.64$$

Appendix-10

Calculation of Trend Value of Government Securities to Current Assets Ratio

FY (X)	X^2	NABIL			NIBL			SCBNL		
		Y_1	XY_1	$Yc_1=a+bx$	Y_2	XY_2	$Yc_2=a+bx$	Y_3	XY_3	$Yc_3=a+bx$
-2	4	8.34	8.34	8.34	0.00	0.00	1.26	20.05	-40.10	21.59
-1	1	20.76	20.76	20.76	8.76	-8.76	4.50	25.03	-25.03	25.07
0	0	30.95	30.95	30.95	6.72	0.00	7.75	31.56	0.00	28.56
1	1	25.88	25.88	25.88	5.32	5.32	11.00	32.33	32.33	32.04
2	4	25.78	51.57	49.84	17.96	35.91	14.25	33.83	67.66	27.34
	$\sum X^2=10$	$\sum Y_1=111.72$	$\sum XY_1=137.50$		$\sum Y_2=38.76$	$\sum XY_2=32.47$		$\sum Y_3=142.79$	$\sum XY_3=34.86$	

NABIL

$$a = \frac{\sum Y_1}{N} = \frac{111.72}{5} = 22.34$$

$$b = \frac{\sum XY_1}{\sum X^2} = \frac{137.50}{10} = 13.75$$

NIBL

$$a = \frac{\sum Y_2}{N} = \frac{38.76}{5} = 7.75$$

$$b = \frac{\sum XY_2}{\sum X^2} = \frac{32.47}{10} = 3.25$$

SCBNL

$$a = \frac{\sum Y_3}{N} = \frac{142.79}{5} = 28.56$$

$$b = \frac{\sum XY_3}{\sum X^2} = \frac{34.86}{10} = 3.49$$

Appendix-11

Calculation of Trend Value of Current Ratio

FY (X)	X^2	NABIL			NIBL			SCBNL		
		Y_1	XY_1	$Yc_1=a+bx$	Y_2	XY_2	$Yc_2=a+bx$	Y_3	XY_3	$Yc_3=a+bx$
-2	4	1.06	1.06	1.06	1.11	-2.23	0.94	1.06	-2.11	1.06
-1	1	0.76	0.76	0.76	0.74	-0.74	0.91	1.06	-1.06	1.06
0	0	0.81	0.81	0.81	0.76	0.00	0.88	1.07	0.00	1.06
1	1	0.92	0.92	0.92	0.90	0.90	0.85	1.06	1.06	1.06
2	4	0.94	1.88	1.98	0.89	1.78	0.82	1.06	2.13	27.34
	$\sum X^2=10$	$\sum Y_1=4.49$	$\sum XY_1=5.43$		$\sum Y_2=4.40$	$\sum XY_2=-0.29$		$\sum Y_3=5.31$	$\sum XY_3=-0.02$	

NABIL

$$a = \frac{\sum Y_1}{N} = \frac{111.72}{5} = 0.90$$

$$b = \frac{\sum XY_1}{\sum X^2} = \frac{137.50}{10} = 0.54$$

NIBL

$$a = \frac{\sum Y_2}{N} = \frac{38.76}{5} = 0.88$$

$$b = \frac{\sum XY_2}{\sum X^2} = \frac{32.47}{10} = -0.03$$

SCBNL

$$a = \frac{\sum Y_3}{N} = \frac{142.79}{5} = 1.06$$

$$b = \frac{\sum XY_3}{\sum X^2} = \frac{34.86}{10} = 0.00$$

Appendix-12

Calculation of Trend Value of Quick Ratio

FY (X)	X^2	NABIL			NIBL			SCBNL		
		Y_1	XY_1	$Yc_1=a+bx$	Y_2	XY_2	$Yc_2=a+bx$	Y_3	XY_3	$Yc_3=a+bx$
-2	4	0.50	-1.00	0.38	0.46	-0.91	0.31	0.74	-1.47	0.62
-1	1	0.24	-0.24	0.37	0.18	-0.18	0.28	0.46	-0.46	0.58
0	0	0.32	0.00	0.36	0.13	0.00	0.24	0.51	0.00	0.55
1	1	0.36	0.36	0.34	0.16	0.16	0.21	0.51	0.51	0.52
2	4	0.37	0.73	0.33	0.28	0.57	0.17	0.55	1.10	0.49
	$\sum X^2=10$	$\sum Y_1=1.78$	$\sum XY_1=-0.14$		$\sum Y_2=1.21$	$\sum XY_2=-0.36$		$\sum Y_3=2.76$	$\sum XY_3=-0.32$	

NABIL

$$a = \frac{\sum Y_1}{N} = \frac{1.78}{5} = 0.36$$

$$b = \frac{\sum XY_1}{\sum X^2} = \frac{-0.14}{10} = -0.01$$

NIBL

$$a = \frac{\sum Y_2}{N} = \frac{1.21}{5} = 0.24$$

$$b = \frac{\sum XY_2}{\sum X^2} = \frac{-0.36}{10} = -0.04$$

SCBNL

$$a = \frac{\sum Y_3}{N} = \frac{2.76}{5} = 0.55$$

$$b = \frac{\sum XY_3}{\sum X^2} = \frac{-0.32}{10} = -0.03$$

Appendix-13

Calculation of Correlation Coefficient between Investment on Government Securities (GS) and Total Deposits (TD) of NABIL

GS(X)	TD(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
1233.82	12779.51	-1835.87	3370433.34	-1558.82	2429913.56	2861793.44
2732.96	15839.01	-336.73	113389.79	1500.68	2252046.47	-505330.65
4120.29	15506.44	1050.60	1103751.96	1168.11	1364485.64	1227213.79
3588.77	13447.65	519.08	269439.89	-890.68	793307.30	-462329.57
3672.63	14119.03	602.94	363531.82	-219.30	48091.61	-132222.66
$\sum X$=15348.47	$\sum Y$=71691.64		$\sum x^2$=5220546.80		$\sum y^2$=6887844.58	$\sum xy$=2989124.35

$$\bar{X} = \frac{\sum X}{N} = \frac{15348.47}{5} = 3069.69 \qquad \bar{Y} = \frac{\sum Y}{N} = \frac{71691.64}{5} = 14338.33$$

$$\text{Correlation, } r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{2989124.35}{\sqrt{(5220546.80)(6887844.58)}} = 0.4985$$

$$PEr = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.4985)^2}{\sqrt{5}} = 0.2267$$

$$6PEr = 6(0.2267) = 1.3602$$

Calculation of Correlation Coefficient between Investment on Government Securities (GS) and Total Deposits (TD) of NIBL

GS(X)	TD(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
0.00	2983.28	-585.10	342342.01	-3189.06	10170078.17	1865916.67
300.00	4256.21	-285.10	81282.01	-1916.13	3671538.85	546287.52
224.40	4174.76	-360.70	130104.49	-1997.58	3990309.88	720525.66
400.00	7922.75	-185.10	34262.01	1750.41	3063949.17	-324001.63
2001.10	11524.68	1416.00	2005056.00	5352.34	28647586.29	7578919.10
$\sum X$=2925.50	$\sum Y$=30861.68		$\sum x^2$=2593046.52		$\sum y^2$=49543462.36	$\sum xy$=10387647.32

$$\bar{X} = \frac{\sum X}{N} = \frac{2925.50}{5} = 585.10 \qquad \bar{Y} = \frac{\sum Y}{N} = \frac{30861.68}{5} = 6172.34$$

$$\text{Correlation, } r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{10387647.32}{\sqrt{(2593046.52)(49543462.36)}} = 0.9165$$

$$PEr = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.9165)^2}{\sqrt{5}} = 0.0483$$

$$6PEr = 6(0.0483) = 0.2897$$

Calculation of Correlation Coefficient between Investment on Government Securities (GS) and Total Deposits of (TD) SCBNL

GS(X)	TD(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
3338.67	12568.49	-2382.42	5675925.06	-4181.78	17487317.42	9962765.84
4811.01	15430.05	-910.08	828245.61	-1320.22	1742991.41	1201509.46
5784.72	15835.75	63.63	4048.78	-914.52	836354.15	-58191.16
6722.83	18755.64	1001.74	1003483.03	2005.37	4021492.79	2008855.34
7948.22	21161.44	2227.13	4960108.04	4411.17	19458385.48	9824240.13
∑X=28605.45	∑Y=83751.37		$\sum x^2$=12471810.50		$\sum y^2$=43546541.25	∑xy=22939179.60

$$\overline{X} = \frac{\sum X}{N} = \frac{28605.45}{5} = 5721.09 \qquad \overline{Y} = \frac{\sum Y}{N} = \frac{83751.37}{5} = 16750.27$$

$$\text{Correlation, } \boldsymbol{r} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{22939179.60}{\sqrt{(12471810.50)(43546541.25)}} = 0.9843$$

$$\boldsymbol{PEr} = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.9843)^2}{\sqrt{5}} = 0.0094$$

$$\boldsymbol{6PEr} = 6(0.0094) = 0.0563$$

Appendix-14

Calculation of Correlation Coefficient between Loan and Advances (L&A) and Total Deposits (TD) of NABIL

L&A(X)	TD(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
7334.76	12779.51	-473.85	224531.93	-1558.82	2429913.56	738642.79
8324.44	15839.01	515.83	266082.65	1500.68	2252046.47	774099.80
7437.90	15506.44	-370.71	137424.42	1168.11	1364485.64	-433028.46
7755.95	13447.65	-52.66	2772.86	-890.68	793307.30	46901.32
8189.99	14119.03	381.38	145452.23	-219.30	48091.61	-83636.31
∑X=39043.04	∑Y=71691.64		$\sum x^2$=776264.10		$\sum y^2$=6887844.58	∑xy=1042979.14

$$\overline{X} = \frac{\sum X}{N} = \frac{39043.04}{5} = 7808.61 \qquad \overline{Y} = \frac{\sum Y}{N} = \frac{71691.64}{5} = 14338.33$$

$$\text{Correlation, } \boldsymbol{r} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{2989124.35}{\sqrt{(776264.10)(6887844.58)}} = 0.4511$$

$$\boldsymbol{PEr} = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.4511)^2}{\sqrt{5}} = 0.2403$$

$$\boldsymbol{6PEr} = 6(0.2267) = 1.4417$$

Calculation of Correlation Coefficient between Loan and Advances (L&A) and Total Deposits (TD) of NIBL

L&A(X)	TD(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
2070.68	2983.28	-1922.60	3696398.45	-3189.06	10170078.17	6131285.44
2429.03	4256.21	-1564.25	2446884.32	-1916.13	3671538.85	2997303.93
2564.43	4174.76	-1428.85	2041618.04	-1997.58	3990309.88	2854240.46
5772.14	7922.75	1778.86	3164335.78	1750.41	3063949.17	3113737.95
7130.13	11524.68	3136.85	9839815.38	5352.34	28647586.29	16789489.57
∑X=19966.41	∑Y=30861.68		$\sum x^2$=21189051.97		$\sum y^2$=49543462.36	∑xy=31886057.35

$$\overline{X} = \frac{\sum X}{N} = \frac{19966.41}{5} = 3993.28 \qquad \overline{Y} = \frac{\sum Y}{N} = \frac{30861.68}{5} = 6172.34$$

$$\text{Correlation, } \boldsymbol{r} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{10387647.32}{\sqrt{(21189051.97)(49543462.36)}} = 0.9841$$

$$\boldsymbol{PEr} = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.9841)^2}{\sqrt{5}} = 0.0095$$

$$\boldsymbol{6PEr} = 6(0.0483) = 0.0570$$

Calculation of Correlation Coefficient between Loan and Advances (L&A) and Total Deposits (TD) of SCBNL

L&A(X)	TD(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
4857.17	12568.49	-760.90	578971.85	-4181.78	17487317.42	3181927.81
5763.13	15430.05	145.06	21041.82	-1320.22	1742991.41	-191509.05
5364.00	15835.75	-254.07	64552.58	-914.52	836354.15	232354.94
5695.82	18755.64	77.75	6044.75	2005.37	4021492.79	155913.20
6410.24	21161.44	792.17	627530.14	4411.17	19458385.48	3494384.55
∑X=28090.36	∑Y=83751.37		$\sum x^2$=1298141.15		$\sum y^2$=43546541.25	∑xy=6873071.44

$$\overline{X} = \frac{\sum X}{N} = \frac{28090.36}{5} = 5618.07 \qquad \overline{Y} = \frac{\sum Y}{N} = \frac{83751.37}{5} = 16750.27$$

$$\text{Correlation, } \boldsymbol{r} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{6873071.44}{\sqrt{(1298141.15)(43546541.25)}} = 0.9141$$

$$\boldsymbol{PEr} = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.9141)^2}{\sqrt{5}} = 0.0496$$

$$\boldsymbol{6PEr} = 6(0.0496) = 0.2974$$

Appendix-15

Calculation of Correlation Coefficient between Loan and Advances (L&A) and Net Profit (NP) of NABIL

L&A(X)	NP(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
7334.76	329.12	-473.85	224531.93	-23.62	557.72	11190.39
8324.44	291.37	515.83	266082.65	-61.37	3765.79	-31654.55
7437.90	271.63	-370.71	137424.42	-81.11	6578.18	30066.64
7755.95	416.25	-52.66	2772.86	63.51	4034.03	-3344.52
8189.99	455.31	381.38	145452.23	102.57	10521.43	39119.88
∑X=39043.04	∑Y=1763.68		$\sum x^2$=776264.10		$\sum y^2$=25457.14	∑xy=45377.85

$$\overline{X} = \frac{\sum X}{N} = \frac{39043.04}{5} = 7808.61 \qquad \overline{Y} = \frac{\sum Y}{N} = \frac{1763.68}{5} = 352.74$$

$$\text{Correlation, } \boldsymbol{r} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{45377.85}{\sqrt{(776264.10)(25457.14)}} = 0.3228$$

$$\boldsymbol{PEr} = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.3228)^2}{\sqrt{5}} = 0.2702$$

$$\boldsymbol{6PEr} = 6(0.2702) = 1.6213$$

Calculation of Correlation Coefficient between Loan and Advances (L&A) and Net Profit (NP) of NIBL

L&A(X)	NP(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
2070.68	72.66	-1922.60	3696398.45	-18.47	340.99	35502.77
2429.03	56.39	-1564.25	2446884.32	-34.74	1206.59	54335.86
2564.43	57.09	-1428.85	2041618.04	-34.04	1158.45	48632.41
5772.14	116.82	1778.86	3164335.78	25.69	660.18	45705.98
7130.13	152.67	3136.85	9839815.38	61.54	3787.66	193054.17
∑X=19966.41	∑Y=455.63		$\sum x^2$=21189051.97		$\sum y^2$=7153.88	∑xy=377231.18

$$\overline{X} = \frac{\sum X}{N} = \frac{19966.41}{5} = 3993.28 \qquad \overline{Y} = \frac{\sum Y}{N} = \frac{455.63}{5} = 91.13$$

$$\text{Correlation, } \boldsymbol{r} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{377231.18}{\sqrt{(21189051.97)(7153.88)}} = 0.9689$$

$$\boldsymbol{PEr} = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.9689)^2}{\sqrt{5}} = 0.0185$$

$$\boldsymbol{6PEr} = 6(0.0185) = 0.1108$$

Calculation of Correlation Coefficient between Loan and Advances (L&A) and Net Profit (NP) of SCBNL

L&A(X)	NP(Y)	x(X-X)	x^2	y(Y-Y)	y^2	xy
4857.17	392.59	-760.90	578971.85	-76.89	5911.46	58502.71
5763.13	430.83	145.06	21041.82	-38.65	1493.51	-5605.91
5364.00	479.21	-254.07	64552.58	9.73	94.75	-2473.14
5695.82	506.95	77.75	6044.75	37.47	1404.30	2913.53
6410.24	537.80	792.17	627530.14	68.32	4668.17	54124.09
∑X=28090.36	∑Y=2347.38		$\sum x^2$=1298141.15		$\sum y^2$=13572.19	∑xy=107461.28

$$\overline{X} = \frac{\sum X}{N} = \frac{28090.36}{5} = 5618.07 \qquad \overline{Y} = \frac{\sum Y}{N} = \frac{2347.38}{5} = 469.48$$

$$\text{Correlation, } \boldsymbol{r} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{107461.28}{\sqrt{(1298141.15)(13572.19)}} = 0.9689$$

$$\boldsymbol{PEr} = (0.6745)\frac{1-r^2}{\sqrt{N}} = (0.6745)\frac{1-(0.9689)^2}{\sqrt{5}} = 0.1039$$

$$\boldsymbol{6PEr} = 6(0.1039) = 0.6236$$

Appendix-17

Calculation of *F* value
Cash and Bank Balance Percentage on Total Current Assets

Cash and Bank Balance Percentage					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - \bar{X}_1)^2$**	**$(X_2 - \bar{X}_2)^2$**	**$(X_3 - \bar{X}_3)^2$**
7.36	9.69	6.13	0.00	3.99	0.03
6.18	15.27	5.00	1.27	12.85	1.70
7.90	10.15	4.50	0.36	2.38	3.24
8.25	12.32	7.27	0.91	0.40	0.94
6.81	11.01	8.61	0.24	0.46	5.33
$\sum X_1 = 36.51$	$\sum X_2 = 58.45$	$\sum X_3 = 31.51$	$\sum (X_1 - \bar{X}_1)^2 = 2.78$	$\sum (X_2 - \bar{X}_2)^2 = 20.08$	$\sum (X_3 - \bar{X}_3)^2 = 11.24$

$$\bar{X}_1 = \frac{\sum X_1}{n_1} = \frac{36.51}{5} = 7.30$$

$$\bar{X}_2 = \frac{\sum X_2}{n_2} = \frac{58.45}{5} = 11.69$$

$$\bar{X}_3 = \frac{\sum X_3}{n_3} = \frac{31.51}{5} = 6.30$$

$$\text{Grand Mean, } \bar{\bar{X}} = \frac{\bar{X}_1 + \bar{X}_2 + \bar{X}_3}{3} = \frac{7.30 + 11.69 + 6.30}{3} = 8.43$$

$$SCC = \sum n_j(\bar{X}_j - \bar{\bar{X}})^2 = n_1(\bar{X}_1 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2$$

$$= 5(7.30 - 8.43)2 + 5(11.69 - 8.43)2 + 5(6.30 - 8.43)2 = 82.12$$

$$SSE = \sum (X_j - \bar{X}_j)^2 = (X_1 - \bar{X}_1)^2 + (X_2 - \bar{X}_2)^2 + (X_3 - \bar{X}_3)^2$$

$$= 2.78 + 20.08 + 11.24 = 34.10$$

$$SST = SCC + SSE = 82.12 + 34.10 = 116.22$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 82.12	$k - 1 = 3 - 1 = 2$	$MSC = \frac{SSC}{k-1} = \frac{82.12}{2} = 41.06$	$F = \frac{MSC}{MSE} = \frac{41.06}{2.84} = \mathbf{14.45}$
Within Samples (Errors)	SSE = 34.10	$n - k = 15 - 3 = 12$	$MSE = \frac{SSE}{n-k} = \frac{34.10}{12} = 2.84$	
Total	SST = 116.22	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get

Calculated = $\boldsymbol{F}(2,12) = 14.45$

The tabulated value of ***F*** at 5% level of significance for (2,12) is 3.89

i.e. $\boldsymbol{F}_{0.05}(2,12) = 3.89$

Since the calculated value of ***F*** is greater than the tabulated value of ***F***, there is significant difference and H_0 is rejected.

Appendix-18

Calculation of *F* value

Money at Call or Short Notice Percentage on Total Current Assets

Money at Call or Short Notice Percentage					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - \bar{X}_1)^2$**	**$(X_2 - \bar{X}_2)^2$**	**$(X_3 - \bar{X}_3)^2$**
31.32	31.27	43.50	482.15	593.02	694.39
3.97	0.00	13.59	29.07	47.84	12.70
0.24	0.00	11.25	83.28	47.84	34.83
4.83	0.53	7.97	20.51	40.76	84.25
6.45	2.78	9.44	8.48	17.10	59.40
$\sum X_1 = 46.81$	$\sum X_2 = 34.58$	$\sum X_3 = 85.75$	$\sum (X_1 - \bar{X}_1)^2 = 623.49$	$\sum (X_2 - \bar{X}_2)^2 = 746.55$	$\sum (X_3 - \bar{X}_3)^2 = 885.57$

$$\bar{X}_1 = \frac{\sum X_1}{n_1} = \frac{36.51}{5} = 9.36$$

$$\bar{X}_2 = \frac{\sum X_2}{n_2} = \frac{58.45}{5} = 6.92$$

$$\bar{X}_3 = \frac{\sum X_3}{n_3} = \frac{31.51}{5} = 17.15$$

$$\text{Grand Mean, } \bar{\bar{X}} = \frac{\bar{X}_1 + \bar{X}_2 + \bar{X}_3}{3} = \frac{9.36 + 6.92 + 17.15}{3} = 11.14$$

$$\text{SCC} = \sum n_j(\bar{X}_j - \bar{\bar{X}})^2 = n_1(\bar{X}_1 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2$$

$$= 5(9.36 - 11.14)^2 + 5(6.92 - 11.14)^2 + 5(17.15 - 11.14)^2 = 285.63$$

$$\text{SSE} = \sum (X_j - \bar{X}_j)^2 = (X_1 - \bar{X}_1)^2 + (X_2 - \bar{X}_2)^2 + (X_3 - \bar{X}_3)^2$$

$$= 623.49 + 746.55 + 885.57 = 2255.62$$

$$\text{SST} = \text{SCC} + \text{SSE} = 285.63 + 2255.62 = 2541.25$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 285.63	$k - 1 = 3 - 1 = 2$	$\text{MSC} = \frac{\text{SSC}}{k-1} = \frac{285.63}{2} = 142.81$	$F = \frac{\text{MSC}}{\text{MSE}} = \frac{142.81}{187.97} = \mathbf{0.76}$
Within Samples (Errors)	SSE = 2255.62	$n - k = 15 - 3 = 12$	$\text{MSE} = \frac{\text{SSE}}{n-k} = \frac{2255.62}{12} = 187.97$	
Total	SST = 2541.25	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get
Calculated = $\boldsymbol{F}$ (2,12) = 0.76
The tabulated value of $\boldsymbol{F}$ at 5% level of significance for (2,12) is 3.89
i.e. $\boldsymbol{F}_{0.05}$ (2,12) = 3.89
Since the calculated value of $\boldsymbol{F}$ is less than the tabulated value of $\boldsymbol{F}$, there is no significant difference and H_0 is accepted.

Appendix-19

Calculation of *F* value
Loan and Advances Percentage on Total Current Assets

Loan and Advances Percentage					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - \bar{X}_1)^2$**	**$(X_2 - \bar{X}_2)^2$**	**$(X_3 - \bar{X}_3)^2$**
49.60	55.31	29.17	46.66	181.01	0.31
63.25	70.96	29.98	46.52	4.84	1.85
55.87	76.77	29.26	0.31	64.23	0.42
55.93	76.78	27.39	0.25	64.31	1.51
57.50	63.98	27.28	1.15	22.84	1.78
$\sum X_1$ =282.14	$\sum X_2$ =343.80	$\sum X_3$ =143.08	$\sum(X_1 - \bar{X}_1)^2$=94.89	$\sum(X_2 - \bar{X}_2)^2$=337.24	$\sum(X_3 - \bar{X}_3)^2$=5.87

$$\bar{X}_1 = \frac{\sum X_1}{n_1} = \frac{36.51}{5} = 56.43$$

$$\bar{X}_2 = \frac{\sum X_2}{n_2} = \frac{58.45}{5} = 68.72$$

$$\bar{X}_3 = \frac{\sum X_3}{n_3} = \frac{31.51}{5} = 28.62$$

$$\text{Grand Mean, } \bar{\bar{X}} = \frac{\bar{X}_1 + \bar{X}_2 + \bar{X}_3}{3} = \frac{56.43 + 68.72 + 28.62}{3} = 51.27$$

$$\text{SCC} = \sum n_j(\bar{X}_j - \bar{\bar{X}})^2 = n_1(\bar{X}_1 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2$$

$$= 5(56.43 - 51.27)^2 + 5(68.72 - 51.27)^2 + 5(28.62 - 51.27)^2 = 4228.26$$

$$\text{SSE} = \sum(X_j - \bar{X}_j)^2 = (X_1 - \bar{X}_1)^2 + (X_2 - \bar{X}_2)^2 + (X_3 - \bar{X}_3)^2$$

$$= 94.89 + 337.24 + 5.87 = 437.99$$

$$\text{SST} = \text{SCC} + \text{SSE} = 4228.26 + 437.99 = 4666.25$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 4228.26	k – 1 = 3 – 1 = 2	$\text{MSC} = \frac{\text{SSC}}{k-1} = \frac{4228.26}{2} = 2114.13$	$F = \frac{\text{MSC}}{\text{MSE}}$
Within Samples (Errors)	SSE = 437.99	n – k = 15 – 3 = 12	$\text{MSE} = \frac{\text{SSE}}{n-k} = \frac{437.99}{12} = 36.50$	$= \frac{2114.13}{36.50}$
				= **57.92**
Total	SST = 4666.25	n – 1=15 – 1 = 19		

From above ANOVA table, we get

Calculated = $\boldsymbol{F}$ (2,12) = 57.92

The tabulated value of $\boldsymbol{F}$ at 5% level of significance for (2,12) is 3.89

i.e. $\boldsymbol{F}_{0.05}$ (2,12) = 3.89

Since the calculated value of $\boldsymbol{F}$ is less than the tabulated value of $\boldsymbol{F}$, there is significant difference and H_0 is rejected.

Appendix-20

Calculation of *F* value
Government Securities Percentage on Total Current Assets

Government Securities Percentage					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - X_1)^2$**	**$(X_2 - X_2)^2$**	**$(X_3 - X_3)^2$**
8.34	0.00	20.05	196.01	60.09	72.36
20.76	8.76	25.03	2.49	1.02	12.48
30.95	6.72	31.56	74.05	1.07	9.00
25.88	5.32	32.33	12.49	5.91	14.19
25.78	17.96	33.83	11.84	104.13	27.79
$\sum X_1 = 111.72$	$\sum X_2 = 38.76$	$\sum X_3 = 142.79$	$\sum(X_1 - X_1)^2 = 296.88$	$\sum(X_2 - X_2)^2 = 172.22$	$\sum(X_3 - X_3)^2 = 135.81$

$$\overline{X}_1 = \frac{\sum X_1}{n_1} = \frac{36.51}{5} = 22.34$$

$$\overline{X}_2 = \frac{\sum X_2}{n_2} = \frac{58.45}{5} = 7.75$$

$$\overline{X}_3 = \frac{\sum X_3}{n_3} = \frac{31.51}{5} = 28.56$$

$$\text{Grand Mean, } \overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3}{3} = \frac{22.34 + 7.75 + 28.56}{3} = 19.55$$

$$\text{SCC} = \sum n_j(\overline{X}_j - \overline{\overline{X}})^2 = n_1(\overline{X}_1 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2$$

$$= 5(22.34 - 19.55)^2 + 5(7.75 - 19.55)^2 + 5(28.56 - 19.55)^2 = 1140.72$$

$$\text{SSE} = \sum(X_j - \overline{X}_j)^2 = (X_1 - \overline{X}_1)^2 + (X_2 - \overline{X}_2)^2 + (X_3 - \overline{X}_3)^2$$

$$= 296.88 + 172.22 + 135.81 = 604.92$$

$$\text{SST} = \text{SCC} + \text{SSE} = 1140.72 + 604.92 = 1745.64$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 1140.72	$k - 1 = 3 - 1 = 2$	$MSC = \frac{SSC}{k-1} = \frac{1140.72}{2} = 570.36$	$F = \frac{MSC}{MSE}$
Within Samples (Errors)	SSE = 604.92	$n - k = 15 - 3 = 12$	$MSE = \frac{SSE}{n-k} = \frac{604.92}{12} = 50.41$	$= \frac{570.36}{50.41} = \mathbf{11.31}$
Total	SST = 1745.64	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get
Calculated = $\boldsymbol{F}(2,12) = 11.31$
The tabulated value of $\boldsymbol{F}$ at 5% level of significance for (2,12) is 3.89
i.e. $\boldsymbol{F}_{0.05}(2,12) = 3.89$
Since the calculated value of $\boldsymbol{F}$ is greater than the tabulated value of $\boldsymbol{F}$, there is significant difference and H_0 is rejected.

Appendix-21

Calculation of *F* value
Miscellaneous Current Assets Percentage on Total Current Assets

Miscellaneous Current Assets Percentage					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1- X_1)^2$**	**$(X_2- X_2)^2$**	**$(X_3- X_3)^2$**
7.25	9.56	6.06	1.39	0.11	0.04
4.42	10.20	4.96	2.70	0.95	1.66
5.97	6.81	4.47	0.01	5.79	3.16
6.91	10.28	7.20	0.71	1.12	0.90
5.80	9.25	8.56	0.07	0.00	5.31
$\sum X_1$ =30.35	$\sum X_2$ =46.10	$\sum X_3$ =31.26	$\sum(X_1- X_1)^2$=4.88	$\sum(X_2- X_2)^2$=7.98	$\sum(X_3- X_3)^2$=11.07

$$\overline{X}_1 = \frac{\sum X_1}{n_1} = \frac{30.35}{5} = 6.07$$

$$\overline{X}_2 = \frac{\sum X_2}{n_2} = \frac{46.10}{5} = 9.22$$

$$\overline{X}_3 = \frac{\sum X_3}{n_3} = \frac{31.26}{5} = 6.25$$

$$\text{Grand Mean, } \overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3}{3} = \frac{6.07 + 9.22 + 6.25}{3} = 7.18$$

$$\text{SCC} = \sum n_j(\overline{X}_j - \overline{\overline{X}})^2 = n_1(\overline{X}_1 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2$$

$$= 5(6.07 - 7.18)^2 + 5(9.22 - 7.18)^2 + 5(6.25 - 7.18)^2 = 31.30$$

$$\text{SSE} = \sum(X_j - \overline{X}_j)^2 = (X_1 - \overline{X}_1)^2 + (X_2 - \overline{X}_2)^2 + (X_3 - \overline{X}_3)^2$$

$$= 4.88 + 7.98 + 11.07 = 23.93$$

$$\text{SST} = \text{SCC} + \text{SSE} = 31.30 + 23.93 = 55.23$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 31.30	k – 1 = 3 – 1 = 2	MSC = SSC / (k – 1) = 31.30 / 2 = 15.65	***F*** = MSC / MSE
Within Samples (Errors)	SSE = 23.93	n – k = 15 – 3 = 12	MSE = SSE / (n – k) = 23.93 / 12 = 1.99	= 15.65 / 1.99 = **7.85**
Total	SST = 55.23	n – 1=15 – 1 = 19		

From above ANOVA table, we get

Calculated = $\boldsymbol{F}$ (2,12) = 7.85

The tabulated value of $\boldsymbol{F}$ at 5% level of significance for (2,12) is 3.89

i.e. $\boldsymbol{F}_{0.05}$ (2,12) = 3.89

Since the calculated value of $\boldsymbol{F}$ is greater than the tabulated value of $\boldsymbol{F}$, there is significant difference and H_0 is rejected.

Appendix-22

Calculation of *F* value
Current Ratio

Current Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - X_1)^2$**	**$(X_2 - X_2)^2$**	**$(X_3 - X_3)^2$**
1.06	1.11	1.06	0.03	0.05	0.00
0.76	0.74	1.06	0.02	0.02	0.00
0.81	0.76	1.07	0.01	0.02	0.00
0.92	0.90	1.06	0.00	0.00	0.00
0.94	0.89	1.06	0.00	0.00	0.00
$\sum X_1 = 4.49$	$\sum X_2 = 4.40$	$\sum X_3 = 5.31$	$\sum (X_1 - X_1)^2 = 0.05$	$\sum (X_2 - X_2)^2 = 0.09$	$\sum (X_3 - X_3)^2 = 0.00$

$$\overline{X}_1 = \frac{\sum X_1}{n_1} = \frac{4.49}{5} = 0.90$$

$$\overline{X}_2 = \frac{\sum X_2}{n_2} = \frac{4.40}{5} = 0.88$$

$$\overline{X}_3 = \frac{\sum X_3}{n_3} = \frac{5.31}{5} = 1.06$$

$$\text{Grand Mean, } \overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3}{3} = \frac{0.90 + 0.88 + 1.06}{3} = 0.95$$

$$\text{SCC} = \sum n_j(\overline{X}_j - \overline{\overline{X}})^2 = n_1(\overline{X}_1 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2$$

$$= 5(0.90 - 0.95)^2 + 5(0.88 - 0.95)^2 + 5(1.06 - 0.95)^2 = 0.10$$

$$\text{SSE} = \sum (X_j - \overline{X}_j)^2 = (X_1 - \overline{X}_1)^2 + (X_2 - \overline{X}_2)^2 + (X_3 - \overline{X}_3)^2$$

$$= 0.05 + 0.09 + 0.00 = 0.14$$

$$\text{SST} = \text{SCC} + \text{SSE} = 0.10 + 0.14 = 0.24$$

One-way ANOVA Table

Source of Variation	Sum of Squares (S.S.)	Degree of Freedom d.f.	Mean Sum of Squares (M.S.S.)	*F*-ratio
Between Samples	SCC = 0.10	$k - 1 = 3 - 1 = 2$	$\text{MSC} = \frac{\text{SSC}}{k-1} = \frac{0.10}{2} = 0.05$	$F = \frac{\text{MSC}}{\text{MSE}}$
Within Samples (Errors)	SSE = 0.14	$n - k = 15 - 3 = 12$	$\text{MSE} = \frac{\text{SSE}}{n-k} = \frac{0.14}{12} = 0.01$	$= \frac{0.05}{0.01}$
				$= \mathbf{4.19}$
Total	SST = 0.24	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get

Calculated = $\boldsymbol{F}(2,12) = 4.19$

The tabulated value of $\boldsymbol{F}$ at 5% level of significance for (2,12) is 3.89

i.e. $\boldsymbol{F}_{0.05}(2,12) = 3.89$

Since the calculated value of $\boldsymbol{F}$ is greater than the tabulated value of $\boldsymbol{F}$, there is significant difference and H_0 is rejected.

Appendix-23

Calculation of *F* value
Quick Ratio

Quick Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - X_1)^2$**	**$(X_2 - X_2)^2$**	**$(X_3 - X_3)^2$**
0.50	0.46	0.74	0.02	0.05	0.03
0.24	0.18	0.46	0.01	0.00	0.01
0.32	0.13	0.51	0.00	0.01	0.00
0.36	0.16	0.51	0.00	0.01	0.00
0.37	0.28	0.55	0.00	0.00	0.00
$\sum X_1 = 1.78$	$\sum X_2 = 1.21$	$\sum X_3 = 2.76$	$\sum(X_1 - X_1)^2 = 0.04$	$\sum(X_2 - X_2)^2 = 0.07$	$\sum(X_3 - X_3)^2 = 0.05$

$$\overline{X}_1 = \frac{\sum X_1}{n_1} = \frac{1.78}{5} = 0.36$$

$$\overline{X}_2 = \frac{\sum X_2}{n_2} = \frac{1.21}{5} = 0.24$$

$$\overline{X}_3 = \frac{\sum X_3}{n_3} = \frac{2.76}{5} = 0.55$$

$$\text{Grand Mean, } \overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3}{3} = \frac{0.36 + 0.24 + 0.55}{3} = 0.38$$

$$\text{SCC} = \sum n_j(\overline{X}_j - \overline{\overline{X}})^2 = n_1(\overline{X}_1 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2$$

$$= 5(0.36 - 0.38)^2 + 5(0.24 - 0.38)^2 + 5(0.55 - 0.38)^2 = 0.25$$

$$\text{SSE} = \sum(X_j - \overline{X}_j)^2 = (X_1 - \overline{X}_1)^2 + (X_2 - \overline{X}_2)^2 + (X_3 - \overline{X}_3)^2$$

$$= 0.04 + 0.07 + 0.05 = 0.15$$

$$\text{SST} = \text{SCC} + \text{SSE} = 0.25 + 0.15 = 0.40$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 0.25	$k - 1 = 3 - 1 = 2$	$\text{MSC} = \frac{\text{SSC}}{k-1} = \frac{0.38}{2} = 0.12$	$F = \frac{\text{MSC}}{\text{MSE}}$
Within Samples (Errors)	SSE = 0.15	$n - k = 15 - 3 = 12$	$\text{MSE} = \frac{\text{SSE}}{n-k} = \frac{0.15}{12} = 0.01$	$= \frac{0.12}{0.01}$ $= \mathbf{9.66}$
Total	SST = 0.40	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get
Calculated = $F(2,12) = 9.66$
The tabulated value of F at 5% level of significance for (2,12) is 3.89
i.e. $F_{0.05}(2,12) = 3.89$
Since the calculated value of F is greater than the tabulated value of F, there is significant difference and H_0 is rejected.

Appendix-24

Calculation of *F* value
Cash and Bank Balance to Total Deposits (Excluding Fixed Deposits) Ratio

Cash and Bank Balance to Total Deposits Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	$(X_1- X_1)^2$	$(X_2- X_2)^2$	$(X_3- X_3)^2$
14.51	81.16	10.29	18.68	1854.54	2.53
9.95	31.68	7.88	0.06	41.19	0.67
8.05	17.45	6.08	4.57	426.42	6.86
10.23	21.86	9.00	0.00	263.47	0.09
8.22	38.33	10.25	3.89	0.06	2.41
$\sum X_1$ =50.96	$\sum X_2$ =190.48	$\sum X_3$ =43.50	$\sum(X_1- X_1)^2$=27.21	$\sum(X_2- X_2)^2$=2585.68	$\sum(X_3- X_3)^2$=12.56

$$\overline{X}_1 = \frac{\sum X_1}{n_1} = \frac{50.96}{5} = 10.19$$

$$\overline{X}_2 = \frac{\sum X_2}{n_2} = \frac{190.48}{5} = 38.10$$

$$\overline{X}_3 = \frac{\sum X_3}{n_3} = \frac{43.50}{5} = 8.70$$

$$\text{Grand Mean, } \overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3}{3} = \frac{10.16 + 38.10 + 8.70}{3} = 19.00$$

$$SCC = \sum n_j(\overline{X}_j - \overline{\overline{X}})^2 = n_1(\overline{X}_1 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2$$

$$= 5(10.19 - 19.00)^2 + 5(38.10 - 19.00)^2 + 5(8.70 - 19.00)^2 = 2741.65$$

$$SSE = \sum(X_j - \overline{X}_j)^2 = (X_1 - \overline{X}_1)^2 + (X_2 - \overline{X}_2)^2 + (X_3 - \overline{X}_3)^2$$

$$= 27.21 + 2585.68 + 12.56 = 2625.44$$

$$SST = SCC + SSE = 2741.65 + 2625.44 = 5367.09$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 2741.65	k – 1 = 3 – 1 = 2	MSC = $\frac{SSC}{k-1} = \frac{2741.65}{2} = 1370.82$	$F = \frac{MSC}{MSE}$
Within Samples (Errors)	SSE = 2625.44	n – k = 15 – 3 = 12	MSE = $\frac{SSE}{n-k} = \frac{2625.44}{12} = 218.79$	$= \frac{1370.82}{218.79}$
				= **6.27**
Total	SST = 5367.09	n – 1=15 – 1 = 19		

From above ANOVA table, we get
Calculated = $F(2,12) = 6.27$

The tabulated value of F at 5% level of significance for (2,12) is 3.89
i.e. $F_{0.05}(2,12) = 3.89$
Since the calculated value of F is greater than the tabulated value of F, there is significant difference and H_0 is rejected.

Appendix-25

Calculation of *F* value
Saving Deposits to Total Deposits Ratio

Saving Deposits to Total Deposits Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	$(X_1 - X_1)^2$	$(X_2 - X_2)^2$	$(X_3 - X_3)^2$
32.48	33.44	52.77	8.47	0.01	16.08
31.04	29.59	54.47	18.85	14.15	5.35
32.06	30.63	59.62	11.03	7.42	8.07
38.89	30.72	56.69	12.28	6.94	0.01
42.45	42.40	60.35	49.97	81.74	12.76
$\sum X_1 = 176.93$	$\sum X_2 = 166.78$	$\sum X_3 = 283.91$	$\sum(X_1 - X_1)^2 = 100.59$	$\sum(X_2 - X_2)^2 = 110.26$	$\sum(X_3 - X_3)^2 = 42.27$

$$\bar{X}_1 = \frac{\sum X_1}{n_1} = \frac{176.93}{5} = 35.39$$

$$\bar{X}_2 = \frac{\sum X_2}{n_2} = \frac{166.78}{5} = 33.36$$

$$\bar{X}_3 = \frac{\sum X_3}{n_3} = \frac{283.91}{5} = 56.78$$

$$\text{Grand Mean, } \bar{\bar{X}} = \frac{\bar{X}_1 + \bar{X}_2 + \bar{X}_3}{3} = \frac{35.39 + 33.36 + 56.78}{3} = 41.84$$

$$SCC = \sum n_j(\bar{X}_j - \bar{\bar{X}})^2 = n_1(\bar{X}_1 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2$$

$$= 5(35.39 - 41.84)^2 + 5(33.36 - 41.84)^2 + 5(56.78 - 41.84)^2 = 1684.59$$

$$SSE = \sum(X_j - \bar{X}_j)^2 = (X_1 - \bar{X}_1)^2 + (X_2 - \bar{X}_2)^2 + (X_3 - \bar{X}_3)^2$$

$$= 100.59 + 110.26 + 42.27 = 253.12$$

$$SST = SCC + SSE = 1684.59 + 253.12 = 1937.71$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 1684.59	$k - 1 = 3 - 1 = 2$	$MSC = \frac{SSC}{k-1} = \frac{1684.59}{2} = 842.30$	$F = \frac{MSC}{MSE} = \frac{842.30}{21.09} = \mathbf{39.93}$
Within Samples (Errors)	SSE = 253.12	$n - k = 15 - 3 = 12$	$MSE = \frac{SSE}{n-k} = \frac{253.12}{12} = 21.09$	
Total	SST = 1937.71	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get
Calculated = $\boldsymbol{F}(2,12) = 39.93$
The tabulated value of $\boldsymbol{F}$ at 5% level of significance for (2,12) is 3.89
i.e. $\boldsymbol{F}_{0.05}(2,12) = 3.89$
Since the calculated value of $\boldsymbol{F}$ is greater than the tabulated value of $\boldsymbol{F}$, there is significant difference and H_0 is rejected.

Appendix-26

Calculation of *F* value
Interest Earned to Total Assets Ratio

Interest Earned to Total Assets Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - X_1)^2$**	**$(X_2 - X_2)^2$**	**$(X_3 - X_3)^2$**
6.97	7.37	6.25	0.25	1.21	0.61
6.90	6.82	6.42	0.18	0.30	0.90
6.35	6.56	5.50	0.01	0.08	0.00
6.15	5.10	4.77	0.10	1.38	0.49
5.98	5.52	4.41	0.24	0.57	1.12
$\sum X_1 = 32.35$	$\sum X_2 = 31.37$	$\sum X_3 = 27.34$	$\sum(X_1 - X_1)^2 = 0.79$	$\sum(X_2 - X_2)^2 = 3.54$	$\sum(X_3 - X_3)^2 = 3.13$

$$\bar{X}_1 = \frac{\sum X_1}{n_1} = \frac{32.35}{5} = 6.47$$

$$\bar{X}_2 = \frac{\sum X_2}{n_2} = \frac{31.37}{5} = 6.27$$

$$\bar{X}_3 = \frac{\sum X_3}{n_3} = \frac{27.34}{5} = 5.47$$

$$\text{Grand Mean, } \bar{\bar{X}} = \frac{\bar{X}_1 + \bar{X}_2 + \bar{X}_3}{3} = \frac{6.47 + 6.27 + 5.47}{3} = 6.07$$

$$\text{SCC} = \sum n_j(\bar{X}_j - \bar{\bar{X}})^2 = n_1(\bar{X}_1 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2$$

$$= 5(6.47 - 6.07)^2 + 5(6.27 - 6.07)^2 + 5(5.47 - 6.07)^2 = 2.82$$

$$\text{SSE} = \sum(X_j - \bar{X}_j)^2 = (X_1 - \bar{X}_1)^2 + (X_2 - \bar{X}_2)^2 + (X_3 - \bar{X}_3)^2$$

$$= 0.79 + 3.54 + 3.13 = 7.46$$

$$\text{SST} = \text{SCC} + \text{SSE} = 2.82 + 7.46 = 10.27$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 2.82	$k - 1 = 3 - 1 = 2$	$\text{MSC} = \frac{\text{SSC}}{k-1} = \frac{2.82}{2} = 1.41$	$F = \frac{\text{MSC}}{\text{MSE}}$
Within Samples (Errors)	SSE = 7.46	$n - k = 15 - 3 = 12$	$\text{MSE} = \frac{\text{SSE}}{n-k} = \frac{7.46}{12} = 0.62$	$= \frac{1.41}{0.62}$
				$= \mathbf{2.27}$
Total	SST = 10.27	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get
Calculated = $F(2,12) = 2.27$
The tabulated value of F at 5% level of significance for (2,12) is 3.89
i.e. $F_{0.05}(2,12) = 3.89$
Since the calculated value of F is less than the tabulated value of F, there is no significant difference and H_0 is accepted.

Appendix-27

Calculation of *F* value
Net Profit to Total Assets Ratio

Net Profit to Total Assets Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1- X_1)^2$**	**$(X_2- X_2)^2$**	**$(X_3- X_3)^2$**
2.19	1.91	2.33	0.01	0.35	0.00
1.59	1.10	2.23	0.27	0.05	0.02
1.54	1.15	2.60	0.32	0.03	0.05
2.51	1.30	2.41	0.16	0.00	0.00
2.72	1.15	2.27	0.37	0.03	0.01
$\sum X_1$ =10.55	$\sum X_2$ =6.61	$\sum X_3$ =11.85	$\sum(X_1- X_1)^2$=1.14	$\sum(X_2- X_2)^2$=0.46	$\sum(X_3- X_3)^2$=0.09

$$\overline{X}_1 = \frac{\sum X_1}{n_1} = \frac{10.55}{5} = 2.11$$

$$\overline{X}_2 = \frac{\sum X_2}{n_2} = \frac{6.61}{5} = 1.32$$

$$\overline{X}_3 = \frac{\sum X_3}{n_3} = \frac{11.85}{5} = 2.37$$

$$\text{Grand Mean, } \overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3}{3} = \frac{2.11 + 1.32 + 2.37}{3} = 1.93$$

$$\text{SCC} = \sum n_j(\overline{X}_j - \overline{\overline{X}})^2 = n_1(\overline{X}_1 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2$$

$$= 5(2.11 - 1.93)^2 + 5(1.32 - 1.93)^2 + 5(2.37 - 1.93)^2 = 2.97$$

$$\text{SSE} = \sum(X_j - \overline{X}_j)^2 = (X_1 - \overline{X}_1)^2 + (X_2 - \overline{X}_2)^2 + (X_3 - \overline{X}_3)^2$$

$$= 1.14 + 0.46 + 0.09 = 1.68$$

$$\text{SST} = \text{SCC} + \text{SSE} = 2.97 + 1.68 = 4.66$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 2.97	k – 1 = 3 – 1 = 2	MSC = $\frac{SSC}{k-1} = \frac{2.97}{2} = 1.49$	$F = \frac{MSC}{MSE}$
Within Samples (Errors)	SSE = 1.68	n – k = 15 – 3 = 12	MSE = $\frac{SSE}{n-k} = \frac{1.68}{12} = 0.14$	$= \frac{1.49}{0.14}$ = **10.61**
Total	SST = 4.66	n – 1=15 – 1 = 19		

From above ANOVA table, we get
Calculated = $F(2,12) = 10.61$
The tabulated value of F at 5% level of significance for (2,12) is 3.89

i.e. $F_{0.05}(2,12) = 3.89$
Since the calculated value of F is greater than the tabulated value of F, there is significant difference and H_0 is rejected.

Appendix-28

Calculation of *F* value
Net Profit to Shareholders' Equity Ratio

Net Profit to Shareholders' Equity Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - \bar{X}_1)^2$**	**$(X_2 - \bar{X}_2)^2$**	**$(X_3 - \bar{X}_3)^2$**
33.44	17.71	38.68	16.43	3.02	0.71
27.41	12.02	38.74	3.91	15.63	0.81
23.69	10.91	38.79	32.46	25.69	0.90
31.67	18.30	37.03	5.21	5.38	0.65
30.73	20.94	35.96	1.79	24.66	3.55
$\sum X_1 = 146.96$	$\sum X_2 = 79.88$	$\sum X_3 = 189.20$	$\sum (X_1 - \bar{X}_1)^2 = 59.80$	$\sum (X_2 - \bar{X}_2)^2 = 74.38$	$\sum (X_3 - \bar{X}_3)^2 = 6.63$

$$\bar{X}_1 = \frac{\sum X_1}{n_1} = \frac{146.96}{5} = 29.39$$

$$\bar{X}_2 = \frac{\sum X_2}{n_2} = \frac{79.88}{5} = 15.98$$

$$\bar{X}_3 = \frac{\sum X_3}{n_3} = \frac{189.20}{5} = 37.84$$

$$\text{Grand Mean, } \bar{\bar{X}} = \frac{\bar{X}_1 + \bar{X}_2 + \bar{X}_3}{3} = \frac{29.39 + 15.98 + 37.84}{3} = 27.74$$

$$\text{SCC} = \sum n_j(\bar{X}_j - \bar{\bar{X}})^2 = n_1(\bar{X}_1 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2 + n_2(\bar{X}_2 - \bar{\bar{X}})^2$$

$$= 5(29.39 - 27.74)^2 + 5(15.98 - 27.74)^2 + 5(37.84 - 27.74)^2 = 1215.81$$

$$\text{SSE} = \sum (X_j - \bar{X}_j)^2 = (X_1 - \bar{X}_1)^2 + (X_2 - \bar{X}_2)^2 + (X_3 - \bar{X}_3)^2$$

$$= 59.80 + 74.38 + 6.63 = 140.81$$

$$\text{SST} = \text{SCC} + \text{SSE} = 1215.81 + 140.81 = 1356.62$$

One-way ANOVA Table

Source of Variation	Sum of Squares (S.S.)	Degree of Freedom d.f.	Mean Sum of Squares (M.S.S.)	*F*-ratio
Between Samples	SCC = 1215.81	$k - 1 = 3 - 1 = 2$	$\text{MSC} = \frac{\text{SSC}}{k-1} = \frac{1215.81}{2} = 607.90$	$F = \frac{\text{MSC}}{\text{MSE}}$
Within Samples (Errors)	SSE = 140.81	$n - k = 15 - 3 = 12$	$\text{MSE} = \frac{\text{SSE}}{n-k} = \frac{140.81}{12} = 11.73$	$= \frac{607.90}{11.73}$
				$= \mathbf{51.81}$
Total	SST = 1356.62	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get
Calculated = $F(2,12) = 51.81$
The tabulated value of F at 5% level of significance for (2,12) is 3.89
i.e. $F_{0.05}(2,12) = 3.89$
Since the calculated value of F is greater than the tabulated value of F, there is significant difference and H_0 is rejected.

Appendix-29

Calculation of *F* value
Net Profit to Total Deposits Ratio

Net Profit to Total Deposits Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1- X_1)^2$**	**$(X_2- X_2)^2$**	**$(X_3- X_3)^2$**
2.58	2.44	3.12	0.01	0.72	0.08
1.84	1.32	2.79	0.43	0.07	0.00
1.75	1.37	3.03	0.56	0.05	0.04
3.10	1.47	2.70	0.36	0.01	0.02
3.22	1.32	2.54	0.53	0.07	0.09
$\sum X_1$ =12.49	$\sum X_2$ =7.93	$\sum X_3$ =14.19	$\sum(X_1- X_1)^2$=1.88	$\sum(X_2- X_2)^2$=0.92	$\sum(X_3- X_3)^2$=0.23

$$\overline{X}_1 = \frac{\sum X_1}{n_1} = \frac{12.49}{5} = 2.50$$

$$\overline{X}_2 = \frac{\sum X_2}{n_2} = \frac{7.93}{5} = 1.59$$

$$\overline{X}_3 = \frac{\sum X_3}{n_3} = \frac{14.19}{5} = 2.84$$

$$\text{Grand Mean, } \overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3}{3} = \frac{2.50 + 1.59 + 2.84}{3} = 2.31$$

$$\text{SCC} = \sum n_j(\overline{X}_j - \overline{\overline{X}})^2 = n_1(\overline{X}_1 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2$$

$$= 5(2.50 - 2.31)^2 + 5(1.59 - 2.31)^2 + 5(2.84 - 2.31)^2 = 4.19$$

$$\text{SSE} = \sum(X_j - \overline{X}_j)^2 = (X_1 - \overline{X}_1)^2 + (X_2 - \overline{X}_2)^2 + (X_3 - \overline{X}_3)^2$$

$$= 1.88 + 0.92 + 0.23 = 3.03$$

$$\text{SST} = \text{SCC} + \text{SSE} = 4.19 + 3.03 = 7.22$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 4.19	$k - 1 = 3 - 1 = 2$	$\text{MSC} = \frac{\text{SSC}}{k-1} = \frac{4.19}{2} = 2.10$	$\boldsymbol{F} = \frac{\text{MSC}}{\text{MSE}}$
Within Samples (Errors)	SSE = 3.03	$n - k = 15 - 3 = 12$	$\text{MSE} = \frac{\text{SSE}}{n-k} = \frac{3.03}{12} = 0.25$	$= \frac{2.10}{0.25}$
				$= \mathbf{8.31}$
Total	SST = 7.22	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get
Calculated = $\boldsymbol{F}$ (2,12) = 8.31
The tabulated value of $\boldsymbol{F}$ at 5% level of significance for (2,12) is 3.89
i.e. $\boldsymbol{F}_{0.05}$ (2,12) = 3.89
Since the calculated value of $\boldsymbol{F}$ is greater than the tabulated value of $\boldsymbol{F}$, there is significant difference and H_0 is rejected.

Appendix-30

Calculation of *F* value
Cost of Services to Total Assets Ratio

Cost of Services to Total Assets Ratio					
NABIL (X_1)	**NIBL (X_2)**	**SCBNL (X_3)**	**$(X_1 - X_1)^2$**	**$(X_2 - X_2)^2$**	**$(X_3 - X_3)^2$**
3.53	3.66	3.05	0.03	0.09	1.04
3.94	3.79	2.97	0.32	0.18	0.88
3.44	3.46	2.30	0.00	0.01	0.08
3.19	2.78	1.83	0.04	0.34	0.04
2.77	3.14	0.00	0.37	0.05	4.12
$\sum X_1 = 16.88$	$\sum X_2 = 16.83$	$\sum X_3 = 10.15$	$\sum (X_1 - X_1)^2 = 0.75$	$\sum (X_2 - X_2)^2 = 0.67$	$\sum (X_3 - X_3)^2 = 6.16$

$$\overline{X}_1 = \frac{\sum X_1}{n_1} = \frac{16.88}{5} = 3.38$$

$$\overline{X}_2 = \frac{\sum X_2}{n_2} = \frac{16.83}{5} = 3.37$$

$$\overline{X}_3 = \frac{\sum X_3}{n_3} = \frac{10.15}{5} = 2.03$$

$$\text{Grand Mean, } \overline{\overline{X}} = \frac{\overline{X}_1 + \overline{X}_2 + \overline{X}_3}{3} = \frac{3.38 + 3.37 + 2.03}{3} = 2.92$$

$$\text{SCC} = \sum n_j(\overline{X}_j - \overline{\overline{X}})^2 = n_1(\overline{X}_1 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2 + n_2(\overline{X}_2 - \overline{\overline{X}})^2$$

$$= 5(3.38 - 2.92)^2 + 5(3.37 - 2.92)^2 + 5(2.03 - 2.92)^2 = 5.99$$

$$\text{SSE} = \sum (X_j - \overline{X}_j)^2 = (X_1 - \overline{X}_1)^2 + (X_2 - \overline{X}_2)^2 + (X_3 - \overline{X}_3)^2$$

$$= 0.75 + 0.67 + 6.16 = 7.58$$

$$\text{SST} = \text{SCC} + \text{SSE} = 5.99 + 7.58 = 13.58$$

One-way ANOVA Table

Source of Variation	**Sum of Squares (S.S.)**	**Degree of Freedom d.f.**	**Mean Sum of Squares (M.S.S.)**	***F*-ratio**
Between Samples	SCC = 5.99	$k - 1 = 3 - 1 = 2$	$\text{MSC} = \frac{\text{SSC}}{k-1} = \frac{5.99}{2} = 3.00$	$F = \frac{\text{MSC}}{\text{MSE}}$
Within Samples (Errors)	SSE = 7.58	$n - k = 15 - 3 = 12$	$\text{MSE} = \frac{\text{SSE}}{n-k} = \frac{7.58}{12} = 0.63$	$= \frac{3.00}{0.63}$
				$= \mathbf{4.74}$
Total	SST = 13.58	$n - 1 = 15 - 1 = 19$		

From above ANOVA table, we get
Calculated = $\boldsymbol{F}(2,12) = 4.74$
The tabulated value of $\boldsymbol{F}$ at 5% level of significance for (2,12) is 3.89
i.e. $\boldsymbol{F}_{0.05}(2,12) = 3.89$

Since the calculated value of $\boldsymbol{F}$ is greater than the tabulated value of $\boldsymbol{F}$, there is significant difference and H_0 is rejected.