

# **Profitability Analysis of Commercial Bank in Nepal (Case Study of Nabil Bank Limited)**

**A Thesis**

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## **DECLARATION**

I here by declare that the work reported in this thesis entitled **Profitability Analysis of Commercial Bank in Nepal (Case Study of Nabil Bank Ltd.)** submitted to St. Xavier's College, Maitighar, Kathmandu is my original work. It is done in the form of Partial fulfillment of the requirements for the Master of Business Studies (MBS) under the supervision and guidance of Prof. Shanker Thapa.

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## **ABBREVIATION**

ATM	Automatic Teller Machine
BOK	Bank Of Kathmandu
BS	Bikram Sambat
CRISP	Customer Focused, Result Oriented, Innovative, Synergistic and Professional
EBIT	Earning Before Interest and Tax
EBL	Everest Bank Limited
EPS	Earning Per Share
etc.	Etcetera
F.Y.	Fiscal year
Fig.	Figure
HB	Himalayan Bank
i.e.	That is
JV	Joint Venture
Km.	Kilometer
Ltd.	Limited
m.	Meter
N.	North
NB Bank	Nepal Bangladesh Bank
NIB	Nepal Investment Bank
No.	Number
NPAT	Net profit after tax
Rs.	Rupees
S.	South
SCB	Standard Chartered Bank
SWOT	Strength, Weakness, Opportunity and Threat
Viz.	videlicet

# CHAPTER I

## INTRODUCTION

### 1.1. Historical Background of Nepal

Nepal is a Buffer State like sandwich between two huge countries China on the north and India on the south. It is small landlocked country situated at a distance of about 500 km. from the nearest sea. It extends from 26° 22' N. to 30°27' N. and from 80°4 E. to 88°12 E. On an average, it stretches for 885 km. in an east-west direction and for 193 km. in a north-south one. Nepal with an area of 1,47,181 square km. is an independent, located on the Mid-Himalayan mountain section of Asia. It is a mountainous country with about 75% of its total area consisting of mountains, hills, elevated (locally known as fars) and river valleys.

From the topographical point of view, Nepal is popularly divided into the three regions that are Himalayan Region, Hilly Region and Terai Region. Himalayan Region occurs in the northern part of Nepal. It contains various Himalayan Ranges with lofty peaks like Mt. Everest (8,848 m.), Kanchanjunga (8,598 m.), Dhaulagiri (8,137 m.), Annapurna (8,091 m.) and so on. This region represents approximately 25% of the total area of Nepal. Hill is very extensive and covers about 50% of the total area of Nepal. There are some isolated broad valleys lying in between the Mahabharata and Churia Ranges. These are known as Duns or Inner Terai. Terai Region occurs in the southern part of Nepal and covers 25% of the total area of the country.

Economically, Nepal is a developing country with an extreme disparity of development. A few people in urban areas enjoy reasonably fair standard of living, while most people, particularly in rural areas, have to lead a miserable life. Likewise, very limited parts of the country are economically prosperous

whereas most of the remote rural areas are not yet rich and the poor in Nepal is very deep as well as wide.

On the social side, a large majority of people in Nepal are not only entrenched in extreme poverty but also steeped into orthodoxy, superstition, caste and creed. Any change in their traditional system and religious faith is highly hostile. These days, mainly due to the influence of western education and travel experiences, the traditionally deep rooted beliefs and superstitions are being progressively alleviated, particularly in the urban areas of the country.

## **1.2. Commercial Bank in Nepal**

The history of development of commercial bank is not so old. It starts in Nepal from the establishment of Nepal Bank Ltd. in 1994 BS with an authorized capital of Rs.1 crore and paid up capital of Rs.8 lacs 42 thousand, is the first organized bank established in Nepal (NRB, 2045). It is not only the first commercial bank of Nepal but also it is the first bank in banking history of Nepal which is regarded as pioneer institution of modern banking system and served as a sole financial institution of country for nearly two decades.

Before the establishment of NRB, Nepal Bank Ltd. also performed the function of central bank in Nepal; to regulate issue of currency securing country wide circulation of Nepalese currency, achieving stable exchange rate and to mobilize capital for economic development and for stimulation of trade industry and banking sector.

As the time passed, Rastriya Banijya Bank was established in 2022 BS with authorized capital Rs.10 million and paid up capital Rs.2.5 million. It was established under the commercial bank act 2021 BS. It was established in order to play a major role not only in domestic banking services but also in the foreign trade. After the establishment of this bank, there was progress in the banking industry in Nepal.

At present, Nepal has adopted open door policy. Under this policy, foreign commercial banks also established in different point of time. Nepal Arab Bank was established in BS 2041 under the ownership of Dubai Bank Limited and Nepalese investor. This was a first bank established under the joint investment of foreign bank and Nepalese investors. Similarly, Nepal Indosuez Bank was established as a joint venture bank in BS 2042 with authorized capital Rs.120 million and paid up capital Rs.30 million. Nepal Grindlays Bank Limited was established in BS 2043 as a joint venture between Grindlays Bank of Britain and Nepalese investors. As the country followed economic liberalization, there was massive entrance of foreign banks in Nepal.

The financial system in Nepal is now globally inter-linked and capable of providing commercial banking service in major commercial centers of the world in an efficient way. The government with the objective of mobilizing saving and developing soundness and competitiveness in the financial systems continues to encourage private sector involvement and joint venture arrangement with reputed foreign banks in the setting up of banks and financial institutions in Nepal under the guidance of Nepal Rastra Bank.

### **1.3. Introduction of Nabil Bank**

Nabil Bank is the first foreign joint venture bank in Nepalese banking history. It has established its operation by the date of 12th July, 1984 under commercial bank act 2031. At the time of establishment it had Rs.10 million as authorized capital. Nabil Bank has been operating well from their very establishment. Their experiences in international banking prompt and computerized services, professional attitudes are factors for their rapid program. This bank is successful to capture a remarkable market share of Nepalese banking sector of financial services industries in relatively period of time.

Nabil Bank has many branches in major cities of Nepal. During banking operation Nabil Bank has 18 branches in major cities, of which the main head

office with 7 branches are in Kathmandu valley and remaining branches are in other cities. The main function of head office is to check account of branches, control their credit, suggest for operation accounting. It is well known for providing highly personalized service to its customers.

Nabil was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, Nabil provides a full range of commercial banking services through 19 points of representation across the country and over 170 reputed correspondent banks across the globe.

Nabil, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector, represent a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business.

Nabil bank is recognized as premier financial institution in Nepal in terms of its range and quality of banking services, human capital, asset quality and income. The recognition as the “Bank of the year 2004” for Nepal by the banker, a publication of the financial times, London is a testimony of this. To build the solid foundation of its operations over the past 24 years and add to its myriad of achievements, the bank has set a mission to be the “Bank of 1st choice” for customers, shareholders, regulators, staff and the communities. To achieve the mission each and every member of team Nabil is committed to live their value of always being Customer Focused, Result Oriented, Innovative, Synergistic and Professional to always being CRISP in every way-everyday.

Operations of the bank including day-to-day operations and risk management are managed by highly qualified and experienced management team. Bank is fully equipped with modern technology which includes ATMs, credit cards, state-of-art, world-renowned software from Infosys Technologies System, Bangalore, India, Internet banking system and Tele-banking system.

Its ratio shows the main analysis of the profitability position of Nabil. Nabil bank has achieved profit after tax of Rs.271.64 million in the year F.Y.2003/04 and of Rs.746.47 million in the year F.Y. 2009/10, in this F.Y. 2009/10 the profit is highest. Though, Nabil bank has increasing profit in those two years, in 2006/07, 2007/08, 2008/09 and 2009/10 i.e. Rs.520.10, Rs.635.26, Rs.673.96 and Rs.746.47 million respectively, the bank has recorded only very low profit after tax. Despite optimistic hopes and anticipate of higher profits in those years, the profit of the bank became very low and fluctuating.

The profitability ratio of the bank can also be measured with investment. The term investment may refer to total assets, capital employed or shareholder's fund. The investment of Nabil bank has in F.Y. 2003/04, 2004/05, 2005/06 and 2006/07, 2007/08 2008/09 and 2009/10 i.e. Rs.8199.51, Rs.6031.18, Rs.5835.95, Rs.4275.53, Rs.6178.53, Rs.8945.31 and Rs.9939.77 million respectively. It is assume that the investment is increased. Even the investment of the bank is increasing; it is not so satisfied for the bank.

The deposit is in increasing trend. But it has been very slowly increasing in each year. From F.Y. 2005/06 i.e. Rs.14119.03 to F.Y. 2009/10 i.e. Rs.31915.05 the deposit was increasing trend. As a result the deposits are increasing in diminishing rate. But shareholders' equity/net worth has been increasing i.e. in the year 2003/04, 2004/05, 2005/06, 2006/07, 2007/08 2008/09 and 2009/10 are Rs.1146.42, Rs.1314.19, Rs.1481.68 Rs.1657.64, Rs.1874.99, Rs.2057.05 and Rs.2437.20 million respectively. The total assets of the bank also play a vital role for the profit making. The total assets of Nabil bank are in increasing trend. In the F.Y. 2003/4, 2004/05, 2005/06, 2006/07, 2007/08, 2008/09 and 2009/10 the total assets of the bank are Rs.17629.25, Rs.1656.26, Rs.16562.62, Rs.1706.41, Rs.2232.99, Rs.2725.34 and Rs.37132.76 million respectively.

In the beginning, the minimum balance rate was Rs.30,000. On fiscal year 2007/08 the minimum balance rate was made Rs.10,000. Though, the minimum balance rate is decreased, it was unreasonable for the people with low income because of its high range. As a result, profit making has been less. Profit is possible only if the bank mobilized the deposit and other resources and makes proper and safe investment. So, this study attempts to seek answer of some issues such as:

1. Does the bank have been able to accumulate deposit?
2. Does the bank have sound mobilization of the deposit?
3. What is the Correlation between net profit and total investment?
4. Do profitability ratios show overall condition of Nabil bank?
5. Can the ratio establish the relation between net profit and total assets?
6. Do profitability ratios indicate any strength and weakness of a bank?
7. Does the bank distribute appropriate dividend to shareholders?
8. Does the bank give proper control and direction for the profit?

### **1.5. Objectives of the Study**

The main objective of this study is to analyze the profitability position of the Nabil Bank. So, the main objectives of this study are:

1. To assess the financial position of Nabil Bank.
2. To ascertain the total assets and total liabilities.
3. To find out the SWOT of Nabil Bank.
4. To provide appropriate suggestion on the bases of above analysis.

## **1.6. Significances of the Study**

The profit is necessary element of every business organization whether it is service oriented or product oriented. So, every organization should systematically plan for profit making. Profit plays a vital role in growth and development of an organization. It also helps to achieve organizational objectives easily. Therefore, this study will be useful for those who want to know the profitability position tool of the organization. Also, the report of this study can be used as a source of reference for further studies and it can be utilized by every institutional body/others as a supporting document in their respective areas.

## **1.7. Limitations of the Study**

A lot of limitation has been faced during the preparation of the study. These are as follows:

1. Financial inadequacy, time limit are the major constraint of this study.
2. This study has carried out only the profitability aspect of the Nabil Bank.
3. It analyzes only financial and Profitability aspect of Nabil Bank.
4. This study is based on secondary as well as primary sources of data. But primary data is collected only from the head office situated at Kathmandu, thus its coverage is very limited.
5. The study covers a period of seven years from fiscal year 2003/04 to 2009/10.

## **1.8. Organization of the Study**

This study is organized by five chapters as follows:

Chapter I: Introduction

Chapter II: Review of Literature

Chapter III: Research Methodology

Chapter IV: Presentation and Analysis of Data

Chapter V: Summary, Conclusion and Recommendations

In First chapter, it focuses on general and economic-historical background of Nepal, general Introduction of Nabil Bank, Objective of the Study, Statement of the Study, Significance of the Study, Limitation of the Study and Organization of the Study.

Included in Second chapter are reviews of previous writings and studies relevant to the problem being explored within the framework of the theory structure.

The Third chapter explains the meaning of Research Design, the Population and Sample size and Process of Sample selection, the Variables and Measure and methods of gathering data.

Part Four is the heart of the report. The chapter deals with the Presentation and Analysis of data. Also, Correlation Analysis, Tables and Figures are used to clarify the Significant Relationship and inferential analysis is included in this part.

The Last chapter states the major finding of the study, Summary of the study, Conclusions from the analysis and Recommendations and Suggestion for improvement of performances and correction of weaknesses.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

The purpose of literature review is, thus, to find out what research studies have been conducted in one's chosen field of study, and what remains to be done.

This chapter devotes to review some of the existing literature regarding the Profitability concepts. In this regard, various books, journals and articles concerned to this topic have been reviewed. The first part of the chapter deals with the conceptual framework of the study and the second part is concern with the review of previous articles, journals and dissertation.

### **2.1. Conceptual Framework**

#### **2.1.1. Meaning of Financial Statement**

The organized summary of detailed information about financial position and performances of a concern is known as the financial statement. It is a collection of data organized according to logical and consistent accounting procedures<sup>1</sup>. It is prepared at end of accounting period. The purpose for preparing financial statement is for the periodical review of the activities of the organization and results achieved by the organization. It may show a position at a moment in time, as in the case of a balance sheet, or may reveal a series of activities over a given period of time; as in the case of an income statement. Financial statement is the major means employed by firms to present their financial situation to stockholder, creditors, and the general public. The majority of firms include extensive financial statements in their annual reports, which receive wide distribution<sup>2</sup>.

### **2.1.2. Objectives of Financial Statement**

Financial statements are prepared from the accounting records maintained by the firm. The generally accepted accounting principles and procedures are followed to prepare these statements. The basic objective of financial statements is to decision-making. The various other objectives are:

- To provide reliable financial information about economic resources and obligations of a business enterprise.
- To provide reliable information about change in net resources (resources minus obligations) of an enterprise that result from the profit directed activities.
- To provide financial information that assists in estimation the earnings potential of the enterprise.
- To provide other needed information about changes in economic resource and obligations.
- To disclose, to the extent possible, other information related to the financial statement that is relevant to statement users.

### **2.1.3. Contents of Financial Statement**

Financial Statement refers to two statements. They are:

1. Balance Sheet
2. Income Statement

## **1. Balance Sheet**

Balance Sheet is not an account but it is a statement of assets and liabilities of a business enterprise at a given data. It is a statement summarizing the financial accounting period and after completing the preparation on trading and profit and loss account. It is the statement of balances of ledger account which are not included in income statement. Therefore it is called the Balance Sheet. The balance sheet contains liabilities and assets. Liabilities refer to the financial obligation of an enterprise and assets refer to tangible objects or intangible rights owned by an enterprise and carrying probable future benefits. Assets are also termed as economic resources owned by a firm. The balance sheet can be presented in either of the two forms the account form or, the report form. But it is usually presented in the account form. It has two sides as follows:

- a. Liabilities
- b. Assets

### **a. Liabilities**

Liabilities are debts of the firm. They represent sources of assets since the firm either borrows the money listed as liabilities or makes use of certain assets that have not yet been paid for<sup>3</sup>. It may be defined as the claims of outsiders against the firm. Alternatively, they represent the amount that the firm owes to outsiders that is, other than owners<sup>4</sup>. The various items which are shown on liabilities are as follows:

- i. Long term Liabilities
- ii. Current Liabilities
- iii. Owner's Equity/ Shareholder's Equity

### **i. Long Term Liabilities**

All the liabilities that are due beyond one year is known as long term liabilities or long term debt. These are the obligations which will mature after a period longer than one year. The sources of long-term borrowings are:

- Debenture
- Bonds
- Deposits
- Mortgages
- Secured loans from financial institution and commercial bank

### **ii. Current Liabilities**

Liabilities which are to be repaid within one year of the date of balance sheet are taken as current liabilities. It represents the obligations of the business and arises in the ordinary course of operating business. It includes following items:

- Account Payable
- Bills/Notes Payable
- Tax Payable
- Bank Overdraft
- Accrued Expenses
- Deferred Income
- Sundry Creditors
- Received in Advance

### **iii. Owner's Equity/Shareholder's Equity**

The sum total of contributed and earned capital is known as the Shareholder's Equity. It can be expressed as total assets over total liabilities and it is also called Net worth. Equity does not represent money held by the firm but does show the sources of assets and approximately what portion of the assets is financed by owners and retention of earnings.

There are six types of equity:

- Preferred Stock
- Common Stock
- Contributed Capital in Excess of Par
- Retained Earning
- Reserve
- Credit Balance of Profit and Loss Account<sup>5</sup>

## **b. Assets**

Assets may be described as valuable resources owned by a business which have been acquired at a measurable money cost. The assets in the balance sheet are listed either in the order of liquidity promptness with which they are expected to be converted into cash or in reverse order, that is fixity or listing of the least liquid asset (fixed) first, followed by others<sup>6</sup>. The assets included in one category are different from those in other categories. It is split up into four major heads, which are as follows:

- i. Fixed Assets
- ii. Current Assets
- iii. Investment
- iv. Other Assets

### **i. Fixed Assets**

Fixed Assets is the subsection that contains the assets used by the firm to generate revenues. These assets will not be converted into cash in the current accounting period unless they are damaged, become obsolete, or are otherwise replaced<sup>7</sup>. These assets provide benefit over a long period of time to the organization. The expectation is that they will be used, rather than sold. Basically there are two types of fixed assets:

Tangible Fixed Assets

Intangible Fixed Assets

**Tangible Fixed Assets:** These assets are those which have a physical existence and generate goods and services<sup>8</sup>. It includes following assets:

- Plant and Equipment
- Land and Building
- Furniture and Fixture and so on.

**Intangible Fixed Assets:** These assets are not physical existence and generate goods and services. It includes following assets:

- Patents
- Copyrights
- Trademark
- Goodwill and so on

## **ii. Current Assets**

Those assets which are in the form of cash or can be converted into cash within a year are known as current assets. The current assets are assets which are reasonably expected to be realized in cash or sold or consumed during the normal operating business cycle. It is also known as floating or circulating or Short Term Assets. It included following assets:

- Cash in hand
- Bills receivable
- Cash at bank
- Inventories
- Sundry debtors
- Marketable securities
- Accrued income
- Prepaid etc.

### **iii. Investment**

Investments represent investment of funds in the securities of another company. They are long-term assets outside the business of the firm<sup>9</sup>. The main purpose of investment is to hold the securities for the long run, at least longer than a year. The examples of investment are:

- Share
- Debentures
- Bonds

### **iv. Other Assets**

Other Assets refer to the payment made in one year, whose usefulness will expire in the future years. They represent assets usually of an intangible nature. These types of assets do not have real value. These deferred charges are to be amortized or apportioned over the estimated useful life. Such types of assets are as follows:

- Preliminary Expenses
- Advertisement Expenses
- Research and Development Cost
- Discount or Loss on Issue of Share
- Deferred Revenue Expenses
- Debit Balance of Profit and Loss Account etc.

## **2. Income Statement**

The income statement is a report of the firm's activities during a particular period of time. It may include manufacturing and trading account, profit and loss account and profit and loss appropriation account. It shows the revenues and expenses of the firm, the effect of interest and taxes, and the net income for the period. Thus, it serves as a measure of the firm's profitability. It may be

called profit and loss statement or the statement of earnings. Whereas the balance sheet shows a view of the firm at a moment in time, the income statement summarizes the profitability of operations over a period of time. It is an accounting designed to show stockholders and creditors whether the firm is making money. It can also be used as a tool to identify the factors that affect the degree of profitability.

The various items which are shown on income statement are as follows:

- a. Sales
- b. Variable Cost
- c. Fixed Cost
- d. Marginal Contribution
- e. Revenue Income
- f. Expenses
- g. Net Sales
- h. Gross Profit
- i. Net Profit

#### **a. Sales**

Sales is used interchangeably with revenues for most companies and refers to a firm's net sales for the period. There are two types of Sales. One is Cash Sales and another is Credit Sales. Sales, in which cash is received at the time of Sales is called cash received. Sales, in which cash does not receipts at the time is known as Credit Sales.

#### **b. Variable Cost**

These are those costs that vary in direct proportion to changes in the volume of production. This category contains the bulk of the expenses found in cost of good sold and also contains some general and administrative expenses.

### **c. Fixed Cost**

These are constant charges that do not vary with the level of production. Most general and administrative expenses are fixed costs, as are some charges in cost of goods sold.

### **d. Marginal Contribution**

This is the profit measure calculated as the difference between total sales and total variable costs. This is the profit available to the firm to cover fixed costs, interest, and taxes and to provide a net income after taxes.

### **e. Revenue Income**

The amount received in the ordinary course of a business is known as Revenue Income. It is the income earned from selling merchandise or in the form of discount, commission, interest, transfer fees etc.

### **f. Expenses**

Expense is incurred for the running productivity or earning capacity of a business, expenses occurred when assets are consumed or liabilities are increased in order to produce revenue. An important item of expenses appearing in the income statement are:

- i. **Cost of Goods Sold:** It includes cost of raw material, labour overhead and other expenses. It contains a mixture of fixed and variable cost.
- ii. **General and Administrative Expenses:** It includes marketing expenses, salaries of corporate staff personnel and managerial remuneration, rent, rates and taxes, staff welfare expenses and so on. These costs also represent a mixture of fixed and variable costs.
- iii. **Interest:** This is fixed charge money which is paid by the firm on the money that it borrows are reported.

iv. **Other Manufacturing Expenses:** It includes fuel and power repairs and maintenance, consumable stores, insurance of goods and so on.

#### **g. Net Sales**

Net Sales refers to the difference between the firm's gross sales and any return or discounts.

#### **h. Gross Profit**

The difference between sales and cost of goods sold is called Gross Profit.

#### **i. Net Profit**

The difference between revenues and expenses is net profit. It is also called Earning before Interest and Taxes (EBIT).

### **2.1.4. Meaning of Financial Statement Analysis**

The financial statement analysis is a process of evaluating relationship between component parts of financial statements to obtain a better understanding of the firm's position and performance<sup>10</sup>. The financial statement analysis means a study of relationship among the various financial factors. It is a process of classifying and arranging mass data of financial statement. It is also the process of identifying the financial strengths and weaknesses of the firm by properly establishing relationships between the items of the balance sheet and the profit and loss account. It is the process of determining the significant operating and financial characteristics of a firm from accounting data and financial statement. The first task of the financial analysis is to select the information relevant to the decision under consideration from the total information contained in the financial statement. The second step involved in financial analysis is to arrange the information in a way to highlight significant relationships. The final step is interpretation and drawing of inferences and conclusions. In brief, financial analysis is the process of selection, relation and evaluation<sup>11</sup>. Financial analysis

can be undertaken by management of the firm, or by parties outside the firm, viz. owners, creditors, investors and other.

### **2.1.5. Objective of Financial Statement analysis**

The main objective of this analysis to determine the efficiency and performance of the firm's management as reflected in the financial records and reports. It provides some extremely useful information to the extent the balance sheet mirrors the financial position on a particular data in term of the structure of assets, liabilities and owners equity and so on and the profit and loss account shows the results of operations during a certain period of time in terms of the revenues obtained and the cost incurred during the year. Thus, the financial analysis provides a summarized view of the financial position and operation of a firm. Following are the main objectives of analysis of financial statement:

- It is used to ascertain its earning capacity as well as prediction relating to its future earnings.
- It is also to know the trend of business, sales, purchases, profit and earning capacity etc.
- It is to ascertain the financial strength and soundness of business.
- It is to ascertain the plans and policies made by management are efficient or not.
- It is to help the management in order to make a comparative study of different firms engaged in same business.

### **2.1.6. Meaning of Ratio Analysis**

To evaluate the financial condition and performance of a company, the financial analyst needs certain yardstick. The yardstick frequently used is a ratio, or index, relating two pieces of financial data to each other. Analysis and interpretation of various ratios should give experienced, skilled analysts, a better understanding of the financial condition and performance of the firm than they would obtain from analysis of the financial data alone<sup>12</sup>. A powerful

and the most widely used tool of financial analysis is ratio analysis. It is defined as the systematic use of ratios to interpret the financial statements so that the strengths and weaknesses of a firm as well as its historical performance and current financial condition can be determined<sup>13</sup>.

The financial ratio is the relationship between two accounting figures, expressed mathematically or the term ratio refers to the numerical or quantitative relation between two items/variables. This type of relationship can be expressed as (i) percentage (ii) fraction and (iii) proportion of number. The ratio analysis involves comparison for a useful interpretation of the financial statement. A single ratio in itself does not indicate favorable or unfavorable condition. Ratios help to summarize the large quantities of financial data and to make qualitative judgment about the firm's financial performance. In short, an arithmetical relationship between two figures is known as ratio which is computed by dividing one item of relationship with the other.

### **2.1.7. Importance of Ratio Analysis**

Ratio analysis is an important and useful technique to check upon the efficiency of an organization. The management can arrive at important decision by using ratio analysis. The ratio is used for expressing the mutual relation of different account consisting in the financial statement. The following are the important managerial use of ratio analysis:

- Ratio analysis is very helpful in financial forecasting and planning.
- It is also very helpful for decision-making on any financial activity.
- It is useful tool for evaluating the liquidity and solvency position of a concern.
- It is possible to control the different costs of the concern.
- It can also point out the deficiencies of the business so that corrective steps may be taken accordingly.

## **2.1.8. Classification of Ratio Analysis**

Ratios can be classified, for purposes of exposition, into four broad groups. Those are:

1. Liquidity Ratios
2. Leverage Ratios
3. Activity Ratios
4. Profitability Ratios

### **1. Liquidity Ratio**

Liquidity ratios are used to judge a firm's ability to meet short term obligations<sup>14</sup>. The short-term liquidity involves the relationship between current assets and current liabilities. If a firm has sufficient net working capital (the excess of current assets over current liabilities), it is deemed to have sufficient liquidity, it reflects the short term financial strength of business. Two ratios are commonly used to measure liquidity directly:

- a. The Current Ratio
- b. Quick Ratio/Acid Test<sup>15</sup>

#### **a. The Current Ratio**

The current ratio is a ratio of firm's total current assets to its total current liabilities. Current assets include cash and those assets which can be converted into cash within a year, such as marketable securities, debtors and inventories. Prepaid expenses are also included in current assets as they represent the payments that will have not to be made by the firm in the near future. All obligations maturing within a year are included in current liabilities. Thus, current liabilities include creditors, bills payable, accrued expenses, short-term bank loan, income-tax liability and long-term debt maturing in the current year<sup>16</sup>. The low ratio is an indicator that a firm may not be able to pay its future

bills on time, particularly if conditions change, causing a slowdown in cash collections. A high ratio may indicate an excessive amount of current assets and management's failure to utilize the firm's resources properly<sup>17</sup>. As a general rule, a 2:1 ratio is considered acceptable for most firms. The main objective of this ratio is to measure the ability of the firm to meet its short-term obligation. The current ratio is calculated by dividing current assets by current liabilities as:

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

### **b. Quick Ratio/Acid Test**

A relation between quick (liquid) assets and current liability is termed as quick ratio or acid-test ratio. An asset is liquid if it can be converted into cash immediately or reasonably soon without a loss of value. Cash is the most liquid assets. Other assets which are considered to be relatively liquid and included in quick assets are book debts (debtors and bills receivables) and marketable securities (temporary quoted investments). Inventories are considered to be less liquid. Inventories normally require some time for realizing into cash; their value also has a tendency to fluctuate<sup>18</sup>. So, quick assets include all the current assets other than inventories and prepaid expenses. Generally a quick ratio of 1:1 is considered to represent a satisfactory current financial condition. This ratio is calculated as below:

$$\text{Quick Ratio/ Acid test} = \frac{\text{Quick Assets}}{\text{Current Assets}}$$

$$\text{Quick Assets} = \text{Current Assets} - \text{Inventories} - \text{Prepaid Expenses}$$

## **2. Leverage Ratios**

Leverage ratio is also termed as solvency ratio, debt ratio or capital structure ratio. The leverage ratios are calculated to judge the long-term financial

position. The long-term creditors would judge the soundness of a firm on the basis of the long-term financial strength measured in term of its ability to pay the interest regularly as well as repay the installment of the principal on due dates or in one lump sum at the time of maturity. The long-term solvency of a firm can be examined by using leverage or capital structure ratios. The leverage or capital structure ratios may be defined as financial ratios which throw light on the long-term solvency of a firm as reflected in its ability to assure the long-term creditors with regard to:

- Periodic payment of interest during the period of the loan.
- Repayment of principal on maturity or in pre-determined installments at due dates.

There are, thus, two aspects of the long term solvency of a firm:

- Ability to repay the principal when due.
- Regular payment of the interest.

Accordingly, there are two different, but mutually dependent and inter-related, types of leverage ratios. First, ratios which are based on the relationship between borrowed funds and owner's capital and second type of capital structure ratios, popularly called coverage ratios, are calculated from the profit and loss account. Basically there are following ratios are included in leverage ratios:

- a. Debt-Equity Ratio
- b. Debt-Assets Ratio
- c. Interest Coverage Ratio
- d. Fixed Coverage Ratio<sup>19</sup>

#### **a) Debt-Equity Ratio**

The relationship between long term debts and owner's equity is known as debt-equity ratio. This ratio is the ratio of total outside liabilities to owners' total

funds. In other words, it is the ratio of the amount invested by the owners of business. A high ratio shows the large share of financing by the creditors as compared to that of owners. It indicates the margin of safety of the owners. The creditors prefer low debt-equity ratio implies larger safety margin for creditors. A high ratio is more risky than low ratio. Higher ratios shows that more of the funds invested in the business are provided by the outsider. The lower ratio shows that more of the funds invested in the business are provided by the owners. It is calculated as follows:

$$\text{Debt-Equity Ratio} = \frac{\text{Long Term Debt}}{\text{Shareholder's Equity}}$$

$$\text{Or, Debt-Equity Ratio} = \frac{\text{Total Debt}}{\text{Shareholder's Equity}}$$

### **b) Debt-Assets Ratio**

This ratio shows the relationship between total debt and total assets. Total debt includes both current liabilities and long term debt. A low ratio of debt to total assets desirable from the point of the creditors as there is sufficient margin of safety available to them. But its implication for the shareholders is that debt is not being exploited to make available to them the benefit of trading on equity. A firm with a very high ratio would expose the creditors to higher risk. The implications of the ratio of equity capital of total assets are exactly opposite to that of the debt to total assets. A firm should have neither a very high ratio nor a very low ratio. The ratio is calculated as follows:

$$\text{Debt to Total Assets} = \frac{\text{Total debt}}{\text{Total assets}}$$

$$\text{Total debt} = \text{Current Liabilities} + \text{Long Term Debt}$$

### **c) Interest Coverage Ratio**

The interest coverage ratio indicates the ability of a firm to pay interest charge on its borrowed capital. It is also called *Debt Service Ratio* or *Time Interest Earned Ratio*. This ratio uses the concept of net profits before taxes because interest is tax deductible so that tax is calculated after paying interest on long-term loan<sup>20</sup>. A high ratio is a sign of low burden of borrowing of the business and lower utilization of borrowing capacity. From the point of view of creditors, debenture holders, and loan creditors the higher the coverage the greater the ability of the firm to make the payment of interest. It is determined by dividing the operation profits or earnings before interest and taxes (EBIT) by the fixed interest charges on loans<sup>21</sup>. Thus,

$$\text{Interest Coverage} = \frac{\text{EBIT}}{\text{Interest}}$$

### **d) Fixed Coverage Ratio**

This is the ratio of net profit before interest and tax (EBIT) of fixed charge. The fixed charge includes interest, preference dividend and debt payment. This ratio is useful for assessing a company's ability to meet interest charges on its debt but this ratio has two short comings: 1) interest is not the only fixed financial charge- companies must also reduce debt on schedule, and many firms lease assets and thus must make lease payment. If they fail to repay debt or meet lease payments, they can be forced into bankruptcy. 2) EBIT does not represent all the cash flow available to service debt, especially if a firm has high depreciation and or amortization charges. Therefore this ratio is calculated by dividing EBIT and depreciation by interest, preference dividend and debt payment. It shows the ability of the firm to make the payment of fixed charges. Hence, the higher coverage ratio is preferable for the company. Higher the coverage, the higher will be profitability. It is calculate as follows:

$$\text{Fixed Coverage Ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Fixed charge} (1 - \text{tax})}$$

$$\text{Fixed charge} = \text{Interest} + \text{Preference Dividend} + \text{Payment}$$

### **3. Activities Ratio**

The funds of creditors and owners are invested in various assets to generate sales and profits. The better the management of assets is the larger the amount of sales. Activity ratios are employed to evaluate the efficiency with which the firm manages and utilizes its assets. These ratios are also called turnover ratios because they indicate the speed with which assets are being converted or turned over into sales. Activity ratios, thus involve a relationship between sales and assets. A proper balance between sales and assets generally reflects that assets are managed well. Several activity ratios can be calculated to judge the effectiveness of asset utilization<sup>22</sup>.

- a. Inventory Turnover Ratio
- b. Debtors Turnover Ratio
- c. Average Collection Period
- d. Fixed Assets Turnover Ratio
- e. Total Assets Turnover Ratio
- f. Capital Employed Turnover Ratio

#### **a. Inventory Turnover Ratio**

The relationship between cost of goods sold and average inventory is shown by this ratio. It is computed by dividing the cost of goods sold by average inventory. When the cost of goods sold may not be available, in such a situation, computed inventory turnover as Net sales divided by the average inventory or closing inventory. It indicates as to how fast the goods are sold and shows the speed with which stock is rotated into sales. It is calculated as follows:

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{Inventory Turnover} = \frac{\text{Sales}}{\text{Average Inventory} / \text{Closing Inventory}}$$

$$\text{Cost of Goods sold} = \text{Opening Inventory} + \text{Net Purchase} + \text{Direct Expenses} - \text{Closing inventory}$$

$$\text{Or,} \quad = \text{Sales} - \text{Gross Profit}$$

$$\text{Average Inventory} = \frac{\text{Opening Inventory} + \text{Closing Inventory}}{2}$$

### **b. Debtors Turnover Ratio**

The ratio indicates the velocity of debt-collection of a firm. It is also termed as receivable Turnover Ratio. It shows the relationship between credit sales and average debtors. The higher the ratio, the more efficient is the management on collecting the debtors. A higher ratio indicates that within a short period, the firm is collecting the cash from debtors. A low ratio shows that debts are not being collected rapidly. It is computed as follows:

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Debtors}}$$

$$\text{Net Credit Sales} = \text{Total Sales} - \text{Cash Sales} - \text{Sales Return}$$

$$\text{Average Debtors} = \frac{\text{Opening Debtors} + \text{Closing Debtors}}{2}$$

$$\text{Or, Debtors Turnover Ratio} = \frac{\text{Sales}}{\text{Closing Debtors}}$$

### **c. Average Collection Period**

It represents the average number of days for collecting the cash from debtors. It measures the efficiency of the concern for collecting from debtors. It indicates the rapidity or slowness with which the money is collected from the debtors. The minimum days show that the firm is efficient on collecting cash from debtors and it also reduces the change of bad debtors. A higher average collection period shows the excessive blockage of funds with debtors which increases the changes of bad debtors. It is computed as follows:

$$\text{Average Collection Period or Debt Collection Period} = \frac{\text{Debtors} \times 365 \text{ Days}}{\text{Debtors Turnover Ratio}}$$

### **d. Fixed Assets Turnover Ratio**

A relationship between sales and fixed assets is known as Fixed Assets Turnover. It shows the efficiency of a concern on utilizing its fixed assets. The higher ratio reflects better utilization of fixed assets. A low ratio is indicative of the poor utilization of the existing plant capacity which will result in reduction of production and increase in cost of production. It is calculated as follows:

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Net Sales}}{\text{Net Fixed Assets}}$$

$$\text{Net Sales} = \text{Total Sales} - \text{Sales Return}$$

$$\text{Net Fixed Assets} = \text{Fixed Assets} - \text{Depreciation}$$

### **e. Total Assets Turnover Ratio**

This ratio is employed to take information on Total Assets for generating sales in operation of business by the firm. It shows the relationship between total assets and sales. The total assets include current assets, fixed assets and investment. In ascertaining the total assets, fictitious assets and deferred

expenditure must be excluded. A higher ratio implies better utilization of total assets and vice versa. It is calculated as follows:

$$\text{Total Assets Turnover Ratio} = \frac{\text{Net Sales}}{\text{Total Assets}}$$

#### **f. Capital-Employed Turnover Ratio**

A relationship between sales and Total Capital is represented by this ratio. It is a measure of efficiency of the capital employed in the business. Higher the ratio is the more efficient the management on utilization of capital. The capital employed includes share holder's equity and long term liabilities. It is computed by as follows:

$$\text{Capital-Employed Turnover Ratio} = \frac{\text{Net Sales}}{\text{Capital Employed}}$$

### **4. Profitability Ratios**

Profitability is the net result of a number of policies and decisions. Profit is the difference between revenues and expenses over a period of time. Profit is the ultimate output of a company, and it will have no future if it fails to make sufficient profits. Therefore, the financial manager should continuously evaluate the efficiency of its company in terms of profits. The profitability ratios are calculated to measure the operating efficiency of the company. Besides, management of the company, creditors and owners are also interested in the profitability of the firm. Creditors want to get interest and repayment of principal regularly. Owners want to get a reasonable return on their investment. This is possible only when the company earns enough profits. Generally, there are two major types of profitability ratio:

- a. Profitability in relation to Sales
- b. Profitability in relation to Investment
- c. Earning Performance (Capital Market) Ratio<sup>22</sup>

## **a. Profitability in Relation to Sales**

It is important from a profit standpoint that the firm be able to generate adequate profit on each unit of sales. If sales lack a sufficient margin of profit, it is difficult for the firm to cover its fixed costs and fixed charge on debt and to earn a profit for shareholders. Therefore, the following ratio can be ascertained considering the sales as basis:

- i. Gross Profit Ratio/Gross Profit Margin
- ii. Net Profit Ratio
- iii. Operating Expenses Ratio

### **i. Gross Profit Ratio/Gross Profit Margin**

This ratio expresses the relationship between gross profit and sales. The gross profit margin reflects the efficiency with which management produces each unit of product. If higher ratio is a sign of efficient management, which reflects lower cost of goods sold and maximizing profit on the other, a low ratio may reflect higher cost of goods terms. It is calculated as follows:

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Net Sales}}$$

$$\text{Gross Profit} = \text{Sales} - \text{Cost of Goods Sold}$$

$$\text{Gross Profit} = \text{Opening Stock} + \text{Net Purchase} + \text{Direct Expenses} - \text{Closing Stock}$$

### **ii. Net Profit Ratio / Net Profit Margin**

Net Profit margin ratio establishes a relationship between net profit and sales and indicates management's efficiency in manufacturing, administering and selling the products. This ratio is the overall measure of the firm's ability to turn each rupee sales into net profit. If the net margin is inadequate, the firm

will fail to achieve satisfactory return on owner's equity. A higher ratio is an indication of the higher overall efficiency of the business and better utilization of total resources. It is computed by as follows:

$$\text{Net Profit Margin} = \frac{\text{Net Profit after Tax}}{\text{Sales}}$$

### **iii. Operating Expenses Ratio**

This ratio shows the relation between operating expenses and sales value. The term expenses include: (a) cost of goods sold (b) Administrative expenses (c) Selling and distribution expenses (d) Financial expenses but excludes taxes, dividends and extraordinary losses due to theft of goods, good destroyed by fire, and so on. This ratio is very important for analyzing the profitability of a firm. It should be compared over a period of time with the industry average as well as firms lower operating ratio indicates the higher operating profit. So, the lower percentage is preferable for the company. But the higher ratio shows the increase in operating expenses and decrease in business capacity.

$$\text{Operating Expenses Ratio} = \frac{\text{Operating Expenses}}{\text{Sales}}$$

### **b. Profitability in Relation to Investment**

The profitability ratios can also be computed by relating the profits of a firm to its investments. Such ratios are popularly termed as return on investments. Profitability in relation to investment, shows the return made in investment on different assets higher the return on investment between the profitability position and vice versa. For the purpose following ratios have been included:

- i. Return on Assets (ROA)
- ii. Return on Investment (ROI)
- iii. Return on Shareholder's Equity (ROSE)
- iv. Return on Capital Employed (ROCE)

### **i. Return on Assets (ROA)**

This ratio establishes the relationship between net profit and total assets. The ROA may also be called profit-to-assets ratio. This ratio is somewhat inappropriate, in as much as profits are taken after interest is paid to creditors. Because these creditors provides means by which part of the total assets are supported, there is a fallacy of omission. When financial charges are significant, it is preferable, for comparative purposes to compute a net operating profit rate of return instead of a return on assets ratio. This ratio measure the profitability of all financial resources invested in the firm's assets. Hence, the higher ratio implies that the available sources and tools are employed efficiently.

$$\text{ROA} = \frac{\text{Net Profit after Tax}}{\text{Total Assets}}$$

### **ii. Return on Investment (ROI)**

The ratio establishes the relationship between net profits of a firm to its investments. It is the key indicator of profitability for a firm. It matches operating profits with the assets available to earn a return. Firms that are efficiently using their assets have a relatively high return. Less efficient firms have a lower return. It is computed as follows:

$$\text{ROI} = \frac{\text{Net Profit after Tax}}{\text{Investment}}$$

### **iii. Return on Shareholders' Equity (ROSE)**

This ratio shows the relation between the net profit after tax and shareholders' funds. Shareholders' funds include equity share capital, preference share capital, reserve and surplus, reserve fund, general reserve, capital reserve and share premium. The fictitious assets should be deducted from total shareholders' equity for finding out this ratio. ROSE indicates how well the

firm has used the resources of owners. The earning of a satisfactory return is the most desirable objective of a business. The ratio of net profit to owners' equity reflects the extent to which this objective has been accomplished. This ratio is, thus, of great interest to present as well as prospective shareholders and also of great concern to management, which has the responsibility of maximizing the owners' welfare<sup>24</sup>. ROSE is good for the firm to be the return of investment high. If the ratio is higher, the management and utilization of shareholders' fund is more efficient. It is computed by as follows:

$$\text{ROSE} = \frac{\text{Net Profit After Taxes}}{\text{Equity Shareholders}}$$

#### **iv. Return on Capital Employed (ROCE)**

A relation between net profit and the total capital employed is known as Return on Capital Employed Ratio. The term Capital Employed refers to long-term funds supplied by the creditors and owners of the firm. It can be computed in two ways. First, it is equal to non current liabilities (long term liabilities) plus owner's equity. Second, it is equivalent to net working capital plus fixed assets. Thus, the capital employed basis provides a test of profitability related to the sources of long term funds. A comparison of this ratio with similar firms, with the industry average and over time would provide sufficient insight into how efficiently the long-term funds of owners and creditors are being used. The higher is the ratio, the more efficient is the used of capital employed<sup>25</sup>. It is computed by as follows:

$$\text{ROCE} = \frac{\text{Net Profit after Tax}}{\text{Capital Employed/Total Capital}}$$

$$\text{Or,} = \frac{\text{Net Profit after Tax} + \text{Interest}}{\text{Capital Employed}}$$

$$\text{Or,} = \frac{\text{Net Profit after Tax} + \text{Interest}}{\text{Capital Employed} - \text{Intangible Assets}}$$

### **c. Earning Performance (Capital Market) Ratio**

It can be classified into following ratio:

- i. Earning Per Share (EPS)
- ii. Dividend Per Share (DPS)
- iii. Dividend Payout Ratio
- iv. Dividend Yield Ratio
- v. Earning Yield Ratio
- vi. Earning Power Ratio

#### **i. Earning Per Share (EPS)**

Earning per share measure the profit available to the equity shareholders on a per share basis that is the amount that they can get on every share held<sup>26</sup>. The Earning per share of the company should be compared with the industry average and the earnings per share of other firms. The earning per share simply shows the profitability of the firm on a per share basis; it does not reflect how much is paid as dividend and how much is retained in the business. But as a profitability index, it is a valuable and widely used ratio<sup>27</sup>. If the firm returns more per share, it is more excellent and vice versa. It is calculated by as follows:

$$\text{EPS} = \frac{\text{Net Profit After Tax}}{\text{No. of Common Share}}$$

#### **ii. Dividend per Share (DPS)**

Dividend per share is the net distribute profit belonging to the shareholders divided by the number of ordinary share outstanding<sup>28</sup>. So, the income which shareholders really receive is the amount of earning distributed as cash dividends. The equity shareholder is very concerned about the position taken by the firm with respect to the payment of cash dividends. If the firm is paying insufficient dividends, the share is not attractive to investors desiring some

current income from their investment. If DPS is higher, it is considered excellent. It is computed by as follows:

$$\text{DPS} = \frac{\text{Dividend Paid to Equity Shareholders}}{\text{No. of Equity Shares}}$$

### **iii. Dividend Payout Ratio**

The ratio measure the relationship between the earning belonging to the equity shareholders and the dividend paid to them<sup>29</sup>. It shows the ratio or percentage between the net profit after taxes and preference dividend and dividend paid to equity shareholders. The main purpose of computing this ratio is to know the portion of dividend distributed out of total earning. It can be calculated as under:

$$\text{Dividend Payout Ratio} = \frac{\text{Dividend Per Share}}{\text{Earning Per Share}}$$

### **iv. Dividend Yield Ratio**

It is the relationship between dividend per share and market value per share. It is closely related to the Dividend per share. It is very useful for the investors. It is calculated by dividing the cash dividends per share by the market per share. Such as:

$$\text{Dividend Yield Ratio} = \frac{\text{Dividend Per Share}}{\text{Market Value Per Share}}$$

### **v. Earning Yield Ratio**

It is the relationship between earning per share and market value per share. It is closely related to earning per share. It is also called the earning price ratio. If the market value is higher, the ratio will be decreased and vice versa. It is calculated by dividing the earning per share by the market per share. Such as:

$$\text{Earning Yield Ratio} = \frac{\text{Earning Per Share}}{\text{Market Value Per Share}}$$

## vi. Earning Power Ratio

The profitability of a firm can be measured either in relationship between net profit to investment or total assets. The overall profitability can be measured on the basis of combination of these two ratios is known as earning power ratio. It is a measure of the after tax return achieved by the company compared to the firm's resources. It links after tax profit to the investment and book value of total assets. If a firm is using its investment and assets efficiently, it has a high earning power when compared with similar firms. It is calculated as under:

$$\text{Earning Power Ratio} = \frac{\text{Net Profit after Tax}}{\text{Investment}}$$

Or, 
$$= \frac{\text{Net Profit after Tax}}{\text{Total Assets}}$$

## 2.2. Review of Related Studies

**Singh** (1980 BS) attempted to flash light on *A Brief Study on Resource Utilizations by Nepalese Commercial Banks*. This study is to evaluate resources utilization (of the period from 1972 to 1978) with objectives as:

- To examine how far the banks have been able to mobilize its resources efficiently.
- To find out the impact of interest rates on deposits and interest rates of loans on the credit extension of banks.
- To know the relationship between branch expansion and deposits collection.
- To investigate the types of relationship between credit extension and the expansion of bank branches.

- To find out the causes for the inefficient operations of commercial banks with regard to mobilization of savings.

Singh recommended following major points in his study for the consideration to improve the existing situation:

- Banks were found inefficient in deposits utilization during seven years' (from F.Y. 1972 to 1978) study.
- Banks branch expansion in rural sector was unsatisfactory.
- There was higher degree of positive correlation between branch expansion and collection of scattered savings and extension of credit by banks as well.
- There was higher degree of positive correlation between deposit collection and extension of credit by banks.
- There was positive correlation between interest rate and deposits collection.

**Khadka** (1998) in the thesis entitled *A Study on Investment Policy of Nabil in Comparison with other Joint Venture Banks in Nepal* found that the liquidity position of Nabil is worse than that of SCBN and NABIL. Nabil has more proportion of current assets as loan and advance but less as investment on government securities. Nabil is comparatively less successful in on-balance sheet operations as well as off-balance sheet operations than that of other JV banks to be careful in increasing profit in real sense to maintain the confidence of shareholders.

**Chhetri** (2002) examined *Profitability Position of Nabil Bank Ltd. (Comparison with Standard Chartered Bank)*. Her major objectives are:

- To evaluate the trend of deposits and loans and advances of Nabil and SCB.
- To evaluate the liquidity, profitability, capital structure, activity and capital adequacy positions of Nabil and SCB.

- To study the strengths and weaknesses of Nabil and SCB.
- To study the opportunity and threats in terms of financial tools.
- To suggest and recommend some measures for the improvement of financial performance of Nabil and SCB in the future.

The major findings are:

- Nabil's deposits utilization rate is higher than that of SCB in all the F.Y.'s during the study period, which implies that Nabil is more active in creating investment opportunities and enhancing business activities than SCB.
- Nabil's assets utilization position is better than that of SCB and also SCB is applying comparatively safer and selective investment or lending policy.
- Nabil's average shareholders' fund to total deposits ratio and average shareholders' fund to total assets ratio are higher than those of SCB.
- Average return on risky assets ratio and average return on total assets ratio of SCB are higher than those of Nabil, which implies that SCB is more profitable than Nabil.

**Sharma** (2003) in *Nepal's Best Joint Venture Banks* concluded that SCBN is stronger than other JV banks in case of profit. It has a strong operating profit, net profit and non-interest income. Although, its profitability growth seems volatile in comparison to other JV bank, no doubt it is the most profitable JV bank. NB is another strong bank in profitability. It is good in net spread and net profit to average working funds. Last research year it also shows good growth signal in last two research years. NIB is not progressing well. HB and NABIL are well in this category.

**Sapkota** (2008) in his study *Profitability Benchmarking of NB Bank* has analyzed Profitability Position with other Joint Venture (JV) banks i.e. Nabil, SCB, HBL, NSBI, EBL with given objectives:

- To examine the profitability situation of the JV bank industry as a whole and sample banks.
- To analyze the profitability trend of NB Bank and the JV bank industry over the last five years.
- To ascertain the comparative position of profitability of NB Bank with respect to other JV Banks.

The main findings of this study are:

- It is identified from the analysis that NB Bank is performing not well under the industry standard and also has least performance among all players in the JV Bank industry in Nepal.
- NB Bank's past and present earning generating potential is assessed low in many parameters of profitability in comparison to the industry as well as other joint venture banks in the country.

**Kharel** (2008) conducted a study entitled *Profit Planning of Commercial Banks with a Comparative study of Everest Bank Ltd., Nabil Bank Ltd. and Bank of Kathmandu Ltd.* The main objectives of this study are:

- To find out the relationships between total investment, loan and advance, deposit, net profit and outside assets.
- To identify the investment priority sectors of commercial banks.
- To assess the impact of investment on profitability.
- To analyze and forecast the trend and structure of deposit utilization and its projection for five years of commercial banks.
- To provide suggestion and possible guidelines to improve investment policy and its problems.

The main findings of the study are:

- The liquidity position of EBL is comparatively better than of Nabil and BOK.

- In spite of the current ratio is average among the other two banks EBL has maintained the cash and bank balance to meet the customers demand.
- EBL has invested in highest sector like government securities than BOK and lesser portion than that of Nabil.
- BOK had mobilized lots of its funds in order to gain the high profit.
- The interest earned to total outside assets and return on total working fund ratio of EBL is lowest of Nabil and BOK bank.
- The ratio suggests that the earning capacity of the bank's loan and advances is satisfactory.
- The return on assets of the bank is good in average; it indicates the good earning capacity of the bank assets and good utilization of its assets.

### **2.3. Research Gap**

There is gap between the present research and previous researches. Most of the previous researches are conducted on profit planning and they are comparative studies in between two or more than two banks; only few researches conducted on profitability position were also comparative studies. The findings were mostly in secondary data and primary data for analysis has not been used. Previous researches were unable to recommend about the particular tools and technique used. Thus, to full-fill the gap, the current research is organized.

This study shall be a new study in this field as no study has been made so far in the Profitability Position of Nabil bank. This study has tried to indicate the profitability position of Nabil bank by applying the tools of ratio analysis and other mathematical and statistical tools. Profitability position of a bank is always fruitful to a wide range of stakeholders. So, the updated information on bank's profitability would be of great advantage to the researcher, the bank concerned, as well as to the public at large who has stake in that organization. This study covers latest financial secondary data and also primary data.

## CHAPTER III

### RESEARCH METHODOLOGY

#### 3.1. Introduction

This chapter explains the design of the study in detail. Research is a systematic and organized effort to investigate a specific problem that needs a solution. The sample size and process of sample selection, the sources and methods of collecting data, the reliability of instruments selected and the statistical procedures used in the analysis are carefully explained in this chapter.

The study basically helps to conduct the real profitability position of Nabil Bank. The major objectives of this research are to analyze the profitability position in Nabil Bank, its effective use of short term and long term reference planning tools and find out financial strength and weakness. This chapter includes the following research methodology.

- Research Design
- Population and Sample
- Sources and Techniques of Data Collection
- Data Analysis Tools

#### 3.2. Research Design

The research design is a framework for the study, guiding the collection and analysis of the data, the research instruments to be utilized and the sampling plan to be followed. The research design of the study is analytical as well as descriptive approach. It is also an organized approach and not a collection of loose, unrelated parts. It is an integrated system that guides the researcher in formulating, implementing and controlling the study. A useful research design can produce the answers to the proposed research questions. Thus the research design is an integrated frame that guides the researcher in planning and

executing the research works. This study is an examination and evaluation of profitability position of Nabil Bank.

### **3.3. Population and Sample**

In this topic, the total composition of population, its size and sample size and process of its selection etc. are briefly described. The current study is only related with the profitability position of Nabil Bank. The present study is undertaken for period of past five years.

### **3.4. Sources and Technique of Data Collection**

The study is conducted on the basis of primary and secondary data. For the secondary data collection of this research work, all the quantitative data are collected directly from the balance sheet, financial reports and financial statement of the bank. Similarly other necessary data have collected from websites, newspapers and related publications. Besides, primary data are collected to some extent through discussion with shareholders, financial experts and personnel of the bank. Questionnaire and interview methods are also applied as primary data sources.

### **3.5. Data Analysis Tools**

Financial and statistical tools are mainly used to analyze the collected data. The data were collected in raw and crude form from various sources are arranged, analyzed and presented in proper table formats and graphs such tables and formats are interpreted and explained wherever necessary. To analyze the collected data, basically two types of tools are used:

- Financial Tools
- Statistical Tools

### **3.5.1. Financial Tool**

Financial Ratios, calculated and interpreted in this study are given below:

#### **a) Liquidity Ratio**

- Cash and Bank Balance to Total Deposits Ratio =  $\text{Cash and Bank Balance} \div \text{Total Deposit}$
- Cash and Bank Balance to Current Deposit Ratio =  $\text{Cash and Bank Balance} \div \text{Current Deposits}$ .
- Fixed Deposits to Total Deposits Ratio =  $\text{Fixed Deposits} \div \text{Total deposit}$
- Saving deposits to Total Deposit Ratio =  $\text{Saving deposit} \div \text{Total Deposit}$

#### **b) Leverage Ratio**

- Interest Income to Total Income Ratio =  $\text{Interest Income} \div \text{Total Income}$
- Interest Expenses to Total Income Ratio =  $\text{Interest Expenses} \div \text{Total Income}$
- Operating Expenses to Total Income Ratio =  $\text{Operating Expenses} \div \text{Total Income}$

#### **c) Utilization/Activities Ratio**

- Loans and Advance to Total Deposit Ratio =  $\text{Loans and Advance} \div \text{Total Deposit}$
- Total Investment to Total Deposit Ratio =  $\text{Total Investment} \div \text{Total Deposit}$
- Loans and Advance to Total Assets Ratio =  $\text{Loans and Advance} \div \text{Total Assets}$

#### **d) Profitability Ratio**

- Return on Total Assets (ROA) =  $\text{NPAT} \div \text{Total Assets}$
- Return on Investment (ROI) =  $\text{NPAT} \div \text{Investment}$

- Return on Shareholders' Equity (ROSE) = NPAT ÷ Shareholders' Equity
- Return on Net Fixed Assets (RONFA) = NPAT ÷ Fixed Assets
- Return on Loans and Advance = NPAT ÷ Loans and Advance

### e) Earning Performance (Capital Market) Ratio

- Earning per Share (EPS) = NPAT ÷ No of Equity Share
- Dividend per Share (DPS) = Dividend ÷ No of Equity Share

## 3.5.2. Statistical Tools

### a) Arithmetic Mean/Average

Average is the central or middle value of the distribution. This is due to the simplicity of its calculation and other advantage. It is an ideal average of the distribution as it depends upon all the items in the distribution. It is used to calculate the average value of quantitative data closed end class intervals and when the distribution does not have very large and very small items.

Arithmetic Mean or Average is also used to obtain average value of distribution having closed ended class intervals and having non-extreme items. It is defined as the sum of numerical values of each and every observation divided by the total number of observation.

Its formula is:

$$\text{Average} = \frac{\text{The sum of numerical values of observation}}{\text{The total number of observation}}$$

$$\text{Or, } \bar{X} = \frac{\sum X}{n}$$

Where,

$$\bar{X} = \text{Average or Mean}$$

$\sum X$  = The sum of numerical values of observation

n = The total number of observation

### **b) Karl Pearson's Coefficient of Correlation (r)**

The most commonly used technique of analyzing the data is to determine the relationship (or association) between two or more variables and to test the significance of relationship. Karl Pearson's correlation coefficient measure a degree of association between two variables only to the extent to which it is linear of the several mathematical method of measuring correlation, the Karl Pearson's method popularly know as Pearson coefficient of correlation, is most widely used in practice. Generally, it is denoted by 'r'. The formula for computing Pearson's correlation coefficient using direct method is as follows:

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

Where,

N = Number of pairs of X and Y observed

X = Value of loans and advances

Y = Value of total deposit

r = Pearson's Correlation Coefficient

### **c) Probable Error (P.E.)**

Probable errors of the correlation coefficients are applicable for the measurement of reliability of the computed value of the correlation coefficient (r). it is defined by,

$$\begin{aligned} \text{P.E.} &= 0.6745 \times \frac{1-r^2}{\sqrt{N}} \\ &= 0.6745 \times \text{S.E.} \end{aligned}$$

Where,

$r$  = Correlation Coefficient variables.

$N$  = No. of pairs of observation

$$\text{S.E.} = \frac{1-r^2}{\sqrt{N}} \text{ (Standard Error)}$$

1. If the value of  $r < \text{P.E.}$ , the value of  $r$  is not significant.
2. If the value of  $r > 6 \times \text{P.E.}$ , there is significant relation between variables.
3. If  $\text{P.E.} < r < 6 \times \text{P.E.}$ , there may be moderate relationship between variables.

In this study, P.E. has been calculated to determine the reliability of correlation coefficient between the variables.

#### **d) Trend Analysis**

Trend analysis is also an important tool for the analysis of Profitability Position of Nabil Bank. It reflects the dynamic pace of movements of a phenomenon over a period of time. This analysis simply finds out the increasing or decreasing trend of any particular item. It helps on forecasting so that proper strategy can be implemented to bring changes in the trend value of succeeding. In this regard, the trend analysis covers the time period of seven years from F.Y. 2003/04 to 2009/10.

#### **e) Simple Bar Diagram and Graphs**

Diagrams and graphs are visual aids which give a bird's eye view of a set of numerical data which show the information in a way that enables us to make

comparison between two or more than two sets of data. Diagrams are in different types. Out of these various types of diagram one of the most important forms of diagrammatic presentation of data is simple bar diagram. A diagram used to present only on variable is called simple bar diagram. It is used for the comparative study of two or more values of a single variable.

The different bars are drawn for the different values of the same variable on the same base line. The height of the bar is used to denote the values; the width of the bar is used to make the diagram attractive and understandable. The different bars should be of the same width.

#### **f) Percentage**

Percentage is one of the most useful tools for the comparison of two quantities or variables. Simply, the word percentage means per hundred. In other words, the fraction with 100 as its denominator is known as a percentage and the numerator of this fraction is known as rate of percent.

### **3.6. Research Variables**

Telephone line, capacity utilization, profit and loss, total assets, profit margin, total capital employed, capital expenditure, cash flows and manpower expenditures relating to long term and short term periods of Nabil Bank are the research variables of the study.

## CHAPTER IV

### PRESENTATION AND ANALYSIS OF DATA

#### 4.1. Introduction

This chapter deals with the presentation, analysis and interpretation of relevant and available data of Nabil Bank in order to fulfill the objectives of this study. To obtain the best result, the data have been analyzed according to the research methodology as mentioned in third chapter. The data presentation and analysis is the basic organization and classification, which are then used for analysis purpose. After data collection is completed, the data is in raw form so; it is arranged in proper way. Different types of data require different methods of summery and presentation. Here, the arrangement of raw data is presented in three ways. They are:

Tabular Presentation

Diagrammatic Presentation and

Graphic Presentation

For the purpose of this study, a period of seven years from F.Y. 2003/04 to 2009/10 is covered.

#### 4.2. Ratio Analysis

##### 4.2.1. Liquidity Ratio

###### a) Cash and Bank Balance to Total Deposit Ratio

The main function of a commercial bank is the collection of deposit and the efficient utilization of the deposit. Deposit collection shows bank's efficiency in performance and reliability and efficient utilization of the same indicates its success and profitability as well as service-orientation. Cash means the firm's

holding of currency and demand deposit. It is the most liquid assets because a firm can disburse it immediately without any restriction.

Cash and Bank Balance to Total Deposit Ratio shows the ability of bank's liquid funds to meet their current deposit and saving deposit. The failure to meet these obligations affects the reputation of the bank among its customers, which can result in the collapse of its existence. Cash and bank balance includes total cash in hand and total cash at Nepal Rastra Bank and Financial Institutions. Similarly, total deposit includes all types of deposits. It is obligated by dividing cash and bank balance by total deposit. This ratio of Nabil Bank is represented below in table no. 1.

**Table No. 1**

**Cash and bank Balance to Total Deposit Ratio**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Cash and Bank Balance	1051.82	1144.77	355.42	559.38	630.24	1399.83	2671.14
Total Deposit	15506.43	13447.66	14119.03	14586.61	19347.40	23342.29	31915.05
Ratio (%)	6.78	8.51	2.52	3.83	3.26	6.00	6.78
Average (%)	5.15						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The table no. 1 shows that the ratio of Cash and bank Balance to Total Deposit Ratio is in fluctuating trend for Nabil bank. But in last two years 2008/09 and 2009/10, the ratio is in increasing trend. The highest ratio is 8.51% in F.Y. 2004/05 and lowest is 2.52% in F.Y 2005/06. The average ratio is 5.15%.

As the higher ratio indicates the better liquidity strength and ability to cover the deposits and vice-versa, the cash and bank balance is in decreasing trend in every year but portion of total deposit is increasing. As a result, the ratio and the liquidity position of the bank are decreasing. It is shocking for the bank

because lesser ratio indicates the poor liquidity strength and disability to meet the demand for deposit of its customer. In this situation, the bank might invest in more productive sectors like short-term marketable securities, treasury bills etc. But in last two years i.e. F.Y. 2008/09 and F.Y. 2009/10, the data shows the liquidity position of the bank is increasing. It means it is favorable for the bank.

### **b) Cash and Bank Balance to Current Deposit Ratio**

Money can be deposited as the depositor's wishes and even can be withdrawn immediately up on demand is called current deposit account. Cash and Bank Balance to Current Deposit Ratio shows the availability of bank's highly liquid or immediate funds to meet unanticipated calls on current deposits and it measures the proportion of most liquid assets i.e. cash and bank balance among the total current assets of the bank. Higher ratio indicates the bank's ability to meet the daily cash requirements of their customers' deposit. Bank has to balance the adequate cash for the customers' demand against deposit when required and less interest is required to be paid against the cash deposit. It is calculated by dividing cash and bank balance by current deposits which is represented in the table no. 2.

**Table No. 2**

#### **Cash and Bank Balance to Current Deposit Ratio**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Cash and Bank Balance	1051.82	1144.77	355.42	559.38	630.24	1399.83	2671.14
Current Deposit	2703.82	3034.00	2688.97	2799.18	2910.59	3395.24	5284.37
Ratio (%)	38.90	37.73	13.22	19.98	21.65	41.23	50.55
Average (%)	31.89						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The given table no. 2 shows that the ratio has decreased 38.90% in F.Y. 2003/04, 37.73% in F.Y. 2004/05, 13.22% in F.Y. 2005/06 and 19.98% in F.Y. 2006/07. But in last three years 2007/08, 2008/09 and 2009/10 it is in increasing trend by 21.65%, 41.23% and 50.55% respectively. The highest ratio is 50.55% in F.Y. 2009/10 and the lowest ratio is 13.22% in F.Y. 2005/06. The average ratio is 31.89%.

From the above analysis, the ratio in F.Y. 2003/04, 2004/05, 2005/06 and 2006/07 have been in decreasing trend. Rise in cost of deposits might be the reason of falling of this ratio. So, there was a danger of failure in the fulfillment of unanticipated calls on current deposits. But in current two years 2008/09 and 2009/10, the ratio is increasing. So, the bank has better position during these periods as the bank show the ability to manage the deposit withdrawal from the customers. Thus, the bank has progressed in recent fiscal years. It is favorable for the bank.

### **c) Fixed Deposit to Total Deposit Ratio**

Fixed deposit is also known as time deposit. It is long-term deposit. Deposit made under fixed deposit can't be withdrawn before the expiry of the period for which they are deposited. Before the maturity of the period if the depositor requires money, he/she can obtain 90% loan from the bank against the security of his/her deposit. Interest on fixed deposit varies on the basis of time duration of deposition. Banks can mobilize them on investment, loans and advance. The greater the proportion of fixed deposits, the lesser will be the proportion of current or short-term deposits in the total deposits, which indicates higher short-term liquidity position of a bank. It is considered by dividing fixed deposit by total deposit which is presented in the table no. 3.

**Table No. 3****Fixed Deposit to Deposit Ratio**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Fixed Deposit	2446.85	2252.55	2310.57	2078.54	3449.09	5435.19	8464.09
Total Deposit	15506.43	13447.66	14119.03	14586.61	19347.40	23342.29	31915.05
Ratio (%)	15.78	16.75	16.36	14.25	17.83	23.28	26.52
Average (%)	18.68						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The tabulation above exhibits that the ratio has increased in every fiscal year except in 2006/07; it is decreased. The highest ratio is 26.52% in F.Y. 2009/10 and lowest ratio is 14.25% in F.Y. 2006/07. The average ratio is 18.68%.

This ratio is not better till F.Y. 2006/07 because it is declined. It might be happened because of worse economic and law order situation in the country. But after then it is increased. It is obvious that Nabil's liquidity position is in better condition. Because the higher the fixed deposit the lower the other short-term or current deposits with a bank implying higher liquidity position. It may happen including selective shedding of unprofitable deposits, improving the quality of credit, improving the yield on investments and increasing low cost deposits.

**d) Saving Deposits to Total Deposit Ratio**

Saving deposits are short-term, interest bearing deposit. Nepalese citizen can open this account alone or jointly with minimum amount of Rs.10, 000 in Nabil bank. This ratio shows the proportion of these deposits on total deposits. At present the bank has fixed 2% per annum rate of interest in saving account. It is obligated by dividing saving deposits by total deposit. This ratio during the study period is presented in table no. 4.

**Table No. 4****Saving Deposits to Total Deposit Ratio**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Saving Deposit	4972.06	5229.72	5994.12	7026.33	8770.76	10187.35	12159.97
Total Deposit	15506.43	13447.66	14119.03	14586.61	19347.40	23342.29	31915.05
Ratio (%)	32.06	38.89	42.45	48.17	45.33	43.64	38.10
Average (%)	41.24						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

In table no. 4, the ratio is increasing till F.Y. 2006/07 and then decreased from 45.33% in F.Y. 2007/08 to 38.10% in F.Y. 2009/10. So, for first four years, it is in increasing trend and after then for the last 3 years it is in decreasing trend. The highest ratio is 48.17% in F.Y. 2006/07 and lowest ratio is 32.06% in F.Y. 2003/04. Its average ratio is 41.24%.

If saving deposit to total deposit ratio is high, it indicates the higher liquidity ratio and vice versa. By the analysis above, Nabil's liquidity position is concluded better in last 3 years as it is increased. Saving deposits are generally regarded as short-term obligation as it can be withdrawn with or without prior notice or with short notice. Nabil ratio in relation to saving deposits to total deposits is not better because in last year from 2007/08 to 2009/10 it is decreasing. So, it is unfavorable and critical for the bank. Such condition may have occurred because of low interest rate on saving deposit and unattractive savings scheme which detracted the customers.

## 4.2.2. Leverage Ratio

### a) Interest Income to Total Income Ratio

This ratio shows the portion of interest income on total income. Interest is the main source of income in commercial banks. So, the interest income should be increased yearly. When the interest income is increased then total income is also increased; so the correlation between in these two ratios is positive. The highest ratio indicates the high contribution made by the lending and investing activities. This ratio is calculated by dividing interest income by total income. It is represented below in table no. 5.

**Table No. 5**

#### **Saving Deposits to Total Deposit Ratio**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Interest Income	1120.18	1017.87	1001.62	1068.75	1310.00	1587.76	1978.7
Total Income	1639.12	1427.45	1426.44	1510.68	1717.41	2922.59	2452.95
Ratio (%)	68.34	71.31	70.22	70.75	76.28	54.33	80.67
Average (%)	70.27						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The display given in Table no. 5 proves the ratio of Nabil bank is in fluctuation trend. In some FYs there were increasing trend but in some other there were trend of decrease. The highest ratio is 80.6% in 2009/10 and lowest ratio is 63.34% in F.Y. 2003/04. Average ratio is 70.27%.

The analysis above interpreted the ratio of this bank was not satisfactory. Because interest income and total income both were in decreasing trend for some years. The cause of it might be reduction on interest rate and increase in non-interest income. It means the total income didn't fully depend on interest

income; if bank increased its interest income, total income might increase at the same time. But in the year 2007/08, 2008/09 and 2009/10 ratio is increasing because total income and interest income both are increasing. The above impressive result is possible due to the improvements in net interest income and in the quality of credit.

### **b) Interest Expenses to Total Income Ratio/Interest Payout Ratio**

As interest income is main source of income, an interest expense is also the main expenses in the bank. The increase between income and expenses derive the profit for the bank. The correlation between in these two items is negative because when expenses are increased then total income is decreased and vice versa. The comparison between total expenses and total income measures productivity of expenses in income generation. The portion of interest expenses in total income is higher than other expenses. Since the NRB has restricted the interest spread should not be more than 5%, all of the commercial bank has to follow this rule. This ratio is measured by dividing interest expenses by total income. It is represented in following table no. 6.

**Table No. 6**

#### **Interest Expenses to Total Income Ratio**

(Rs. in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Interest Expenses	462.08	317.35	282.95	243.54	357.16	555.71	758.44
Total Income	1639.12	1427.45	1426.44	1510.68	1717.41	2922.59	2452.95
Ratio (%)	28.19	22.23	19.84	16.12	20.80	19.01	30.92
Average (%)	22.44						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The ratio of interest expenses on total income is slightly decreasing. From F.Y. 2003/04 to till F.Y. 2006/07, the ratio was little bit decreasing then the ratio

shows increasing trend. In F.Y. 2009/10 it is very highly increased. The highest ratio is 30.92% in F.Y. 2009/10 and the lowest ratio is 16.12% in F.Y. 2006/07. The average ratio is 22.44%.

The ratio explains; the last four years' interest expense was decreased and the ratio also was in decreasing trend. So, it was good for the bank. But in current three years interest expenses are increasing. Increase on interest rate is the cause of increase on interest expenses and causes of it may be major portion of income is spending as interest expenses each year. This may effect negatively in profitability of bank. If this expense is increased; the bank has to collect low deposit of non interest bearing fund and also decrease income or total income. Tough market pressure on lending rates has caused increase on interest expenses. In last year the interest expenses to total income ratio is very high it is critical for the bank.

### **c) Operating Expenses to Total Income Ratio**

The bank while carrying out its normal activity has to incur various costs are called operating costs. Operating expense is an important expense in any kind of organization because it includes the expenses, which are incurred on daily official function. This includes those expenses, which are necessary to operate daily function, such as rent, stationary, furniture, insurance, advertising, legal expenses, managerial expenses etc. This ratio shows the portion of operating expenses on total income. Higher operating expenses ratio indicates inefficiency due to higher operating cost relative to total income and vice versa. This ratio is measured by dividing operating expenses by total income. It is portrayed below in table no. 7.

**Table No. 7**

**Operating Expense to Total Income Ratio**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Operating Expenses	134.32	166.20	150.76	153.37	190.30	182.70	188.18
Total Income	1639.12	1427.45	1426.44	1510.68	1717.41	2922.59	2452.95
Ratio (%)	8.19	11.64	10.57	10.15	11.08	6.25	7.67
Average (%)	9.37						

Sources: Annual Reports of Nabil Bank (2003/07 to 2009/10)

Table no. 7 demonstrates the ratio of operating expenses to total income. The ratio is increasing in F.Y. 2003/04 to till 2007/08. But in current two years it is in decreasing trend. The highest ratio is 11.64% in F.Y. 2004/05 and the lowest ratio is 8.19% in F.Y. 2003/04. The average ratio is 9.37%.

The data analyzed above verifies the operating expense is increasing yearly. So, the ratio or portion of expense on total income is also increasing; which affect profit adversely. The operating expense was increasing, but the bank couldn't increase its total income. Due to the inflation and high growth of business volume, the operating expense may have increased. So, the bank should plan to reduce its expense or should increase its income to improve its profitability. Nevertheless, the operating expense is decreasing and the portion of total income is increasing in last two years. So, in these two years the ratio is decreasing which indicates the excellence of Nabil bank.

### **4.2.3. Utilization/ Activity Ratio**

#### **a) Loan and Advance to Total Deposit Ratio**

Loan and advances are the major area of mobilization of deposit of the commercial banks. Loan and advances are the first type of application of funds,

which has more risk and return compared to investment. This ratio shows how well the deposit has been mobilized and the ability of bank in generating income from bank's deposit. The higher ratio indicates proper mobilization of funds and vice versa. Loan and advance includes bill purchase and discount. It is depicted in following table no. 8.

**Table No. 8**

**Loan and Advance to Total Deposit Ratio**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Loan and Advance	7437.89	7755.95	8189.99	10586.17	12922.54	15545.78	21365.05
Total Deposit	15506.43	13447.66	14119.03	14586.61	19347.4	23342.29	31915.05
Ratio (%)	47.97	57.68	58.01	72.57	66.79	66.60	66.94
Average (%)	62.37						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

Table no. 8 observes that the ratio of Nabil Bank is fluctuating. Because here, the ratio is increased in some years i.e. F.Y. 2003/04 to F.Y. 2006/07 after then it is decreased in F.Y. 2007/08 and F.Y. 2008/09 but in F.Y. 2009/10 it is gradually increased. The highest ratio is 72.57% in F.Y. 2006/07 and lowest ratio is 47.97% F.Y. 2003/04. The average ratio is 62.37%.

Above ratio analysis is in decreasing trend; the bank has not mobilized the deposit properly. Although the deposit was increasing yearly but the loan and advance could not increase well comparing with deposit. Political uncertainty and instability in the security continue to haunt the progress and prosperity of the country and tremendous market pressure on lending rates has caused decline on the Bank's loans and advances. This situation may effect on the overall profitability of the bank. Because more portion of deposit fund has been unutilized. But in increasing years, the bank is more successful in deposit

utilization as main income generation assets, i.e. loans and advance. So, in these years the deposit utilization is satisfactory.

### **b) Total Investment to Total Deposit Ratio**

Investments are also another kind of area of fund mobilization, which is more secure than loan and advances. Mobilizing fund on investment activities are not risky job in the bank and it also gives return but less than loan and advances. This ratio shows the fund mobilizing power of the bank and also measures the mobilization of percentage amount of total deposit on investment. The higher ratio indicates proper mobilization of funds and vice versa. It is calculated by dividing the total investment by the total deposits which is shown in following table no. 9.

**Table No. 9**

#### **Total Investment to Total Deposit Ratio**

(Rs.in million)

F.Y. Particular	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Total Investment	8199.51	6031.18	5835.95	4275.53	6178.53	8945.31	9939.77
Total Deposit	15506.43	13447.66	14119.03	14586.61	19347.4	23342.29	31915.05
Ratio (%)	52.88	44.85	41.33	29.31	31.93	38.32	31.14
Average (%)	38.54						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

Table no. 9 above, examines utilization of fund as investment over the period of seven years. The data reveals that, Investment ratio was not satisfactory because it was in decreasing trend. The highest ratio is 52.88% in F.Y. 2003/04 and lowest ratio is 29.31% in F.Y. 2006/07. The average ratio is 38.54%.

The analysis explains that ratio was not satisfactory because the total investment and total deposit are decreasing as ratio is decreasing. It means the

bank has not mobilized more funds properly on investment, which is not appreciable. In this condition the bank's liquidity position is not good. Cause for this is; many banks are mushrooming in Nepali economy and the investment is insecure as competition is tough.

### c) Loan and Advance to Total Assets Ratio

Loan and advance to total assets ratio reflects the extent to which banks are successful in mobilizing these assets in main income generating assets, i.e. loans and advances. Loan and advance is the main income generating component of total assets. So, if it is increased then total assets are also increased and vice versa. As a result, higher ratio shows the higher efficiency in assets management. This ratio is represented in following table no.10.

**Table No.10**

#### **Loan and Advance to Total Assets Ratio**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Loan and Advance	7437.89	7755.95	8189.99	10586.17	12922.54	15545.78	21365.05
Total Assets	17629.25	16562.62	16745.49	17064.08	22329.97	27253.39	37132.76
Ratio (%)	42.19	46.83	48.91	62.04	57.87	57.04	57.54
Average (%)	53.20						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The above table no. 10 shows that the ratio is in increasing trend in F.Y. 2003/04 to till F.Y. 2006/07 after that it is decreasing from F.Y. 2007/08 to F.Y. 2009/10. The highest ratio is 62.04% in F.Y. 2006/07 and lowest ratio is 42.19% in F.Y. 2003/04. The average ratio is 53.20%.

Analysis above shows that proportion of loan and advances against total assets. Here, in four years the ratio is increasing. So, it is favorable for the bank. In

this situation the bank is more efficient in assets. It means bank is successful in mobilizing these assets in generating income i.e. loan and advance. But in current three years the bank is not mobilizing these assets properly because in these years' assets are increasing but in proportion of assets loan and advance are not increased properly. It may be due to the number of banks and financial institutions and their branches are constantly increasing.

#### 4.2.4. Profitability Ratios

##### 4.2.4.1. Profitability from the View of Investment

###### a) Return on Total Assets (ROA)

All the assets employed in bank as shown in assets side of balance sheet are included in total assets. It has been computed on the basis of NPAT. This ratio shows the percentage of return on assets. It measures how efficiently the assets of business are utilized to income generation. The ratio informs the management and shareholders, if their investment on total assets is beneficial or not. It reveals the earning power of bank. Higher ratio shows high efficiency on utilization of assets and vice versa. It has been calculated dividing the NPAT by amount employed in total assets.

**Table No. 11**

##### **Return on Total Assets**

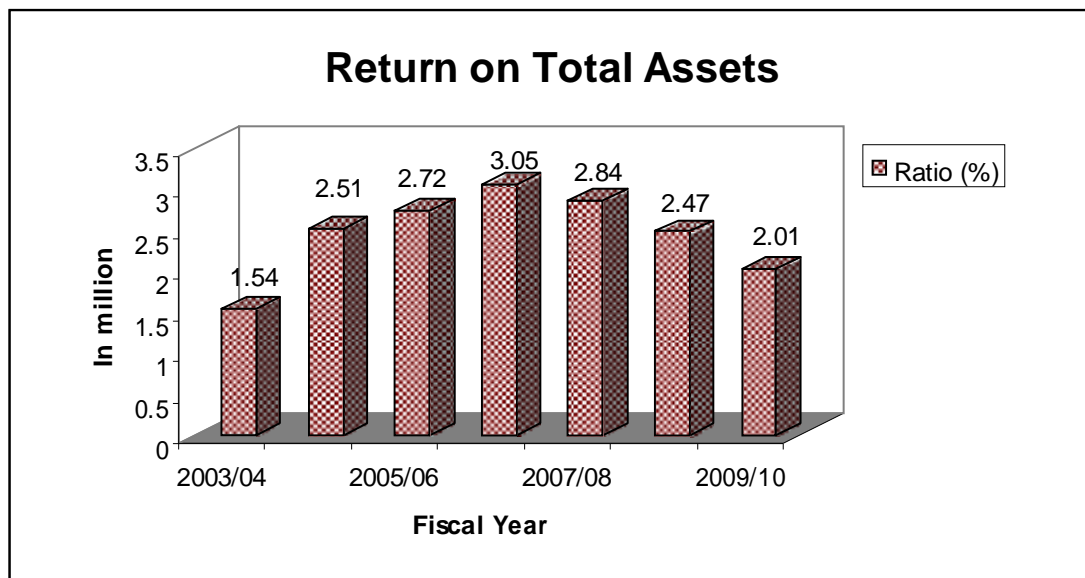
(Rs.in million)

F.Y. Particular	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
NAPT	271.64	416.24	455.32	520.11	635.26	673.96	746.47
Total Assets	17629.25	16562.62	16745.49	17064.08	22329.97	27253.39	37132.76
Ratio (%)	1.54	2.51	2.72	3.05	2.84	2.47	2.01
Average (%)	2.45						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The table no.11 observes, NPAT of last four years 2003/04 to 2006/07 is satisfactory because it is in increasing trend. But in year 2007/08 to 2009/10 it is in decreasing trend which is not pleasing. The highest ratio is 3.05% in F.Y. 2006/07 and lowest ratio is 1.54% in F.Y. 2003/04. The average ratio is 2.45%.

It is more clearly shown in flowing bar diagram in figure no. 1.



**Fig. no.1**

Figure no. 1 explains that in last three years 2007/08 to 2009/10, the ratios are in decreasing trend. Decreasing ratio indicate the efficient utilization of assets. Volume of assets is increasing continuously but the returns on them are decreasing. The causes of it may be increase in non-banking assets and decrease in net profit as well. Thus, it shows that bank's assets are not properly utilized. So, bank should utilized its assets properly, reduce its non-banking assets and increase its net profit as well.

### **b) Return on Investment (ROI)**

This investment consist the whole amount of investment. The bank has invested their fund in different profitable sector to generate more profit if it can't get expected return or unable to recover invested amount, they suffer.

ROI invests their fund on treasury bills, Nepal Government development bonds and other investment too. The investment directly returns to bank, however, the cost of arranging investment like interest payment and other additional expenses like income tax payment and bad debts provision reduce the gross return. Hence, the NPAT is taken to measure the return on investment. It informs the bank, its return is adequate to meet the obligations created by investment like interest payment, bad investment provision etc. It is represented in table no.12.

**Table No. 12**

**Return on Investment**

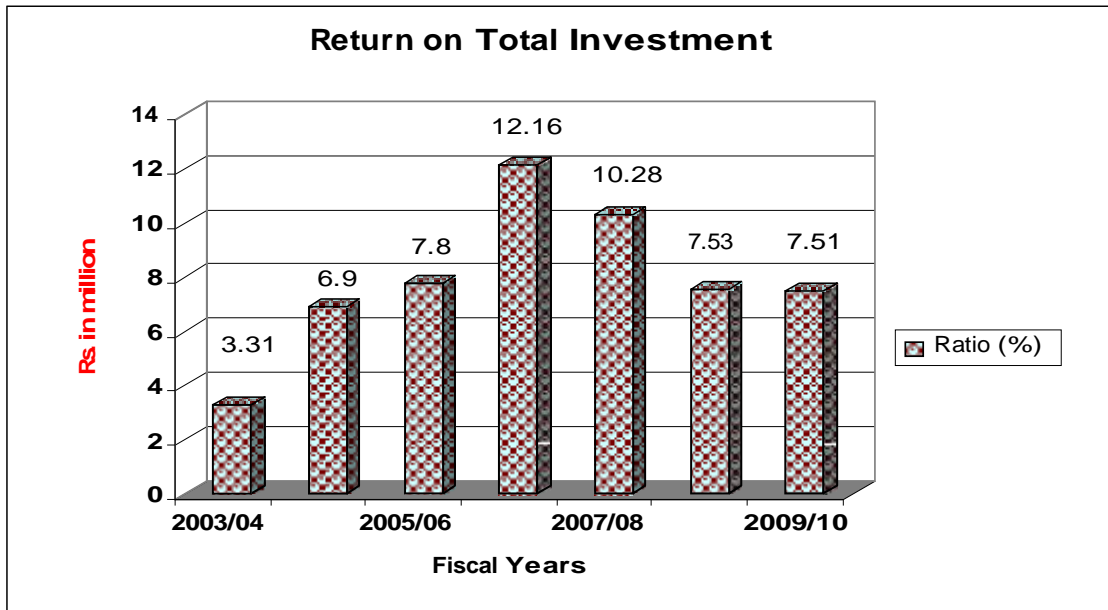
(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
NPAT	271.64	416.24	455.32	520.11	635.26	673.96	746.47
Total Investment	8199.51	6031.18	5835.95	4275.53	6178.53	8945.31	9939.77
Ratio (%)	3.31	6.90	7.80	12.16	10.28	7.53	7.51
Average (%)	7.93						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The above table no. 12 exhibits that the ratio is in increasing trend till F.Y. 2006/07 but after that it is decreasing from F.Y. 2007/08 to 2009/10. The highest ratio is 12.16% in F.Y. 2006/07 and lowest ratio is 3.31% in F.Y. 2003/04. The average ratio is 7.93%.

It is more clearly shown in figure no.2.



**Fig. no. 2**

Higher ROI refers favorable position of profitability and vice versa. The above analysis shows that the profitability position of the bank is not consistent. Firstly, the ROI is in increasing trend from F.Y. 2003/04 to 2006/07 then its decreasing. Last three years' ROI shows the weakness of firm in investment policy. Number of banks and financial institutions and their branches are constantly increasing, it may have happened because of decreasing and low investment. If the ROI is not in better position, the firm's total profitability position is disturbed. So, the bank has to improve management to gain the return.

### **c) Return on Shareholders' Equity (ROSE)**

The return on shareholders' equity (ROSE) or simply return on equity (ROE) indicates how well the company's management is able to provide return to its owners. Shareholders' equity includes profit general reserve, share premium and other reserves like bank develop fund, dividend equalization fund, exchange fluctuation fund. It carries the relationship of return (NPAT) with the sources of fund. It shows the relation between use of equity and NPAT. Actually, net profit to equity shareholders is employed to calculate this ratio

but the bank has not employed any preference share. An assessment of profitability in relation to shareholders' equity is important for management to know the effectiveness of net worth utilization. So, this ratio shows how efficiently the bank has utilized the resources of the shareholders'. It is presented below on table no. 13.

**Table No. 13**

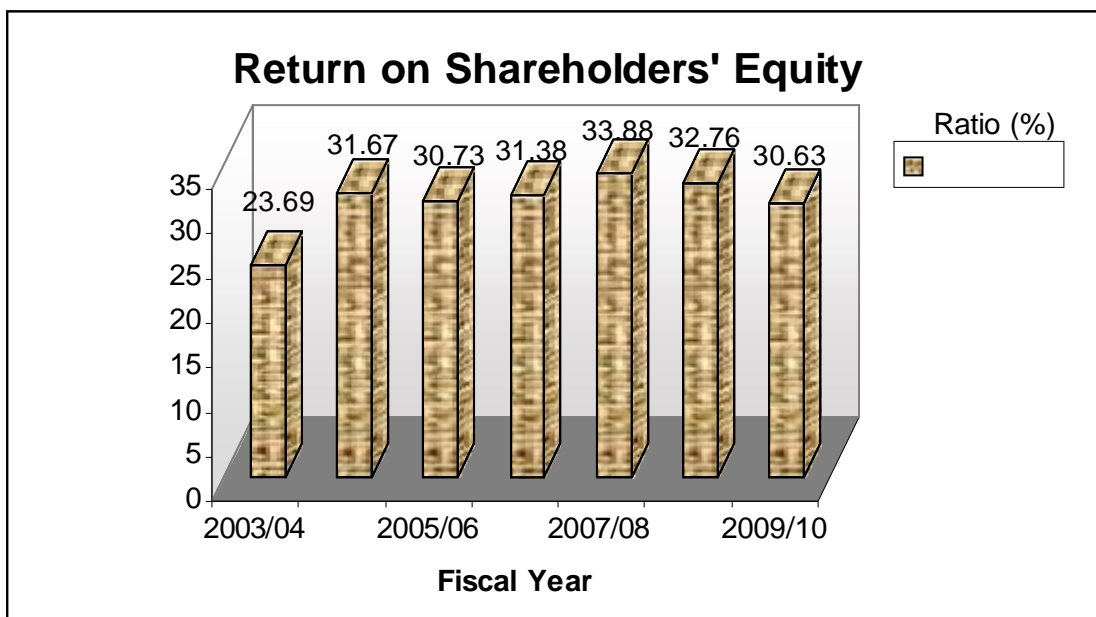
**Return on Shareholders' Equity**

(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
NPAT	271.64	416.24	455.32	520.11	635.26	673.96	746.47
Net Worth	1146.42	1314.19	1481.68	1657.64	1874.99	2057.05	2437.2
Ratio (%)	23.69	31.67	30.73	31.38	33.88	32.76	30.63
Average (%)	30.68						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

It is also represented in bar diagram below in fig. no. 3.



**Fig. no. 3**

It observes in the table no. 13, ROSE is fluctuating. Because in some years it is increasing trend and the other year it is in decreasing trend. It is satisfactory only in previous two year that is 31.38% in F.Y. 2006/07 and 22.88% in 2007/08. But after that it started to decrease from F.Y. 2008/09 to F.Y. 2009/10. The highest ratio is 33.88% in F.Y. 2007/08 and lowest ratio is 23.69% in F.Y. 2003/04. The average ratio is 30.68%.

Analysis above shows the ROSE condition of the Nabil Bank. Where the higher ROSE shows better profitability position of bank in relation to net worth and decreasing ratio indicate that the worth of the bank is decreasing and the book value of share is also decreasing. But in above table, in the F.Y. 2008/09 and F.Y. 2009/10, ROSE is decreasing trend. Therefore we can say that the trend of profitability position of the bank is negative during this fiscal years and value of share is also decreased. These ratios implied that the bank is unable to utilize total equity to generate profit. So, the ROSE is unfavorable. That implies the management should improve equity management. Bank should re-invest its undistributed profit, without keeping those as a reserve i.e. distribute dividend to shareholders. This may help the bank to increase rate of return on shareholders' fund.

#### **d) Return on Net Fixed Assets (RONFA)**

The net fixed assets include fixed after deducting depreciation, sales and adding of capital construction expenses. The RONFA measure the efficiency with which the firm has been using its fixed assets to generate profit and the effectiveness of net fixed assets employed in bank. The higher RONFA denotes the net fixed assets have been efficiently operated. The efficient operation of assets is signal of better profitability position of net fixed assets employed. The result from RONFA is helpful to management for operation of fixed assets. The RONFA is calculated dividing the NPAT by net fixed assets. It is represented in following table no. 14.

**Table No. 14**

**Return on Net Fixed Assets**

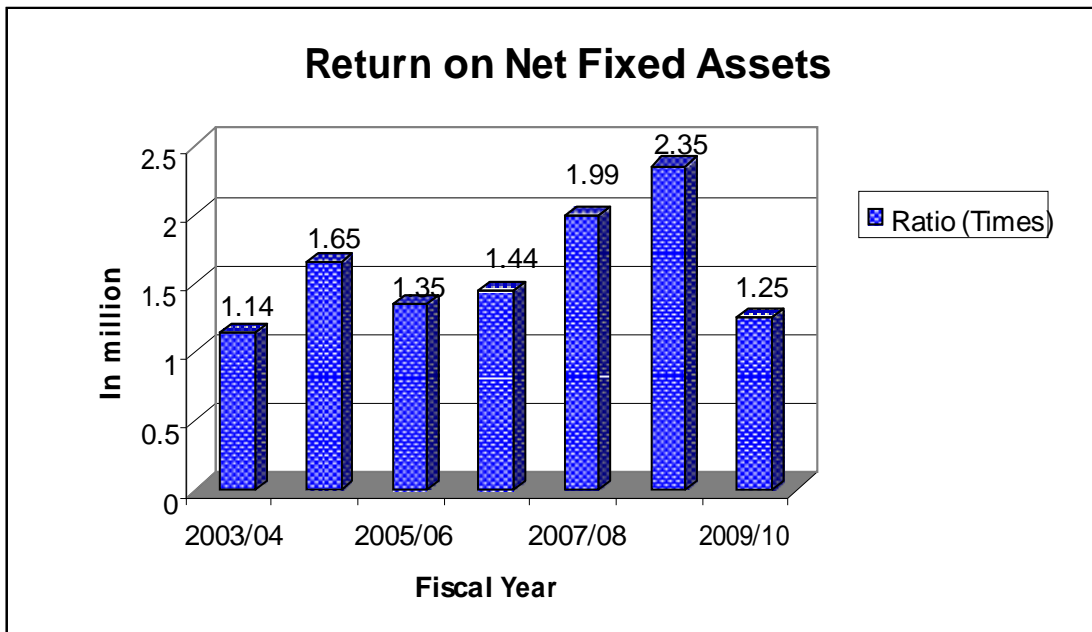
(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
NPAT	271.64	416.24	455.32	520.11	635.26	673.96	746.47
Fixed Assets	237.64	251.92	338.13	361.24	319.09	286.9	598.04
Ratio (Times)	1.14	1.65	1.35	1.44	1.99	2.35	1.25
Average (Times)	1.60						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

Table no. 14 shows that previous first two F.Y. 2003/04 and 2004/05, the ratio was in increasing trend then it was decreased in one F.Y. 2005/06 and after again it was increased from F.Y. 2006/07 to 2009/10. The highest ratio is 2.32 times in F.Y. 2008/09 which is satisfactory for bank and lowest ratio is 1.14 times in F.Y. 2003/04. The average ratio is 1.60 times.

It is more clear in the following bar diagram in fig. no. 4.



**Fig. no. 4**

The analysis above shows the ratio is in fluctuating trend. The ratios are in good condition in previous years but in F.Y. 2009/10, it is not satisfactory because it is highly decreased. So, in this year, the trend of RONFA shows the decreasing profitability position of Nabil Bank in relation to net fixed assets. By comparing the trend of RONFA at previous different fiscal year, the ratio is not satisfactory. The decreasing trend of ratio implies that the firm has less efficiency in net fixed assets management as the result of net fixed assets unable to generate adequate income in fiscal year 2009/10. The causes of it may be increased in non- banking, assets and decrease in net profit as well. Net fixed assets are not properly utilized. So, bank should utilized its fixed assets properly, reduce its non-banking assets and increase its net profit as well.

#### e) Return on Loan and Advance

This ratio shows percentage of net profit on loan and advance. Net profit is generated mainly from interest income deducting expenses on it. If loan and advances are utilized properly, the interest income will be increased and net profit will also increase. High ratio indicates high efficiency of lending policy and vice-versa. It has been calculated by NPAT to loan and advance. It is shown in following table no. 15.

**Table No. 15**

#### **Return on Loan and Advance**

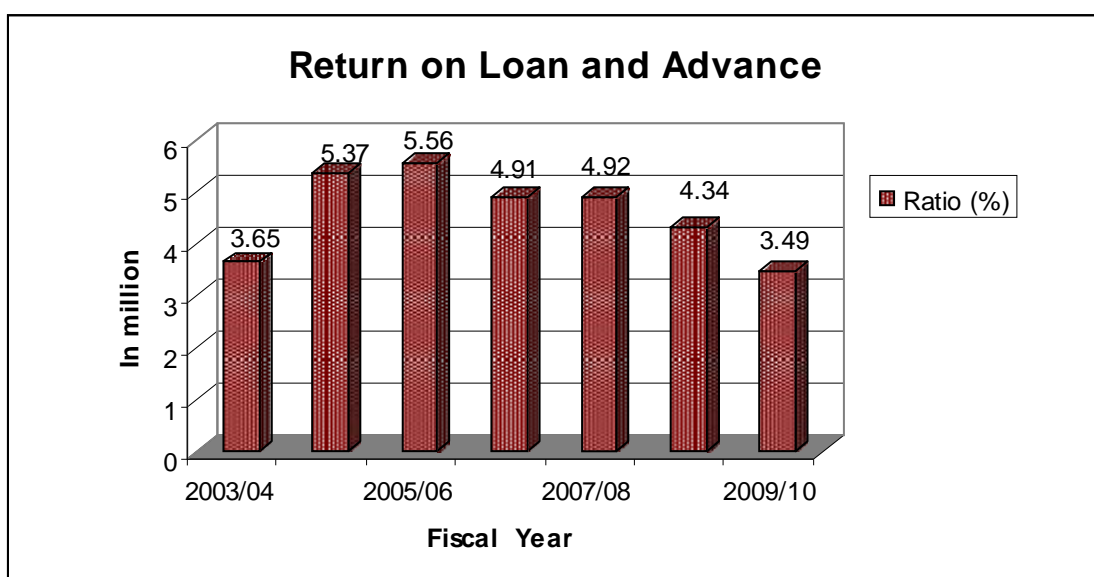
(Rs.in million)

Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
NPAT	271.64	416.24	455.32	520.11	635.26	673.96	746.47
Loan and Advance	7437.89	7755.95	8189.99	10586.17	12922.54	15545.78	21365.05
Ratio (%)	3.65	5.37	5.56	4.91	4.92	4.34	3.49
Average (%)	4.61						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

Above table no. 15 shows that first three year 2003/04, 2004/05 and 2005/06, the ratio is increased. But after that it started to decrease from F.Y. 2006/07 to F.Y. 2009/10. The highest ratio is 5.56% in F.Y. 2005/06 and lowest ratio is F.Y. 2009/10. The average ratio is 4.61%.

It is clear by following bar diagram fig. no.5.



**Fig. no. 5**

The analysis observes that the loan and advance are increasing subsequently but the profit is not increasing in same trend. The profit is slightly increased as compared with loan and advance. As a result, it shows the bank couldn't utilize its fund efficiently and its lending policy is not satisfactory. The causes of this may be not planning in lending process or of huge amount of loan and advances became substandard or bad loans.

#### **4.2.4.2. Profitability from the View of Shareholders**

The profitability from the view of shareholders can be assessed in different view i.e. from the view of preference shareholders and equity shareholders. But due to the Nabil Bank has not employed preference share capital, the assessments of profitability has been done only from the view of equity shareholders.

The assessment of the profitability from the view of shareholders has been done on the following heads:

- a) Earning per share (EPS)
- b) Dividend per share (DPS)

#### a) Earning Per Share (EPS)

The EPS shows the portion of profit to equity shareholders. Due to the absence of employment of preference shareholder, the NPAT has been taken for the calculation. So, EPS is calculated by dividing NPAT by numbers of share outstanding. The amount of EPS measures the efficiency of a firm in relative terms. It is a measuring tool of organizational overall performance, how far an organization is able to use its resources to generate profit.

EPS is determined by the amount of profit it has earned. Thus, it determines the market value of share, the attitude of outsiders and high amount of EPS increases the good will of the organization. Also, higher the EPS denotes the high profit margin to shareholders wealth and vice versa.

**Table No. 16**

#### **Earning Per Share**

(Rs.in million)

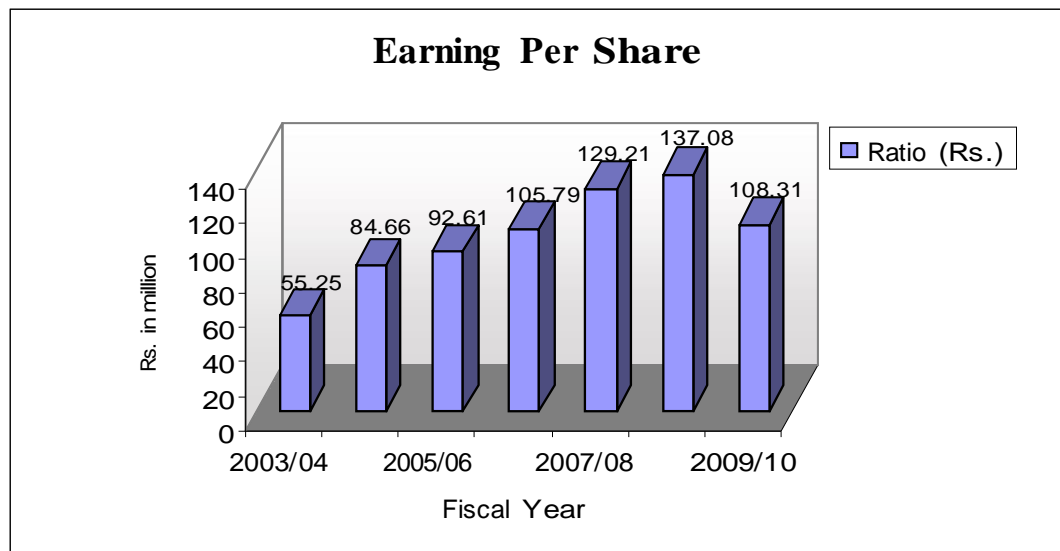
Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
NPAT	271.64	416.24	455.32	520.11	635.26	673.96	746.47
No. of Equity Share	491.65	491.65	491.65	491.65	491.65	491.65	689.22
Ratio (Rs.)	55.25	84.66	92.61	105.79	129.21	137.08	108.31
Average (Rs.)	101.84						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The table no. 16 shows earning per share over the seven years period. In this table, EPS is gradually increased from F.Y. 2003/04 to 2008/09, but in F.Y.

2009/10, it is decrease. The highest EPS is Rs.137.08 in F.Y. 2008/09 and lowest EPS Rs.55.25 in F.Y. 2003/04. The average EPS is Rs.101.84.

It is easily understand by following bar diagram no. 6



**Fig. no. 6**

As a par value of EPS is Rs.100, in above table EPS is less than par value in F.Y. 2003/04 to 2005/06. Hence, during this fiscal year, the EPS is adverse. So, the firms earning was not constant over the shareholders. But from F.Y. 2006/07 to F.Y. 2009/10, the EPS is more than par value. In this year, the EPS is favorable. Even in this F.Y. 2009/10, the EPS is more than par value but it is decreased than previous year. In this year bank has issued more numbers of share but could not increase its profit in same trend. That's why that EPS of the bank is decreased. In this condition, firm should improve its earning capacity.

### **b) Dividend per Share (DPS)**

Dividend per share refers amount of dividend paid to each shareholders. Dividends are given to shareholders when the organization earn appropriate amount of profit. Certain amounts of profit are distributed to equity shareholders as cash dividend and bonus share high dividend per share reveals the more portion of profit has been distributed that attracts the possible

investors on bank and also cause to increase the value of the share. It is also a measure of profit earning capacity of the organization. The position of DPS without bonus share has been presented in following table no. 17.

**Table No. 17**

**Dividend per Share**

(Rs.in million)

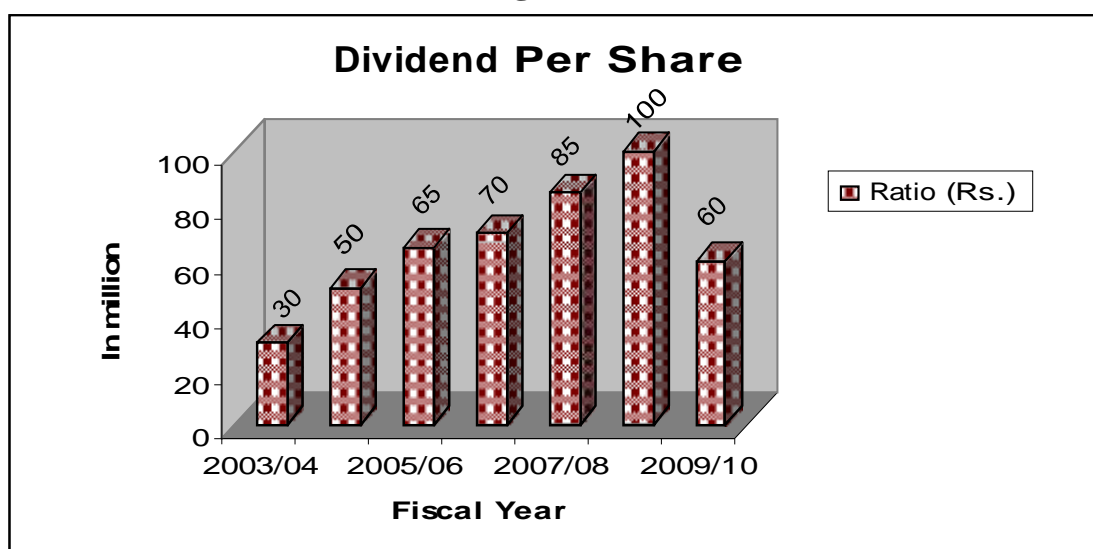
Particular \ F.Y.	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Dividend	147.5	245.83	319.58	344.16	417.91	491.65	413.53
No. of Equity	491.65	491.65	491.65	491.65	491.65	491.65	689.22
Ratio (Rs.)	30.00	50.00	65.00	70.00	85.00	100.00	60.00
Average (Rs.)	65.72						

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

The table no.17 shows that DPS is increasing trend from F.Y. 2003/04 to F.Y. 2008/09. But in F.Y. 2009/10 it is suddenly decreased to Rs.60. The highest DPS is Rs.100 in F.Y. 2008/09 and lowest is Rs.30 in F.Y. 2003/04. The average DPS is Rs.65.72.

It is easily understood by the following figure.

**Fig. no. 7**



Above analysis shows that in increasing years the DPS of Nabil bank is at better position. Therefore, it was favorable condition of the bank. But in F.Y. 2009/10, it is decreased. It means the bank is not distributing dividend properly this year because there is less profit than previous year.

### **4.3. Statistical Tools**

#### **4.3.1. Trend Analysis**

Trend analysis of deposit, loan and advances, interest income, interest expenses, total income etc. is presented here. This analysis covers the time period of seven years from F.Y. 2003/04 to 2009/10. Analysis is defined with the help of least square method, correlation analysis etc.

##### **a) Trend analysis of Total Deposit**

Deposits are the main source of fund which is mobilized on loan and advance and investment. Deposits are collected from general public and provided loans to the general public as well. If deposits are utilized properly it will increase the profit of the bank. This analysis helps to find out trend of deposit and its relationship with time period.

Deposit = y

Time (year) = x

Using least square equation,

$$Y_c = 18894.93 + 2651.55x$$

According to this equation trend of deposit indicated that deposits (y) are increasing every year by Rs.2651.55 million in average. Any change on time in year (x) period will change or increase the deposit by Rs.2651.55.

By using correlation analysis,

Value of 'r' = 0.8507

$$r = 0.85$$

Test of significance of 'r'

$$\text{Probable Error (PE)} = 0.070$$

$$6\text{PE} = 0.42$$

Co-efficient of determinants  $r^2$

$$r^2 = 0.7237 \text{ i.e. } 72.37\% \quad (\text{Note Appendix 1})$$

Value of 'r' shows that deposit and time period is highly correlated with each other. Since  $r = 0.85$  which is greater than  $6\text{PE}$  (0.42), the co-efficient of correlation between deposit with change in year are found to be significant.

Since  $r^2$  (co-efficient of determinants) = 72.37% which seems time can explain the variation of in deposit almost by 72.37% and remaining (100-72.37 = 27.36%) are due to error factor. It indicates the change in time makes change in deposit significant. Total deposit is almost depended on time and only 27.36% deposit is depended on other factor. It means it is related to this time rather than any other components.

### **b) Trend analysis of total investment**

Investments are also the sector of utilizing the collected fund. This analysis shows the trend of investment and the relationship between time period and total investment.

$$\text{Total Investment} = y$$

$$\text{Time (year)} = x$$

By using least square method,

$$Y_c = 7057.97 + 406.84x$$

According to this analysis, investments are increasing every year by Rs.406.84 million in average. Any change on time period (x) will change or increase the

total investment (y) by Rs.406.84 million. This ratio shows that investment (y) will be increase if time period (x year) increase.

By using correlation analysis,

$$\text{Value of } r = 0.4373$$

Test of significance of 'r'

$$\text{Probable Error (PE)} = 0.2062$$

$$6PE = 1.237$$

Co-efficient of determinants  $r^2$

$$r^2 = 0.1912 \text{ i.e. } 19.12\% \quad (\text{Note Appendix 2})$$

Since  $PE \leq r \leq 6PE$  i.e.  $0.2062 \leq 0.4373 \leq 1.237$ , nothing can be concluded it means nothing can be said about the relationship between time and total investment.

Since Co-efficient of determinants ( $r^2$ ) = 1912, which seems time can explain the variations of investments by 19.12% and remaining (100-19.12= 80.88%) are due to error factor. There is no significant relationship between change in year and change in investment. So investment does not depend on time. Only 19.12% are depended on time. Thus, investment is almost depending on other factors such as economic condition, return from investment, market opportunity etc.

### **c) Trend Analysis of Loan and Advance**

Loan and advance are the main sector of mobilizing collected deposit. Increase in loan and advance may increase on return from them. This analysis helps to find out trend of loan and advances.

$$\text{Loan and Advanced} = y$$

$$\text{Time in year} = x$$

Using least square method,

$$Y_c = 11971.91 + 2217.63x$$

Trend analysis shows that loan and advances (y) are increasing every year by Rs.2217.63 million in average. Any change in year or time (x) will change loan and advance (y) by that much.

By using correlation analysis,

$$\text{Value of 'r'} = 0.9381$$

Test of significant of 'r'

$$\text{Probable error (PE)} = 0.0306$$

$$6PE = 0.1836$$

Co-efficient of determinants 'r<sup>2</sup>'

$$r^2 = 0.88 \text{ i.e. } 88\% \quad (\text{Note Appendix 3})$$

Value of  $r = 0.9381$ , shows that loan and advances and time (year) is correlated with each other. Since 'r' 0.9381 which is greater than 6PE i.e. 0.1836, the co-efficient of correlation between loan and advances and change in time are found to be highly significant.

Since  $r^2 = 88\%$ , which seems time can explain the variation of loan and advances almost by 88% and remaining (100-88 =12%) are due to error factor. It indicates the change in time makes change in loan and advances highly significant. Relationship between loan and advance and time is positive. It is almost depended on time. Only 12% are depended on other factor which effect on loan flow.

#### **d) Trend Analysis of Total Assets**

Trend analysis of total assets shows the trend of increase or decrease in these assets with the changes in time (year). It also shows the relationship between these total assets and year. Total assets include all types of assets.

Total assets = y

Time in year = x

Using least square method

$$Y_c = 22102.51 + 3052.73x$$

According to this analysis, total assets (y) are increasing every year by Rs.3052.73 million. Any change in time (x) will change total assets at that rate.

By using correlation analysis,

Value of 'r' = 0.8546

Test of significant of 'r'

Probable Error (PE) = 0.0688

$$6PE = 0.4127$$

Co-efficient of determinants 'r<sup>2</sup>

$$r^2 = 0.7302 \text{ i.e. } 73.02\% \quad (\text{Note Appendix 4})$$

Value of r = 0.8546, which is greater than 6PE i.e.0.4127. So that there is highly significant relationship between total assets y and change in time x. Thus relation between total assets and time is positive. Change in year significantly change in total assets.

Since r<sup>2</sup> co-efficient of determinants = 0.7302 which seems time can explain the variation of total assets almost by 73.02% and remaining (100-73.02= 26.98%) are due to error factor. It proves that total assets are almost related with time rather than other factor. But management has to think about it seriously because if increase in total asset does not increase in return i.e. profit, it will not be good to increase in these assets. So being significant relation with time, it is not significant for the bank to increase its total assets.

### e) Trend Analysis of Total Income

Total income includes interest income and non interest income. Trend analysis is done to analysis the increasing or decreasing trend of income with change in time period.

$$\text{Total Income} = y$$

$$\text{Time in year} = x$$

Using least square equation method

$$Y_c = 1870.95 + 204.38x$$

According to the above equation total income (y) increase each year with increase in year by Rs.204.38 million in average. Change in time (x year) will change total income (y) by that much.

By using correlation analysis,

$$\text{Value of 'r'} = 0.7561$$

Test of significance of 'r'

$$\text{Probable Error (PE)} = 0.1092$$

$$6PE = 0.655$$

Co-efficient of determinants 'r<sup>2</sup>'

$$r^2 = 0.5717 \quad (\text{Note Appendix 5})$$

Since value of r = 0.7561 which is greater than 6PE i.e. 0.655, it is found that the co-efficient of correlation between total income and time change in year is significant.

Also Co-efficient of determination (r<sup>2</sup>) = 0.5717 which seems time can explain the variation of total income almost by 57.17% and remaining (100-57.17=42.83%) are due to error factor. Change in time makes change in total

income significantly. But total income does not completely depend on time. Only 57.17% are depend on time and remaining are depend on other factors.

#### **f) Trend analysis of Net Profit after tax**

NPAT plays the vital role in every organization because it is a measuring tool, which measures the efficient utilization of all sources of inputs and effective management. It should be increased each year. Without profit any organization can not run for a long period. This analysis helps to know the relationship profit and change in year and trend of profit.

$$\text{NPAT} = y$$

$$\text{Time in Year} = x$$

Using least square method,

$$Y_c = 531.29 + 75.71x$$

According to this analysis, profit is increasing each year by Rs.75.71 million in average. Any change in year will change profit by Rs.75.71 million profit has increase trend.

By using correlation analysis,

$$\text{Value of 'r'} = 0.9892$$

Test of significance of 'r'

$$\text{Probable Error (PE)} = 0.0055$$

$$6PE = 0.0329$$

Co-efficient of determinants 'r<sup>2</sup>'

$$r^2 = 0.9785 \quad (\text{Note Appendix 6})$$

Since Value of 'r' = 0.9892 which is greater than 6PE i.e. 0.0329, the co-efficient of correlation between NPAT and change in year are found to be

highly significant. Change in time (year) will change in NPAT. It is almost depended on time.

Co-efficient of determinants ( $r^2$ ) = 0.9785 which seems time can explain the variation of NPAT almost by 97.85% and remaining (100- 97.85 = 2.15%) are due to error factor. This means profit of the bank is completely depended on time. Only 2.15% is depended on other factors.

### **g) Trend Analysis of Interest Income**

The interest income is the main source of income for every banks and financial institutions. Interest income is derived from loan and advances and investments. Trend analysis of interest income shows the decreasing or increasing trend of interest income.

Interest income = y

Time in year = x

Using least square method

$$Y_c = 1297.84 + 143.704x$$

Which means interest income is increasing every year by Rs.143.704 million in average. Any change in time period (x) will change interest income (y). This equation shows that interest income y will increase if time period increases.

By using correlation analysis,

Value of 'r' = 0.8513

Test of significance of 'r'

Probable Error (PE) = 0.0702

$$6PE = 0.421$$

Co-efficient of determinants ' $r^2$ '

$$r^2 = 0.7247$$

(Note Appendix 7)

Since  $r = 0.8513$  which is greater than  $6PE$  i.e.  $0.421$ , the co-efficient of correlation between interest income and change year are found to be significant. Change in year will change in interest income. It is almost depend on time.

Since co-efficient of determinants ( $r^2$ ) =  $0.7247$  which seems time can explain the variations of interest income almost by  $72.47\%$  and remaining ( $100-72.47=27.53\%$ ) are due to error factor. This analysis concludes that there is significant relationship between time and interest income. It is almost depended with the time period. Changes in time period always change in interest income.

### **h) Trend Analysis of Interest Expenses**

Trend analysis of interest expenses shows the increasing or decreasing trend of interest expenses. It also analyses the relationship between changes in year with interest expenses.

Interest expenses = y

Time in Year = x

Using least square method,

$$Y_c = 425.32 + 51.43x$$

According to the equation, interest expenses increasing each year by Rs.51.43 million in average. Any change in year (x) may change y by only Rs.51.43 million.

By using correlation analysis,

Value of 'r' =  $0.6101$

Test of significance of 'r'

Probable Error (PE) =  $0.16$

$6PE = 0.96$

Co-efficient of determinants 'r<sup>2</sup>'

$$r^2 = 0.3722 \quad (\text{Note Appendix 8})$$

Since  $PE \leq r \leq 6PE$  i.e.  $0.16 \leq 0.6101 \leq 0.96$  nothing can be said about the relationship between interest expenses and time.

Value of Co-efficient of determinants  $r^2 = 0.3722$ , shows time can explain the variation of investment almost by 37.22% and remaining (100-37.22=62.78%) are due to error factors. This analysis explains that interest expenses are not completely depended on the time period. It means change in time period always not change in interest expenses. There remain, the effecting factor which influence the interest expenses. Reduction on interest expenses is appreciable because it increases profit of the bank.

### **i) Trend Analysis of Operating Expenses**

Trend analysis of operating expenses explains the trend of increasing or decreasing in this expense with the change in time (year). It shows the relation between time and expenses. Expenses should not be increase every year, it may adversely effect on profitability of the organization.

Operating expenses = y

Time in year = x

Using least square equation method,

$$Y_c = 166.55 + 8.36x$$

This means operating expenses (y) are increasing each year by Rs.8.36 million in average. Any change in time will change operating expenses by Rs.8.36.

By using correlation analysis,

Value of 'r' = 0.8430

Test of significance of 'r'

Probable Error (PE) =0.0738

$$6PE = 0.443$$

Co-efficient of determinants 'r<sup>2</sup>'

$$r^2 = 0.7106 \quad \text{(Note Appendix 9)}$$

Value of r = 0.8430 which is greater than 6PE (0.443), the co-efficient of correlation between operating expenses with change in year are found to be significant. Change in year will change in operating expenses. This indicates that operating expenses with time is very much significant. It is almost depended on time.

Co-efficient of determinants (r<sup>2</sup>) = 0.7106 which shows that time period can explain the variation of operating expenses almost by 71.06% and remaining (100-71.06=28.94%) are due to error factor. This means operating expenses are completely depending on time. But if the operating expenses change in the same rate due to change in time, this will affect greatly the profit of the organization because increase in expense is the main cause of decrease in profit and profitability.

#### **4.3.2. Co-efficient of Correlation**

Correlation is the relationship between two or more variables in which one variable is dependent and another variable is independent. It is the statistical tool that uses to describe the degree to which one variable is linearly to other variables. The most widely used in practice for calculating correlation coefficient between two variables is '*Karl Pearson's Correlation Co-efficient*'. It is denoted by 'r'.

**Table No. 18****Co-efficient of Correlation****(Rs. in million)**

		NPAT	Total Income	Total Deposit	Total Investment	Interest Income
NPAT	r	-	0.7049	0.8085	0.3730	0.8086
	PE	-	0.1283	0.0883	0.2195	0.1308
	6PE	-	0.7697	0.5297	1.3169	0.7849
	r <sup>2</sup>	-	0.4968	0.6537	0.1391	0.6539
Interest Expenses	r	0.5476	0.7988	0.9261	-	0.9319
	PE	0.1785	0.0873	0.0363	-	0.0335
	6PE	1.0709	0.5238	0.2177	-	0.2011
	r <sup>2</sup>	0.2999	0.6380	0.8577	-	0.8685
Loan and Advance	r	0.9071	-	0.9742	-	0.9725
	PE	0.0452	-	0.0130	-	0.0138
	6PE	0.2710	-	0.0779	-	0.0829
	r <sup>2</sup>	0.8228	-	0.9491	-	0.9458
Operating Expenses	r	0.9025	0.6037	0.7018	-	-
	PE	0.0473	0.1620	0.1294	-	-
	6PE	0.2837	0.9722	0.7763	-	-
	r <sup>2</sup>	0.8145	0.3644	0.4925	-	-
Net Worth	r	0.9736	0.7573	-	-	-
	PE	0.0133	0.1087	-	-	-
	6PE	0.0797	0.6524	-	-	-
	r <sup>2</sup>	0.9479	0.5735	-	-	-

Sources: Annual Reports of Nabil Bank (2003/04 to 2009/10)

## 1) NPAT with Total Income

Co-efficient of Correlation ( $r$ ) = 0.7049

Test of significance of 'r'

Probable Error (PE) = 0.1283

6PE = 0.7697

Co-efficient of determinates,

$r^2 = 0.4968$  (Note Appendix 10)

Since  $PE \leq r \leq 6PE$  i.e.  $0.1283 \leq 0.7049 \leq 0.7697$ , nothing can be concluded it means nothing can be said about the relationship between NPAT and total income. But according to the value of  $r = 0.7049$  the two variable 'x' and 'y' are positive which means these are move in same direction.

Since Co-efficient of determinates ( $r^2$ ) = 0.4968 which seems that total income explain only 49.68% of variation of NPAT and remaining (100-49.68 = 50.32%) are due to error factor. From this analysis, if NPAT is increase than also total income will increase and vice versa. Total income does not completely depend on each other. 50.32% are depended on other factor.

## 2) NPAT with Total Deposit

Co-efficient of Correlation ( $r$ ) = 0.8085

Test of significance of 'r'

Probable Error (PE) = 0.0883

6PE = 0.5297

Co-efficient of determinates,

$r^2 = 0.6537$  (Note Appendix 11)

Since value of  $r = 0.8085$ , the correlations between the two variable are highly positive which means these are moved in same direction.

Since Co-efficient of determinates ( $r^2$ ) = 0.6537 which seems that total deposit explain the variation of NPAT and remaining (100-65.37=34.63%) are due to other factor. The co-efficient of correlation between NPAT and total deposit are found to be significant and positive relation. It means that increase in deposit would increase its NPAT and vice versa.

### **3) NPAT with Total Investment**

Co-efficient of Correlation ( $r$ ) = 0.3730

Test of significance of 'r'

Probable Error (PE) = 0.2195

6PE = 1.3169

Co-efficient of determinates,

$r^2 = 0.1391$

(Note Appendix 12)

Since  $PE \leq r \leq 6PE$  i.e.  $0.2195 \leq 0.3730 \leq 1.3169$ , nothing can be concluded it means nothing can be said about the relationship between NPAT and total investment. But according to the value of  $r = 0.3730$  the correlation between two variable is positive.

Co-efficient of determinates ( $r^2$ ) = 0.1391 which seems total investment can explain the variation of NPAT almost by 13.91% and remaining (100- 13.91= 86.09%) are due to error factor. The co-efficient of correlation between NPAT and total investment is not significant. There variables are not dependable. Since the positive correlation of  $r$ , increase in total investment will increase in NPAT and vice versa.

### **4) NPAT with Interest Income**

Co-efficient of Correlation ( $r$ ) = 0.8086

Test of significance of 'r'

Probable Error (PE) = 0.1308

6PE = 0.7849

Co-efficient of determinates,

$r^2 = 0.6539$  (Note Appendix 13)

Since value of  $r = 0.8086$  which is greater than 6PE (0.7849), the co-efficient of correlation between NPAT and interest income is positive and significant.

So it is move in same direction.

Co-efficient of determinates ( $r^2$ ) = 0.6539 which seems interest income can explain the variation of NPAT almost by 65.39% and remaining (100- 13.91= 34.61%) are due to error factor. Form this analysis it is found that any change in interest income, would change in NPAT in same direction. When interest income is increase then automatically NPAT is also increase and vice versa.

### **5) NPAT with Interest Expenses**

Co-efficient of Correlation ( $r$ ) = 0.5476

Test of significance of 'r'

Probable Error (PE) = 0.1785

6PE = 1.0709

Co-efficient of determinates,

$r^2 = 0.2999$  (Note Appendix 14)

The correlation between the two variable NPAT and interest expenses is positive because  $r = 0.5476$  which indicates these two variables move in same direction. But since  $PE \leq r \leq 6PE$  i.e.  $0.1785 \leq 0.5476 \leq 1.0709$ , nothing can be concluded it means nothing can be said about the relationship between NPAT and interest income.

Co-efficient of determinates ( $r^2$ ) = 0.2999 which seems that interest expenses explain the variation of NPAT almost by 29.99% and remaining (100 – 29.99 = 70.01%) are due to error factor. Since the correlation of these two factors is positive it moves same direction so if increase in interest expenses would increase NPAT and vice versa. The bank has to reduce its interest expenses by making effort to collect non-interest bearing deposit. But the correlation analysis shows that this relationship is not significant.

## **6) NPAT with Loan and Advance**

Co-efficient of Correlation ( $r$ ) = 0.9071

Test of significance of 'r'

Probable Error (PE) = 0.0452

6PE = 0.2710

Co-efficient of determinates,

$r^2 = 0.8228$  (Note Appendix 15)

Value of  $r = 0.9071$  which is greater than 6PE (0.2710) the co-efficient of correlation between to NPAT and loan advance are found to be highly significant and positive relation.

Loan and advance explain the variation of NPAT almost by 90.71% because Co-efficient of determinates ( $r^2$ ) = 0. 9071 and remaining (100 – 90.71= 9.29%) are due to error factor. Positive relation point out that the two variable moves in same direction. Increase in loan and advance will increase in NPAT. Increase in loan and advance means increase in interest rate effective mobilization of fund or investment on various project. This will make to generate profit.

## **7) NPAT with Operating Expenses**

Co-efficient of Correlation ( $r$ ) = 0.9025

Test of significance of 'r'

Probable Error (PE) = 0.0473

6PE = 0.2837

Co-efficient of determinates,

$r^2 = 0.8145$

(Note Appendix 16)

The co-efficient of correlation between NPAT and operating expenses are found to be highly significant and in positive relation because value of  $r = 0.9025$  and it is also greater than 6PE (0.2837).

The operating expenses explain the variation of NPAT almost by 90.25% because Co-efficient of determinates ( $r^2$ ) = 0.9025 and remaining (100 – 90.25 = 9.75%) are due to error factor. Profit and expenses should always negative but here correlation between NPAT and operating expenses are found to be positive. So if the bank wants to be increase the profit the bank should reduce its expenses. But operating expenses are very necessary expenses for any organization, which cannot be cut off immediately. So the bank must utilize the available resources and implement cost effectiveness techniques. This will help to increase net profit for long time.

## **8) NPAT with Net Worth**

Co-efficient of Correlation (r) = 0.9736

Test of significance of 'r'

Probable Error (PE) = 0.0133

6PE = 0.0797

Co-efficient of determinates,

$r^2 = 0.9479$

(Note Appendix 17)

Since value of  $r = 0.9736$  which is greater than  $6PE = 0.0797$  the co-efficient of correlation between NPAT and net worth are found to be significant and positive.

Co-efficient of determinates ( $r^2$ ) = 0.9479, which seems that net worth explain the variation of NPAT almost by 94.79% and remaining (100 – 94.79= 5.21%) are due to error factor. Analysis evaluate increase in net worth would increase the NPAT and vice verse. Increase in net worth means increase reserve and surplus which are idle fund. Besides keeping these idle fund the bank should utilized these money in any income generating projects. Proper utilization of these funds may increase the income and profit as well.

### **9) Total Income with Interest Expenses**

Co-efficient of Correlation ( $r$ ) = 0.7988

Test of significance of 'r'

Probable Error (PE) =0.0873

$6PE = 0.5238$

Co-efficient of determinates,

$r^2 = 0.6380$

(Note Appendix 18)

The correlation between total income and interest expenses is positive and significant because value of  $r = 0.7988$  and it is also greater than  $6PE (0.5238)$ .

Co-efficient of determinates ( $r^2$ ) = 0.6380 which seems that interest expenses can explain the variation of total income almost by 63.80% and remaining (100 – 63.80 = 36.20%) are due to error factor. Interest in interest expenses means increase in deposit collection. If more funds are available to flow loan and investment the bank will earn more income as interest income. Increase in interest income will increase in total income and net profit as well.

## 10) Total Income with Operating Expenses

Co-efficient of Correlation ( $r$ ) = 0.6037

Test of significance of 'r'

Probable Error (PE) = 0.1620

$6PE = 0.9722$

Co-efficient of determinates,

$r^2 = 0.3644$  (Note Appendix 19)

The correlation between the total income and operating expenses is positive and significant as value of  $r = 0.6037$  but since  $PE \leq r \leq 6PE$  i.e.  $0.1620 \leq 0.6037 \leq 0.9722$ , nothing can be concluded it means nothing can be said about the relationship between total income and operating expenses.

Co-efficient of determinates ( $r^2$ ) = 0.3644 which seems that operating expenses can explain only 36.44% variable of total income and remaining (100-36.44=63.56%) are due to error factor. The correlation shows that increase in total income will increase operating expenses but increase in operating expenses is not good for the enterprise because it will reduce the net profit.

## 11) Total Income with Net Worth

Co-efficient of Correlation ( $r$ ) = 0.7573

Test of significance of 'r'

Probable Error (PE) = 0.1087

$6PE = 0.6524$

Co-efficient of determinates,

$r^2 = 0.5735$  (Note Appendix 20)

Since value of  $r = 0.7573$  which is greater than  $6PE$  (0.6524) the correlation between total income and net worth is positive and significant.

Co-efficient of determinates ( $r^2$ ) = 0.5735 which seems that net worth can explain only 57.35% variable of total income and remaining are due to error factor. The relation shows that total income will increase the net worth and vice versa. The bank should increase its total income to increase net worth. Net worth will increase the book value of share.

## **12) Total Deposit with Interest Expenses**

Co-efficient of Correlation ( $r$ ) = 0.9261

Test of significance of 'r'

Probable Error (PE) =0.0363

6PE =0.2177

Co-efficient of determinates,

$r^2$  =0.8577

(Note Appendix 21)

Since value of  $r$  = 0.9261 which is greater than 6PE (0.2177) the correlation between total deposit and interest expenses is positive and highly significant.

Co-efficient of determinates ( $r^2$ ) = 0.8577 which seems that interest expenses can explain only 57.35% variable of total deposit and remaining are due to error factor. Since the relation of these two variables is positive, it moves in same direction.

## **13) Total Deposit with Loan and Advance**

Co-efficient of Correlation ( $r$ ) = 0.9742

Test of significance of 'r'

Probable Error (PE) =0.0130

6PE =0.0779

Co-efficient of determinates,

$$r^2 = 0.9491$$

(Note Appendix 22)

Value of  $r = 0.9742$  which is greater than  $6PE (0.0779)$  the co-efficient of correlation between total deposit and loan advance are found to be significant and positive relation.

Since Co-efficient of determinates ( $r^2$ ) = 0.9491 loan and advance can explain the variation of total deposit almost by 94.91% and remaining (100 – 94.91=5.09%) are due to error factor. Positive correlation indicates that variable of these two moves in same direction. Increase in loan and advance will increase total deposit. So these two variable are almost dependable each other. Only 5.09% are depended on other factor.

#### **14) Total Deposit with Operating Expenses**

Co-efficient of Correlation ( $r$ ) = 0.7018

Test of significance of 'r'

Probable Error (PE) = 0.1294

$6PE = 0.7763$

Co-efficient of determinates,

$$r^2 = 0.4925$$

(Note Appendix 23)

Since  $PE \leq r \leq 6PE$  i.e.  $0.1294 \leq 0.7018 \leq 0.7763$ , nothing can be concluded it means nothing can be said about the relationship between total deposit and operating expenses. But according to the value of  $r = 0.7018$  the co-efficient correlation between two variable is positive.

Since Co-efficient of determinates ( $r^2$ ) = 0.4925 operating expenses can explain the variation of total deposit almost by 49.25% and remaining (100- 49.25 =50.75%) are due to error. There two variable are positive so they move in same direction. In simple sense if increase in operating expenses will increase total deposit.

## **15) Interest Income with Interest Expenses**

Co-efficient of Correlation (r) = 0.9319

Test of significance of 'r'

Probable Error (PE) =0.0335

6PE =0.2011

Co-efficient of determinates,

$r^2 =0.8685$

(Note Appendix 24)

This analysis assess the value of  $r = 0.9319$  which is greater than  $6PE = 0.2011$  so the correlation between interest income with interest expenses is positive.

Co-efficient of determinates ( $r^2$ ) = 0.8685 which shows that interest expenses can explain the variation of interest expenses almost by 86.85% and remaining (100 -86.85 = 13.15%) are due to error factor. Correlation analysis shows that the two variable move in same direction. That means increase in interest expenses will increase interest income and vice versa. Increase in interest income is the result of increase in deposit. Increases in deposit will leads to increase in loan and advance. If flow of loan and advance are increase it will increase interest income.

## **16) Interest Income with Loan and Advance**

Co-efficient of Correlation (r) = 0.9725

Test of significance of 'r'

Probable Error (PE) =0.0138

6PE =0.0829

Co-efficient of determinates,

$r^2 =0.9458$

(Note Appendix 25)

This analysis assess the value of  $r = 0.9725$  which is greater than 6PE (0.0138) so the correlation between interest income and loan and advance is positive.

Co-efficient of determinates ( $r^2$ ) = 0.9458 which shows that loan and advance can explain the variation of interest income almost by 94.58% and remaining (100 - 94.58= 5.42%) are due to error factor. Positive correlation indicates that the variable of two moves in same direction, so increase in loan and advance will increase in total income. It means the bank offers more loan and advance or mobilizes the fund effectively.

#### **4.4. Empirical Investigation**

An empirical investigation has been conducted for analysis of primary data. Firstly, objective of this study has been researched through secondary data. In the case of unavailable source to meet study objective, primary data has been a tool to investigate.

In the process of a study on profitability position of Nabil Bank, various questions have been asked to the department chief, accountants and related persons for the fulfillment of research objective. Altogether 50 set of questionnaires were distributed and 45 questionnaires were received from the respondents. Four options are set in a questionnaire and respondents chose in one option according to their preference. From the set of questionnaire, following results were achieved:

##### **a) The main objective of Nabil bank**

To confirm the respondents' opinions about the main objective of the Nabil Bank, the first question is asked, "In your opinion, what is the main objective of Nabil Bank?" The responses received from the respondents are tabulated as follows:

**Table No. 19**

**The main objective of Nabil Bank**

S.N.	Alternatives	No. of Respondents	Percentage (%)
1	Profit Oriented	-	-
2	Profit and Service Oriented	32	71.11
3	Service Oriented	13	28.89
4	Other (Specify)	-	-
Total		45	100

Source: Opinion Survey, 2010

The given table no. 19 shows that 32 i.e. 71.11% respondents approved the main objective of Nabil Bank is Profit and Service oriented and 13 i.e. 28.89% respondents approved only service oriented. No one picked profit oriented and other.

Most of the respondents gave opinion that the main objective of the bank is profit and service oriented. Only few respondents specified that service oriented is the main objective. Obviously, Nabil needs profit because without profit the organization can not run. But profit is not main motive of this bank than customer's service. So, Nabil provides better service to its customers.

**b) Opinion towards the achievement of Nabil Bank**

To make sure the respondent's opinions about the achievement of Nabil Bank, the second question is asked, "Do you think that the achievement of Nabil Bank is satisfactory?" Related to this question, other third and fourth questions are asked "If 'No', specify the main reason of low achievement." and "If 'Yes', what a bank should follow to increase its achievement?" The responses received from the respondents are tabulated as follows:

**Table No. 20****The achievement of Nabil Bank**

S.N.	Questions	Options	No. of respondent	Percentage (%)
1	Do you think that the achievement of Nabil Bank is satisfactory?	Yes	45	100
		No	-	-
2	If 'No' specify the main reason of low achievement.	a).....	-	-
		b)....	-	-
3	If 'Yes' what a bank should follow to increase its achievement?	Increase the rating system	4	8.89
		Offering high value added products and services	19	42.22
		A free and unrestricted professional working atmosphere for staff	13	28.89
		All of above	19	42.22

Source: Opinion Survey, 2010

The primary data displayed on table no. 20 shows that 45 person i.e. cent percent respondents feel that the achievement of this bank is satisfactory. No one reflected the achievement of this bank unsatisfactory. In third question, 4 respondents i.e. 8.89% said that the bank should follow to raise the rating system to increase its achievement. 19 i.e. 42.22% respondents preferred to offer high value added products and services to increase its achievement, 13 i.e. 28.89% respondents picked that a free and unrestricted professional working atmosphere for staff to increase its success and 19 i.e. 42.22% respondents said that all of above option is concerned to increase its achievement.

Conclusion of this analysis is that Nabil's achievement is significant. But respondents filled that the bank should raise its achievement more than this. To raise its achievement, most of the respondents said that the bank should increase their rating system and also offering high value added products and services as well as a free and unrestricted professional working atmosphere for staff.

**c) Nabil Bank has often invested on**

To know the respondents' opinion about the sector bank has often invested the fourth question we asked, "In which sector the bank has often invested?" The responses received from the respondents are tabulated as follows:

**Table No. 21**

**Nabil Bank often invested**

S.N.	Alternatives	No. of respondents	Percentage (%)
1	Health-Education-Sport Sector	29	64.44
2	Macro and Small Enterprises	13	28.89
3	Where maximum money earns	3	6.67
Total		45	100

Source: Opinion Survey, 2010

From the above table no. 21 recognized 29 i.e. 64.44% respondents said that the bank invest in Health-Education-Sport sector, 13 i.e. 28.89 % respondents said that the bank often invest in Macro and Small Enterprises sector and 3 i.e. 6.67% said the bank often invests where maximum money earns.

The analysis above finds out, more than 50% respondents opined on the bank often invest in Health-Education-Sport and some respondents said that the bank often invest in Macro and Small Enterprises sector. But few respondents respond the bank often invests where the maximum money earns. Most of the respondents feel that Health-Education-Sport sector are the three pillars of the

bank. In which, Health sector: the bank has continued its partnerships with the Glaucoma Center at the Tilganga Eye Hospital to increase overall knowledge about blinding disease. In Education, the bank has continued its support to educate underprivileged children at the Mary Wards School. And in Sports Nabil continues to give its shoulder to Nabil Three Star Football Club to promote sportsmanship and healthy living.

#### **d) The bank adopting strategic planning for profitability needs**

To verify whether the bank adopting strategic planning or not for profitability needs, the sixth question was asked, “Is your bank adopting strategic planning for profitability needs?” also seventh and eighth questions were asked relating for this sixth question “If ‘No’ then mention why?” And “If ‘Yes’ in that case what kind of strategic planning is adopted for profitability needs?” The responses received from the respondents are tabulated as below:

**Table No. 22**

#### **The bank adopting strategic planning for profitability needs**

S.N.	Questions	Options	No. of respondents
1	Is your bank adopting strategic planning for profitability needs?	Yes	45
		No	-
2	If ‘No’ then mention why?	-	
3	If ‘Yes’ in that cash what kind of strategic planning is adopted for profitability needs?	Providing training programs covering all the staff of bank	-
		Keeping up the dynamic organization environment	-
		All of above	45

Source: Opinion Survey, 2010

Observing the table no. 22 cent percent i.e. 45 respondents believe that Nabil Bank is adopting strategic planning for profitability needs. All respondents said that the bank is providing training programs covering all the staff of bank and keeping up the dynamic organization environment.

Above analysis concludes that Nabil Bank is service as well as profit oriented. Because without any doubt, Nabil provides service to its customers but Nabil also needs profit. So, Nabil is adopting strategic planning for profitability needs. The bank is adopting training programs covering all the staff of bank and keeping up the dynamic organization environment.

**e) The tools used for profitability evaluation**

To know the respondents’ opinions about the tools used for profitability evaluation the fifth question we asked, “For the profitability evaluation of your bank, what kind of tools you used?” The responses received from the respondents are tabulated as follows:

**Table No. 23**  
**Tools used for profitability evaluation**

S.N.	Alternatives	No. of respondents	Percentage (%)
1	Ratio Analysis	25	55.56
2	Standard Costing	9	20
3	CVP Analysis	11	24.44
4	Flexible Budgeting	-	-
Total		45	100

Source: Opinion Survey, 2010

Table no. 23 recommends that 25 i.e. 55.56% respondents opined ratio analysis is the tools which used for the profitability evaluation, 9 i.e. 20% respondent informed standard costing and 11 i.e. 24.44% respondent viewed CVP analysis tool is used for profitability evaluation.

This analysis speaks out that more than 50 percentage out of total respondents told that the bank has used ratio analysis tool for the profitability evaluation. That means ratio analysis is the tool for measurement of the bank performance. Few respondents told that sometime the bank also have used standard costing and CVP analysis tools when it's necessary. But no one said that flexible budgeting tool is used by bank.

#### **f) Profitability position affected by various types of deposit**

To know about the bank's profitability position affected by various types of deposits the tenth question was asked, "What kind of deposit affects the profitability position?" The responses received from the respondents are tabulated as follows:

**Table no. 24**

#### **Profitability position affected by the various types of deposits**

S.N.	Alternatives	No. of Respondent	Percentage (%)
1	Fixed Deposit	10	22.22
2	Current Deposit	6	13.33
3	Saving Deposit	4	8.89
4	All of above	25	55.56
Total		45	100

Source: Opinion Survey, 2010

Given above, table no.24 exhibits more than 50% (25) respondents were sure that all types of deposit i.e. Fixed Deposit, Current Deposit and Saving Deposit affect the bank's profitability position. 10 respondents i.e. 22.22% assumed that fixed deposit influences the bank's profitability position, 6 respondents i.e. 13.33% believed in current deposit and only 4 respondents i.e. 8.89% convinced saving deposit is concerned on the bank's profitability position.

Nabil offers a wide range of deposit products to suit various needs of customers from all stratum. Thus above analysis shows that all types of deposits are affecting its profitability position. But the majority of people think fixed deposit affects mainly for the profitability position. Because fixed deposit is a long term loan for the bank, it is mobilized for investment of the bank. Fixed deposit is very important assets for bank.

**g) The strengths of this bank**

The question was asked, “What are the strengths of this bank?” to seek the strengths of the bank, the responses received from the respondents are tabulated as follows:

**Table No. 25**  
**The strength of this bank**

S.N.	Alternatives	No. of respondents	Percentage (%)
1	Winning the confidence of shareholders	7	15.56
2	Retain and attract the very best human resource	5	11.11
3	Earning the higher level of trust	10	22.22
4	All of above	23	51.11
Total		45	100

Source: Opinion Survey, 2010

The query regarding the strength of Nabil Bank in table no. 25 reflected 7 respondents i.e. 15.56% with the view for strength of this bank is depended on winning the confidence of shareholders, 5 respondents i.e. 11.11% said retain and attract the very best human resource and 10 respondents i.e. 22.22% feel earning the higher level of trust of stakeholders’ is the strength of this bank. More than 50% respondents answered in favor of all the points given as the strength of this bank.

Earning the highest level of trust requires the balanced provisions of value to major stakeholders: Customers, Regulators, Shareholders, Community and Staff. 10 respondents replied level of trust as strength of the bank. Most of the respondents answered in favor of attracting human resource, trust and shareholder's confidence are strengths of the bank. Some of the answers include only shareholder's confidence or attracting human resource.

#### **h) The weaknesses of this bank**

To know the respondents' opinion about the weakness of this bank, the question was asked, "What are the weaknesses of this bank?" the responses received from the respondents are tabulated below:

**Table no. 26**

#### **The weaknesses of this bank**

S.N.	Alternatives	No. of respondents	Percentage (%)
1	Lack of coordination	-	-
2	Lack of proper direction	-	-
3	Lack of the right staff in the right job	3	6.67
4	None	42	93.33
Total		45	100

Source: Opinion Survey, 2010

Nabil bank is one of the top bank of Nepal, where CRISP has been the value meeting the expectation of most of the stakeholders. So, respondents replied for bank's excellent service without any weaknesses. Certainly, some part may need some changes like strategy, coordination according to changing situation. Some unsatisfied respondents viewed lack of the right staff in the right job as the weakness of the bank.

### **i) The major problems faced by the bank in Nepal**

To know the respondents' opinion about the major problems faced by the bank in Nepal, the question was asked, "What are the major problems faced by bank in Nepal?" the responses received from the respondents are tabulated as follows:

**Table No. 27**  
**The major problems faced by the bank in Nepal**

S.N.	Alternatives	No. of respondents	Percentage (%)
1	Lack of proper education about the bank	18	40
2	Tough competition with other banks	17	37.78
3	Government intervention	10	22.22
4	Other (specify)	-	-
Total		45	100

Source: Opinion Survey, 2010

Opinion Survey on table no. 27 reflected 18 respondents i.e. 40% with opinion; lack of proper education, 17 respondents i.e. 37.78% viewed in competition with other banks and 10 respondents i.e. 22.22% viewed in government intervention as the major problems faced by the bank in Nepal.

The responses obtained by Opinion Survey among Nabil Stakeholders reflect mixture of thought in the query of major problem faced by the bank in Nepal. Still, people are unaware of banking; rather they put money at their home thinking bank an unsecured place. In this regard, the survey got 40% respondent supporting the major problem faced by the bank is lack of education about banking system. In other hand, major problem of a bank has been figured tough competition among banks is answered by 17 respondents. In commercial scenario of banking sector at present is really competitive because banks are in mushrooming trend. Government intervention is one of the major problems

faced, because government's banking policy and laws are obstacles for bank's attractive beneficial schemes. Since the NRB has restricted the interest spread should not be more than 5%, all of the commercial bank has to follow this rules.

#### **j) Opinion on Nabil Bank for country's development**

To identify the view of respondents about the opinion towards Nabil Bank has contributed for country's development, the question was asked "In your opinion, how Nabil Bank has contributed for country's development?" The responses received from the respondents are presented below:

**Table No. 28**  
**Opinion on Nabil Bank for country's development**

S.N.	Alternatives	No. of respondents	Percentage (%)
1	Meeting the community's expectations and fulfilling corporate social responsibility	13	28.89
2	Involving financial entities in various infrastructure project	8	17.78
3	Financing on deprived sector	4	8.89
4	All of above	20	44.44
Total		45	100

Source: Opinion Survey, 2010

Nabil bank aims to contribute to the sustainable development of society as a whole through the process of prospering Customers, gaining confidence of Regulators, delivering continuous growth in its profits to Shareholders, placing special emphasis on Education-Health-Sports to Community and providing free and unrestricted working atmosphere for Staff. So, 13 respondents replied on

meeting the community's expectations and fulfilling corporate social responsibility has contributed to country's development. Involving financial entities in various infrastructure project has been another involvement of this bank; 4 respondents believed this to be the contribution of the bank for the country's development.

**k) Opinion towards Nabil Bank wanted to be called “The Bank of 1<sup>st</sup> Choice” among all stakeholders**

To make out why Nabil Bank wanted to be called “The Bank of 1<sup>st</sup> Choice” among all stakeholders, the question was asked to the respondents “Why is Nabil Bank wanted to be called “The Bank of 1<sup>st</sup> Choice” among all stakeholders?” The responses received from the respondents are tabulating as follows:

**Table No. 29**  
**Opinion towards Nabil Bank wanted to be called “The Bank of 1<sup>st</sup> Choice” among all stakeholders**

S.N.	Alternatives	No. of respondents	Percentage (%)
1	Equally concerned about safety of public Money	28	62.22
2	Offers a wide range of product service to suit various needs of customers	13	28.89
3	Competitive with other bank	4	8.89
4	Other (specify)	-	-
Total		45	100

Source: Opinion Survey, 2010

People deposit money in a bank with intense desire of safety for their hard labored, much dreamed assets. Nabil bank is sensible for customer's desire. Concern about safety of public money has been maximum reply of respondents on Opinion Survey for being Nabil ‘The Bank of 1<sup>st</sup> Choice’. Offering wide

range of product service to suit various needs of customers has got 8 replies. The services Nabil has started to feed customers are Zero balance account, ATM, SMS Banking services. Only few respondents gave the reason to be Nabil, The Bank of 1<sup>st</sup> Choice is because competitive with other bank. In other hand 10 respondents assume all 3 reasons are equally important causes for Nabil to be ‘Bank of 1<sup>st</sup> Choice’.

### **I) Opinion towards Nabil Bank is one of the best banks of Nepal**

To know the respondents’ opinion whether Nabil Bank is one of the best banks of Nepal or not the question was asked “Do you think that Nabil Bank is one of the best banks of Nepal?” The responses received from the respondents are tabulated as follows:

**Table No. 30**

#### **Opinion towards Nabil Bank is one of the best bank of Nepal**

S.N.	Alternatives	No. of respondents	Percentage (%)
1	Yes	45	100
2	No	-	-
Total		45	100

Source: Opinion Survey, 2010

Nabil has succeed to be one of the best banks of Nepal by believing in delivering excellence to its stakeholders in an array of avenue, not just one parameter like profitability or market-share. This is reflected in Nabil’s statement of commitment to always be ‘Your Bank at Your Service’; which is a clear reflection that the bank’s stakeholders are at the core of everything it does.

## **4.5. Major Findings of the Study**

The major findings from this study have been drawn out from the secondary data and primary data analyses conducted are summarized below:

1. Cash and Bank Balance to Total Deposit and Current Deposit Ratio is increased and Fixed Deposit and Saving Deposits to Total Deposit Ratio is also in good condition for current year than previous. So, it is observed that liquidation position of this bank is better. Similarly, its Leverage Ratio is also good in condition because in this year Interest Income to Total Income Ratio is much better than previous year. But in this year Interest Expenses and Operating Expenses to Total Income Ratio is slightly increased. Loan and Advance to Total Deposit and Total Assets Ratio is in good condition but Total Investment to Total Deposit Ratio is slightly declined in this year than last year. Profitability Ratio of Nabil is in better condition in this year than preceding year. ROA, ROI, ROE and RONFA all are not so better and not so bad. In the same way, EPS and DPS's condition is better.
2. There is high degree of positive correlation of trend analysis with time period in year and total deposit, total investment, loan and advance, total assets, total income, net profit, interest income, interest expenses, operating expense. Co-efficient of correlation matrix exhibits all items are in positive relation between each other.
3. Nabil's objective is profit and service oriented. The achievement of this bank is satisfactory. However, its achievement could be raised more than this. So, bank should increase rating system and also offer high value added products and services as well as a free and unrestricted professional working atmosphere for staff. It has often invested in Health-Education-Sport sector plus in Macro and Small Enterprises sector. The bank is providing training programs covering all the staff of bank and keeping up the dynamic organization environment for adopting strategic planning for profitability needs. All types of deposits have influence on profitability position and has used ratio analysis tool for the profitability evaluation plus used standard costing and CVP analysis tools when required.

4. The major problem faced by the bank is lack of education about banking system and tough competition among banks even the bank has given excellent service without any weaknesses. Meeting the community's expectations and fulfilling corporate social responsibility has contributed to country's development. Concern about safety of public money has made Nabil 'The Bank of 1<sup>st</sup> Choice'. So, it has succeeded to be one of the best banks of Nepal by believing in delivering excellence to its stakeholders.

## CHAPTER V

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 5.1. Summary

Nepal is a developing country with agricultural base. It is financially depended on the foreign country and it is economically too weak in Nepalese banking industries. More than 90% of the economically active population is depended upon agriculture. So, Nepal is economically backward.

Banks are the most important institutions for acceleration of economic growth in the country. Bank accept deposits from public and in turn advance and loan by creating credit and it is financial intermediaries similar to credit incomes, saving and loan associations and other institutions selling financial services. In fact, bank acts as a monetary mediator between two types of its customers, depositors and creditor. Nepali banking sector is having mushrooming growth of banks competing with each other in their lending and borrowing business. When the government adopted liberal policy, commercial banks specially joint venture banks have been increased rapidly. These banks are mainly concentrated themselves on financing foreign trade, commerce and industry. Commercial banks make the economy always alive and smart to run and maintain day to day commercial economy and banking transactions. In short, banking transaction help a country to develop its economy swiftly. Among many of the commercial banks one joint venture bank have been chosen to evaluate its profitability position that is Nabil Bank.

Nabil is the first foreign bank operating in Nepal to collect scattered money from the public. Since the establishment in 1984, Nabil Bank Ltd. has been serving by investing them on development of national economy. In the competitive market like of today; it has proved itself as the banking with a

difference with use of the latest technology and great efforts. The main objective of this study is to know the actual profitability position of Nabil bank. This study has been conducted setting objectives to evaluate the trend and correlation of various items of the bank, to evaluate their liquidity asset utilization, capital structure and profitability position and to recommend some measure, on the basis of analysis and findings for improvement in their future performance.

Profitability Position is the process of identifying the financial strengths and weaknesses of the firm by properly establishing relationship between the items of the Balance Sheet and the Profit and Loss account. It includes the various types of ratio of last seven years from fiscal year 2003/04 to 2009/10. The data for the analysis is taken from various publication of Nabil bank as well as publication of government and various types of magazines, bulletin etc. Limitation of the study can be said that only seven year's trend is taken due to lack of space, time period and financial support comparative study is not done. In order to carry out this study, dates have been basically obtained by the secondary data as well as primary data. For the analysis and interpretation of the data, the financial tools statistical tools are used. Under financial analysis, various financial ration related to the profitability of commercial banks have been used and under statistical analysis, the trend analysis and co-efficient of correlation analysis have been used.

## **5.2. Conclusion**

It can be concluded that the role of banking sector is very crucial in the total economy of the country. The proper operation of banking transaction in regular and systematic way results good to individuals and communities. In the operation of any bank, profitability position occupies important place and controls major part of banking activities. The observation and analysis of above data shows the same. Therefore, it is very important for the policy makers to adopt appropriate policy with calculated interest rate, so that, the large capital can be mastered at very low cost. It will encourage the industrial and commercial activities, eventually, leading to better economic growth, socio-economic development, employment opportunities etc.

Nabil is a first foreign joint venture bank in Nepalese banking sector. As a commercial bank, Nabil plays vital and important role for the rise of economic development. Thus, the role of Nabil in commercial banking sector is remarkable. While comparing this bank with other commercial banks; Nabil bank is found to be the large organization, fast growing , successful operating and properly collected deposit and utilization of the their fund. Its profitability position is satisfactory. Their contribution in national economy is outstanding. The management team of this bank is always CRISP for their better performance to introduce the bank as the best commercial bank in Nepal. It means the bank has good manpower and capital. Nabil has been utilizing the resources of the country and its people in the proper way by making all the policy properly. Being customer oriented, the bank has been provided various types of facilities to customers. So, it is trying to expand its branches and trying to reach every corner of the country. Nabil provides its service in rural areas too. Most of the branches are established in urban sector or area. In such a situation Nabil has to face many difficulties and situations remained to perform in future. Nabil has to face many challenges.

From the findings of the study, it has been concluded that profitability position of Nabil Bank is better. Its profit is increasing gradually and it must maintain its high profit margin in future. Nabil bank has maintained more liquidity that means Cash and bank balance to total deposit ratio, Cash and bank balance to current deposit ratio, fixed deposit to deposit ratio are more efficient in liquidity management of this year as compared to previous year. Therefore, Nabil has more chance to fulfill the demand of depositors. Lower saving deposit to total deposit ratio indicates higher liquidity ratio. So, the liquidity ratio has been better as increased in current year than previous year. In this year Interest income to total income ratio is in better position than previous year because it is highly increasing. But interest expenses to total income ratio and operating expenses to total income ratio is slightly increasing than previous year. Increase in this ratio reduces its profit. It has bad impact for the bank. Still, Nabil has maintained these types of ratio.

Activity ratio that is to say loan and advance to total deposit ratio and loan and advance to total assets ratio is enhanced in this year than previous as it is increasing. But total investment to total deposit ratio is declining it shows that the bank has not done proper utilization of their fund in current year than last year. Increase of the profitability ratio indicators ROA and ROI is quite impressive because these ratios are more than previous year. ROE, RONFA and return on loan and advance are reducing than last year. Nabil Bank Ltd. is in great position in EPS and DPS compared to other joint venture banks because these ratios are reasonably satisfactory in last three years to this year. As a whole, Nabil Bank's profitability position is enhancing.

### **5.3. Recommendation**

After finishing the entire study about the profitability position of Nabil Bank along with the gathering of some valuable and timely suggestions and recommendations can be placed forward, on the basis of findings and conclusion or literally their financial pictures, to overcome weaknesses and inefficiency and to improve present financial performance of the same.

1. Considering the present economic condition of the country, the bank should play vital roles for the economic development of the country. They should promote balanced regional development by financing funds in remote areas and other priority sectors. In that case, Nabil should give much priority in expanding its branches in the rural areas so that the people in the rural areas will also be able to have the facilities provided by the bank. So, the bank should grab more opportunities as soon as possible by adopting efficient and latest marketing strategies.
2. Economic condition of the country is deteriorating; there is danger in slacking of the business and industrial activities. So, the bank should not be interested only in collecting huge amount of deposit by increasing the interest rate. The bank should search out the new sectors of investments because only increase in deposits is meaningless. The increase in deposits should be related to the investment. To achieve success it must mobilize its fund in various sectors, such as purchasing share and debentures of other financial and non-financial company.

3. The most important thing is that as a bank of prelate sector, Nabil cannot stop earning profit. So, it must increase its profitability. Thus, the bank is recommended to utilize its assets and shareholders' fund to profit generating purpose. The bank should increase the percentage of profit. In that case, the bank must adopt customer oriented new programs like bonus programs, special offers etc. High interest rate is tool to attract customers, within the range of interest rate, a bank should be flexible enough to set the suitable interest rate to exist in competitive market. The cash deposited by the customers are liquid assets, which help to maintain adequate liquidity position of the bank.
4. Nabil should use the SWOT analysis effectively to find out the strengths, weakness, opportunities and threat and should try to eliminate all its weakness and take the opportunities for the future growth and development of the organization. The bank should persuade various kinds of welfare program for its staff and the society, excellent staff should be promoted in order to inspire, society welfare programs like sponsorship, giving funds etc. should be organized. So, the staff facilities should be increased in order to motivate them. This helps to earn goodwill of the bank.

If Nabil Bank follows those recommendations, it will satisfy customers as well as staff and it will increase its goodwill.

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## Footnotes

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- <sup>1, 2, 3, 5, 7, 15, 17</sup> Hampton, John J. (1998), *Financial Decision Making*. New Delhi: Prontice.
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# TREND ANALYSIS

## Appendix 1

### Trend Analysis and Coefficient of Correlation between Total Deposit and Time of Nabil Bank

(Rs. in million)

F.Y (X)	Deposit (y)	$x=X-a(2004)$	$x^2$	$y^2$	$xy$
2003/04	15506.43	3	9	240449371.34	-46519.3
2004/05	13447.66	2	4	180839559.48	-26895.3
2005/06	14119.03	1	1	199347008.14	-14119
2006/07	14586.61	0	0	212769191.29	0
2007/08	19347.40	-1	1	374321886.76	19347.4
2008/09	23342.29	-2	4	544862502.44	46684.58
2009/10	31915.05	-3	9	1018570416.50	95745.15
Total	$\sum y = 132264.47$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 2771159935.96$	$xy = 74243.49$

By using the equation of straight line trend

$$Y_c = a + bx$$

Where,

a = constant variable

y = dependent variable (deposit)

x = independent variable (time in 1 year)

b = slop of trend

Then,

$$a = \frac{\sum y}{N} = \frac{132264.5}{7} = 18894.93$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{74243.5}{28} = 2651.55$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 18894.93 + 2651.55x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 74243.49 - 0 \times 132264.47}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 2771159935.96 - (132264.47)^2}}$$

$$\therefore r = 0.8507$$

$$\text{Coefficient of Determination } (r^2) = (0.8507)^2 = 0.7237$$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \frac{1 - 0.7237}{\sqrt{7}} = 0.070$$

$$6(\text{PE}) = 0.423$$

## Appendix 2

### Trend Analysis and Coefficient of Correlation between Total Investments and Time of Nabil Bank

(Rs. in million)

F.Y (X)	Investment (y)	$x = X - a(2004)$	$x^2$	$y^2$	xy
2003/04	8199.51	3	9	67231964.24	-24598.53
2004/05	6031.18	2	4	36375132.19	-12062.36
2005/06	5835.95	1	1	34058312.40	-5835.95
2006/07	4275.53	0	0	18280156.78	0
2007/08	6178.53	-1	1	38174232.96	6178.53
2008/09	8945.31	-2	4	80018571.00	17890.62
2009/10	9939.77	-3	9	98799027.65	29819.31
Total	$\sum y = 49405.78$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 372937397.23$	$xy = 11391.62$

By using the equation of straight line trend

$$Y_c = a + bx$$

Where, a = constant variable

y = dependent variable (Investment)

x = independent variable (time in 1 year)

b = slop of trend

$$\text{Then, } a = \frac{\sum y}{N} = \frac{49405.78}{7} = 7057.97$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{11391.62}{28} = 406.84$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 7057.97 + 406.84x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 11391.62 - 0 \times 49405.78}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 372937397.23 - (49405.78)^2}}$$

$$\therefore r = 0.4373$$

Coefficient of Determination ( $r^2$ ) =  $(0.4373)^2 = 0.1913$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \frac{1 - 0.1913}{\sqrt{7}} = 0.2062$$

$$6(\text{PE}) = 1.237$$

### Appendix 3

#### Trend Analysis and Coefficient of Correlation between Loan and Advance and Time of Nabil Bank

(Rs. in million)

F.Y (X)	Loan and Advance (y)	x = X-a (2004)	$x^2$	$y^2$	xy
2003/04	7437.89	-3	9	55322207.65	-22313.67
2004/05	7755.95	-2	4	60154760.40	-15511.90
2005/06	8189.99	-1	1	67075936.20	-8189.99
2006/07	10586.17	0	0	112066995.27	0
2007/08	12922.54	1	1	166992040.05	12922.54
2008/09	15545.78	2	4	241671275.81	31091.56
2009/10	21365.05	3	9	456465361.50	64095.15
Total	$\sum y = 83803.37$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 1159748576.89$	$xy = 62093.69$

By using the equation of straight line trend

$$Y_c = a + bx$$

Where, a = constant variable

y = dependent variable (Loan and Advance)

x = independent variable (time in 1 year)

b = slop of trend

Then, 
$$a = \frac{\sum y}{N} = \frac{83803.37}{7} = 11971.91$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{62093.69}{28} = 2217.63$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 11971.91 + 2217.63x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 62093.69 - 0 \times 83803.37}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 1159748576.89 - (83803.37)^2}}$$

$$\therefore r = 0.9381$$

Coefficient of Determination ( $r^2$ ) =  $(0.9381)^2 = 0.88$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \frac{1 - 0.88}{\sqrt{7}} = 0.0306$$

$$6(\text{PE}) = 0.184$$

## Appendix 4

### Trend Analysis and Coefficient of Correlation between Total Assets and Time of Nabil Bank

(Rs. in million)

F.Y (X)	Total Assets (y)	x = X-a (2004)	x <sup>2</sup>	y <sup>2</sup>	xy
2003/04	17629.25	-3	9	310790455.56	-52887.75
2004/05	16562.62	-2	4	274320381.26	-33125.24
2005/06	16745.49	-1	1	280411435.34	-16745.49
2006/07	17064.08	0	0	291182826.25	0
2007/08	22329.97	1	1	498627560.20	22329.97
2008/09	27253.39	2	4	742747266.49	54506.78
2009/10	37132.76	3	9	1378841865.22	111398.28
Total	$\sum y = 154717.6$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 3776921790.32$	$xy = 85476.55$

By using the equation of straight line trend

$$Y_c = a + bx$$

Where, a = constant variable

y = dependent variable (Total Assets)

x = independent variable (time in 1 year)

b = slop of trend

Then, 
$$a = \frac{\sum y}{N} = \frac{154717.6}{7} = 22102.51$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{85476.55}{28} = 3052.73$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 22102.51 + 3052.73x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 85476.55 - 0 \times 154717.6}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 3776921790.32 - (154717.6)^2}}$$

$$\therefore r = 0.8546$$

Coefficient of Determination ( $r^2$ ) =  $(0.8545)^2 = 0.7302$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.7302}{\sqrt{7}} = 0.0688$$

$$6(\text{PE}) = 0.4127$$

## Appendix 5

### Trend Analysis and Coefficient of Correlation between Total Income and Time of Nabil Bank

(Rs. in million)

F.Y (X)	Total Income (y)	x = X-a (2004)	x <sup>2</sup>	y <sup>2</sup>	xy
2003/04	1639.12	-3	9	2686714.37	-4917.36
2004/05	1427.45	-2	4	2037613.5	-2854.9
2005/06	1426.44	-1	1	2034731.07	-1426.44
2006/07	1510.68	0	0	2282154.06	0
2007/08	1717.41	1	1	2949497.11	1717.41
2008/09	2922.59	2	4	8541532.31	5845.18
2009/10	2452.95	3	9	6016963.70	7358.85
Total	$\sum y = 13096.64$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 26549206.13$	$xy = 5722.74$

By using the equation of straight line trend

$$Y_c = a + bx$$

Where,  $a$  = constant variable

$y$  = dependent variable (Total Income)

$x$  = independent variable (time in 1 year)

$b$  = slop of trend

Then, 
$$a = \frac{\sum y}{N} = \frac{13096.64}{7} = 1870.95$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{5722.74}{28} = 204.38$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 1870.95 + 204.38x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 5722.74 - 0 \times 13096.64}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 26549206.13 - (13096.64)^2}}$$

$$\therefore r = 0.7561$$

$$\text{Coefficient of Determination } (r^2) = (0.7561)^2 = 0.5717$$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.5717}{\sqrt{7}} = 0.1092$$

$$6(\text{PE}) = 0.655$$

## Appendix 6

### Trend Analysis and Coefficient of Correlation between Net Profit after Tax (NPAT) and Time of Nabil Bank

(Rs. in million)

F.Y (X)	NPAT (y)	x = X-a (2004)	x <sup>2</sup>	y <sup>2</sup>	xy
2003/04	271.64	-3	9	73788.29	-814.92
2004/05	416.24	-2	4	173255.74	-832.48
2005/06	455.32	-1	1	207316.30	-455.32
2006/07	520.11	0	0	270514.41	0
2007/08	635.26	1	1	403555.27	635.26
2008/09	673.96	2	4	454222.08	1347.92
2009/10	746.47	3	9	557217.46	2239.41
Total	$\sum y = 3719$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 2139869.55$	$xy = 2119.87$

By using the equation of straight line trend

$$Y_c = a + bx$$

Where, a = constant variable

y = dependent variable (NPAT)

x = independent variable (time in 1 year)

b = slop of trend

Then, 
$$a = \frac{\sum y}{N} = \frac{3719}{7} = 531.29$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{2119.87}{28} = 75.71$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 531.29 + 75.71x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 2119.87 - 0 \times 3719}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 2139869.55 - (3719)^2}}$$

$$\therefore r = 0.9892$$

Coefficient of Determination ( $r^2$ ) =  $(0.9892)^2 = 0.9785$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.9785}{\sqrt{7}} = 0.0055$$

$$6(\text{PE}) = 0.0329$$

## Appendix 7

### Trend Analysis and Coefficient of Correlation between Interest Income and Time of Nabil Bank

(Rs. in million)

F.Y (X)	Interest Income (y)	x = X-a (2004)	x <sup>2</sup>	y <sup>2</sup>	xy
2003/04	1120.18	-3	9	1254803.23	-3360.54
2004/05	1017.87	-2	4	1036059.34	-2035.74
2005/06	1001.62	-1	1	1003242.62	-1001.62
2006/07	1068.75	0	0	1142226.56	0
2007/08	1310.00	1	1	1716100.00	1310
2008/09	1587.76	2	4	2520981.82	3175.52
2009/10	1978.70	3	9	3915253.69	5936.1
Total	$\sum y = 9084.88$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 12588667.26$	$xy = 4023.72$

By using the equation of straight line trend

$$Y_c = a + bx$$

Where, a = constant variable

y = dependent variable (Interest Income)

x = independent variable (time in 1 year)

b = slop of trend

$$\text{Then, } a = \frac{\sum y}{N} = \frac{9084.88}{7} = 1297.84$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{4023.72}{28} = 143.70$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 1297.84 + 143.704x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 4023.72 - 0 \times 9084.88}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 12588667.26 - (9084.88)^2}}$$

$$\therefore r = 0.8513$$

$$\text{Coefficient of Determination } (r^2) = (0.8513)^2 = 0.7247$$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.7247}{\sqrt{7}} = 0.0702$$

$$6(\text{PE}) = 0.421$$

## Appendix 8

### Trend Analysis and Coefficient of Correlation between Interest Expenses and Time of Nabil Bank

(Rs. in million)

F.Y (X)	Interest Expenses (y)	x = X - a(2004)	x <sup>2</sup>	y <sup>2</sup>	xy
2003/04	462.08	-3	9	213517.93	-1386.24
2004/05	317.35	-2	4	100711.02	-634.7
2005/06	282.95	-1	1	80060.70	-282.95
2006/07	243.54	0	0	59311.73	0
2007/08	357.16	1	1	127563.27	357.16
2008/09	555.71	2	4	308813.60	1111.42
2009/10	758.44	3	9	575231.23	2275.32
Total	$\sum y = 2977.23$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 1465209.49$	xy = 1440.01

By using the equation of straight line trend

$$Y_c = a + bx$$

Where, a = constant variable

y = dependent variable (Interest Expenses)

x = independent variable (time in 1 year)

b = slop of trend

$$\text{Then, } a = \frac{\sum y}{N} = \frac{2977.23}{7} = 425.32$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{1440.01}{28} = 51.43$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 425.32 + 51.43x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 1440.01 - 0 \times 2977.23}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 1465209.49 - (2977.23)^2}}$$

$$\therefore r = 0.6101$$

$$\text{Coefficient of Determination } (r^2) = (0.6101)^2 = 0.3722$$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.3722}{\sqrt{7}} = 0.16$$

$$6(\text{PE}) = .96$$

## Appendix 9

### Trend Analysis and Coefficient of Correlation between Operating Expenses and Time of Nabil Bank

F.Y (X)	Operating Expenses (y)	x = X - a (2004)	x <sup>2</sup>	y <sup>2</sup>	(Rs. in million) xy
2003/04	134.32	-3	9	18041.86	-402.96
2004/05	166.20	-2	4	27622.44	-332.4
2005/06	150.76	-1	1	22728.58	-150.76
2006/07	153.37	0	0	23522.36	0
2007/08	190.30	1	1	36214.09	190.3
2008/09	182.70	2	4	33379.29	365.4
2009/10	188.18	3	9	35411.71	564.54
Total	$\sum y = 1165.83$	$\sum x = 0$	$\sum x^2 = 28$	$\sum y^2 = 196920.33$	$xy = 234.12$

By using the equation of straight line trend

$$Y_c = a + bx$$

Where,  $a$  = constant variable

$y$  = dependent variable (deposit)

$x$  = independent variable (time in 1 year)

$b$  = slop of trend

Then, 
$$a = \frac{\sum y}{N} = \frac{132264.5}{7} = 166.55$$

$$b = \frac{\sum xy}{\sum x^2} = \frac{74243.5}{28} = 8.36$$

Then, substituting the value of 'a' and 'b' in equation  $Y_c = a + bx$

$$\therefore Y_c = 166.55 + 8.36x$$

By using correlation co-efficient

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 234.12 - 0 \times 1165.83}{\sqrt{7 \times 28 - (0)^2} \sqrt{7 \times 196920.33 - (1165.83)^2}}$$

$$\therefore r = 0.8430$$

Coefficient of Determination ( $r^2$ ) =  $(0.8430)^2 = 0.7106$

Test of significant of 'r'

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.7106}{\sqrt{7}} = 0.0738$$

$$6(\text{PE}) = 0.443$$

# CORRELATION ANALYSIS

## Appendix 10

### Coefficient of Correlation Between NPAT and Total Income of Nabil Bank

(Rs. in million)

F.Y	NPAT (X)	Total Income (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	271.64	1639.12	-259.65	67418.12	-231.83	53745.15	60194.66
2004/05	416.24	1427.45	-115.05	13236.50	-443.50	196692.25	51024.68
2005/06	455.32	1426.44	-75.97	5771.44	-444.51	197589.14	33769.42
2006/07	520.11	1510.68	-11.18	124.99	-360.27	129794.47	4027.82
2007/08	635.26	1717.41	103.97	10809.76	-153.54	23574.53	-15963.48
2008/09	673.96	2922.59	142.67	20354.73	1051.64	1105947.69	150037.55
2009/10	746.47	2452.95	215.18	46302.43	582.00	338724.00	125234.76
Total	$\sum X = 3719$	$\sum Y = 13096.64$	$\sum x = -0.03$	$\sum x^2 = 164017.98$	$\sum y = -0.01$	$\sum y^2 = 2046066.23$	$\sum xy = 408325.26$

$$\text{Mean of 'X'} (\bar{X}) = \frac{\sum X}{n} = \frac{3719}{7} = 531.29$$

$$\text{Mean of 'Y'} (\bar{Y}) = \frac{\sum Y}{n} = \frac{13096.64}{7} = 1870.95$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 408325.26 - (-0.03) \times (-0.01)}{\sqrt{7 \times 164017.98 - (-0.03)^2} \sqrt{7 \times 2046066.23 - (-0.01)^2}} = 0.7049$$

Coefficient of Determination ( $r^2$ ) =  $(0.7049)^2 = 0.4968$

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.4968}{\sqrt{7}} = 0.1283$$

$$6(\text{PE}) = 0.7697$$

**Appendix 11**  
**Coefficient of Correlation**  
**Between NPAT and Total Deposit of Nabil Bank**

(Rs. in million)

F.Y	NPAT (X)	Total Deposit (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	271.64	15506.43	-259.65	67418.12	-3388.494	11481893.52	879822.54
2004/05	416.24	13447.66	-115.05	13236.50	-5447.264	29672688.20	626707.76
2005/06	455.32	14119.03	-75.97	5771.44	-4775.894	22809166.23	362824.69
2006/07	520.11	14586.61	-11.18	124.99	-4308.31	18561535.06	48166.91
2007/08	635.26	19347.40	103.97	10809.76	452.48	204738.15	47044.35
2008/09	673.96	23342.29	142.67	20354.73	4447.37	19779099.92	634506.28
2009/10	746.47	31915.05	215.18	46302.43	13020.13	169523785.22	2801671.57
Total	$\sum X = 3719$	$\sum Y = 132264.5$	$\sum x = -0.03$	$\sum x^2 = 164017.98$	$\sum y = 0.02$	$\sum y^2 = 272032906.29$	$\sum xy = 5400744.09$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{3719}{7} = 531.29$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{13096.64}{7} = 18894.92$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 5400744.09 - (-0.03) \times (0.02)}{\sqrt{7 \times 164017.98 - (-0.03)^2} \sqrt{7 \times 272032906.29 - (0.02)^2}} = 0.8085$$

Coefficient of Determination ( $r^2$ ) =  $(0.8085)^2 = 0.6537$  i.e. = 65.37%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.6537}{\sqrt{7}} = 0.0883$$

$$6(\text{PE}) = 0.5297$$

**Appendix 12**  
**Coefficient of Correlation**  
**Between NPAT and Total Investment of Nabil Bank**

(Rs. in million)

F.Y	NPAT (X)	Total Investment (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	271.64	8199.51	-259.65	67418.12	1141.54	1303113.57	-296400.86
2004/05	416.24	6031.18	-115.05	13236.50	-1026.79	1054297.70	118132.19
2005/06	455.32	5835.95	-75.97	5771.44	-1222.02	1493332.88	92836.859
2006/07	520.11	4275.53	-11.18	124.99	-2782.44	7741972.35	31107.679
2007/08	635.26	6178.53	103.97	10809.76	-879.44	773414.71	-91435.377
2008/09	673.96	8945.31	142.67	20354.73	1887.34	3562052.28	269266.8
2009/10	746.47	9939.77	215.18	46302.43	2881.8	8304771.24	620105.72
Total	$\sum X = 3719$	$\sum Y = 49405.78$	$\sum x = -0.03$	$\sum x^2 = 164017.98$	$\sum y = -0.01$	$\sum y^2 = 24232954.74$	$\sum xy = 743613.01$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{3719}{7} = 531.29$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{49405.78}{7} = 7057.97$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 743613.01 - (-0.03) \times (-0.01)}{\sqrt{7 \times 164017.98 - (-0.03)^2} \sqrt{7 \times 24232954.74 - (-0.01)^2}} = 0.3730$$

Coefficient of Determination ( $r^2$ ) =  $(0.3730)^2 = 0.1391 = \text{i.e. } 13.91\%$

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.1391}{\sqrt{7}} = 0.2195$$

$$6(\text{PE}) = 1.3169$$

## Appendix 13

### Coefficient of Correlation Between NPAT and Interest Income of Nabil Bank

(Rs. in million)

F.Y	NPAT (X)	Interest Income (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	271.64	1120.18	-259.65	67418.12	-177.66	31563.08	46129.42
2004/05	416.24	1017.87	-115.05	13236.50	-279.97	78383.20	32210.55
2005/06	455.32	1001.62	-75.97	5771.44	-296.22	87746.29	22503.83
2006/07	520.11	1068.75	-11.18	124.99	-229.09	52482.23	2561.23
2007/08	635.26	1310.00	103.97	10809.76	12.16	147.87	1264.28
2008/09	673.96	1587.76	142.67	20354.73	289.92	84053.61	41362.89
2009/10	746.47	1978.70	215.18	46302.43	680.86	463570.34	146507.45
Total	$\sum X = 3719$	$\sum Y = 9084.88$	$\sum x = -0.03$	$\sum x^2 = 164017.98$	$\sum y = 0$	$\sum y^2 = 797946.60$	$\sum xy = 292539.64$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{3719}{7} = 531.29$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{9084.88}{7} = 1297.84$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 292539.64 - (-0.03) \times 0}{\sqrt{7 \times 164017.98 - (-0.03)^2} \sqrt{7 \times 797946.60 - (0)^2}} = 0.8086$$

Coefficient of Determination ( $r^2$ ) =  $(0.8086)^2 = 0.6539$  i.e. 65.39%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.6539}{\sqrt{7}} = 0.1308$$

$$6(\text{PE}) = 0.7849$$

**Appendix 14**  
**Coefficient of Correlation**  
**Between NPAT and Interest Expenses of Nabil Bank**

(Rs. in million)

F.Y	NPAT (X)	Interest Expenses (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	271.64	462.08	-259.65	67418.12	36.76	1351.30	-9544.73
2004/05	416.24	317.35	-115.05	13236.50	-107.97	11657.52	12421.95
2005/06	455.32	282.95	-75.97	5771.44	-142.37	20269.22	10815.85
2006/07	520.11	243.54	-11.18	124.99	-181.78	33043.97	2032.3
2007/08	635.26	357.16	103.97	10809.76	-68.16	4645.79	-7086.6
2008/09	673.96	555.71	142.67	20354.73	130.39	17001.55	18602.74
2009/10	746.47	758.44	215.18	46302.43	333.12	110968.93	71680.76
Total	$\sum X = 3719$	$\sum Y = 2977.23$	$\sum x = -0.03$	$\sum x^2 = 164017.98$	$\sum y = -0.01$	$\sum y^2 = 198938.28$	$\sum xy = 98922.27$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{3719}{7} = 531.29$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{2977.23}{7} = 425.32$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 98922.27 - (-0.03) \times (-0.01)}{\sqrt{7 \times 164017.98 - (-0.03)^2} \sqrt{7 \times 198938.28 - (-0.01)^2}} = 0.5476$$

Coefficient of Determination ( $r^2$ ) =  $(0.5476)^2 = 0.2999$  i.e. 29.99%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.2999}{\sqrt{7}} = 0.1785$$

$$6(\text{PE}) = 1.0709$$

**Appendix 15**  
**Coefficient of Correlation**  
**Between NPAT and Loan and Advance of Nabil Bank**

(Rs. in million)

F.Y	NPAT(X)	Loan and Advance(Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	271.64	7437.89	-259.65	67418.12	-4534.02	20557337.36	1177258.29
2004/05	416.24	7755.95	-115.05	13236.50	-4215.96	17774318.72	485046.20
2005/06	455.32	8189.99	-75.97	5771.44	-3781.92	14302918.89	287312.46
2006/07	520.11	10586.17	-11.18	124.99	-1385.74	1920275.35	15492.57
2007/08	635.26	12922.54	103.97	10809.76	950.63	903697.40	98837.00
2008/09	673.96	15545.78	142.67	20354.73	3573.87	12772546.78	509884.03
2009/10	746.47	21365.05	215.18	46302.43	9393.14	88231079.06	2021215.87
Total	$\sum X = 3719$	$\sum Y = 83803.37$	$\sum x = -0.03$	$\sum x^2 = 164017.98$	$\sum y = 0$	$\sum y^2 = 156462173.55$	$\sum xy = 4595046.43$

$$\text{Mean of 'X'} (\bar{X}) = \frac{\sum X}{n} = \frac{3719}{7} = 531.29$$

$$\text{Mean of 'Y'} (\bar{Y}) = \frac{\sum Y}{n} = \frac{83803.37}{7} = 11971.91$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 4595046.43 - (-0.03) \times (0)}{\sqrt{7 \times 164017.98 - (-0.03)^2} \sqrt{7 \times 156462173.55 - (0)^2}} = 0.9071$$

Coefficient of Determination ( $r^2$ ) =  $(0.9071)^2 = 0.8228$  i.e. 82.28%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.8228}{\sqrt{7}} = 0.0452$$

$$6(\text{PE}) = 0.2710$$

**Appendix 16**  
**Coefficient of Correlation**  
**Between NPAT and Operating Expenses of Nabil Bank**

(Rs. in million)

F.Y	NPAT (X)	Operating Expenses (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	271.64	134.32	-259.65	67418.12	-32.23	1038.77	8368.52
2004/05	416.24	166.20	-115.05	13236.50	-0.35	0.12	40.27
2005/06	455.32	150.76	-75.97	5771.44	-15.79	249.32	1199.57
2006/07	520.11	153.37	-11.18	124.99	-13.18	173.71	147.35
2007/08	635.26	190.30	103.97	10809.76	23.75	564.06	2469.29
2008/09	673.96	182.70	142.67	20354.73	16.15	260.82	2304.12
2009/10	746.47	188.18	215.18	46302.43	21.63	467.86	4654.34
Total	$\sum X = 3719$	$\sum Y = 1165.83$	$\sum x = -0.03$	$\sum x^2 = 164017.98$	$\sum y = -0.02$	$\sum y^2 = 2754.67$	$\sum xy = 19183.46$

$$\text{Mean of 'X'} (\bar{X}) = \frac{\sum X}{n} = \frac{3719}{7} = 531.29$$

$$\text{Mean of 'Y'} (\bar{Y}) = \frac{\sum Y}{n} = \frac{1165.83}{7} = 166.55$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 19183.46 - (-0.03) \times (-0.02)}{\sqrt{7 \times 164017.98 - (-0.03)^2} \sqrt{7 \times 2754.67 - (-0.02)^2}} = 0.9025$$

Coefficient of Determination ( $r^2$ ) =  $(0.9025)^2 = 0.8145$

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.8145}{\sqrt{7}} = 0.0473$$

$$6(\text{PE}) = 0.2837$$

**Appendix 17**  
**Coefficient of Correlation**  
**Between NPAT and Net Worth of Nabil Bank**

(Rs. in million)

F.Y	NPAT (X)	Net Worth (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	271.64	1146.42	-259.65	67418.12	-563.46	317487.17	146302.39
2004/05	416.24	1146.42	-115.05	13236.50	-395.69	156570.58	45524.13
2005/06	455.32	1146.42	-75.97	5771.44	-228.2	52075.24	17336.35
2006/07	520.11	1146.42	-11.18	124.99	-52.24	2729.02	584.04
2007/08	635.26	1146.42	103.97	10809.76	165.11	27261.31	17166.49
2008/09	673.96	1146.42	142.67	20354.73	347.17	120527.01	49530.74
2009/10	746.47	1146.42	215.18	46302.43	727.32	528994.38	156504.72
Total	$\sum X = 3719$	$\sum Y = 11969.17$	$\sum x = -0.03$	$\sum x^2 = 164017.98$	$\sum y = 0.01$	$\sum y^2 = 1205644.71$	$\sum xy = 432948.87$

$$\text{Mean of 'X'} (\bar{X}) = \frac{\sum X}{n} = \frac{3719}{7} = 531.29$$

$$\text{Mean of 'Y'} (\bar{Y}) = \frac{\sum Y}{n} = \frac{11969.17}{7} = 1709.88$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 432948.87 - (-0.03) \times (0.01)}{\sqrt{7 \times 164017.98 - (-0.03)^2} \sqrt{7 \times 1205644.71 - (0.01)^2}} = 0.9736$$

Coefficient of Determination ( $r^2$ ) =  $(0.9736)^2 = 0.9479$  i.e. 94.79%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.9479}{\sqrt{7}} = 0.0133$$

$$6(\text{PE}) = 0.0797$$

**Appendix 18**  
**Coefficient of Correlation**  
**Between Total Income and Interest Expenses of Nabil Bank**

(Rs. in million)

F.Y	Total Income (X)	Interest Expenses (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	1639.12	462.08	-231.83	53745.15	36.76	1351.30	-8522.07
2004/05	1427.45	317.35	-443.50	196692.25	-107.97	11657.52	47884.70
2005/06	1426.44	282.95	-444.51	197589.14	-142.37	20269.22	63284.89
2006/07	1510.68	243.54	-360.27	129794.47	-181.78	33043.97	65489.88
2007/08	1717.41	357.16	-153.54	23574.53	-68.16	4645.79	10465.29
2008/09	2922.59	555.71	1051.64	1105947.69	130.39	17001.55	137123.34
2009/10	2452.95	758.44	582.00	338724.00	333.12	110968.93	193875.84
Total	$\sum X = 13096.64$	$\sum Y = 2977.23$	$\sum x = -0.01$	$\sum x^2 = 2046066.23$	$\sum y = -0.01$	$\sum y^2 = 198938.28$	$\sum xy = 509601.86$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{13096.64}{7} = 1870.95$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{2977.23}{7} = 425.32$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 509601.86 - (-0.01) \times (-0.01)}{\sqrt{7 \times 2046066.23 - (-0.01)^2} \sqrt{7 \times 198938.28 - (-0.01)^2}} = 0.7988$$

Coefficient of Determination ( $r^2$ ) =  $(0.7988)^2 = 0.6380$  i.e. 63.80%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.6380}{\sqrt{7}} = 0.0873$$

$$6(\text{PE}) = 0.5238$$

**Appendix 19**  
**Coefficient of Correlation**  
**Between Total Income and Operating Expenses Nabil Bank**

(Rs. in million)

F.Y	Total Income (X)	Operating Expenses (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	1639.12	134.32	-231.83	53745.15	-32.23	1038.77	7471.88
2004/05	1427.45	166.20	-443.50	196692.25	-0.35	0.12	155.23
2005/06	1426.44	150.76	-444.51	197589.14	-15.79	249.32	7018.81
2006/07	1510.68	153.37	-360.27	129794.47	-13.18	173.71	4748.36
2007/08	1717.41	190.30	-153.54	23574.53	23.75	564.06	-3646.58
2008/09	2922.59	182.70	1051.64	1105947.69	16.15	260.82	16983.99
2009/10	2452.95	188.18	582.00	338724.00	21.63	467.86	12588.66
Total	$\sum X = 13096.64$	$\sum Y = 1165.83$	$\sum x = -0.01$	$\sum x^2 = 2046066.23$	$\sum y = -0.02$	$\sum y^2 = 2754.67$	$\sum xy = 45320.35$

$$\text{Mean of 'X', } (\bar{X}) = \frac{\sum X}{n} = \frac{13096.64}{7} = 1870.95$$

$$\text{Mean of Y, } (\bar{Y}) = \frac{\sum Y}{n} = \frac{1165.83}{7} = 166.55$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 45320.35 - (-0.01) \times (-0.02)}{\sqrt{7 \times 2046066.23 - (-0.01)^2} \sqrt{7 \times 2754.67 - (-0.02)^2}} = 0.6037$$

Coefficient of Determination ( $r^2$ ) =  $(0.6037)^2 = 0.3644$  i.e. 36.44%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.3644}{\sqrt{7}} = 0.1620$$

$$6(\text{PE}) = 0.9722$$

**Appendix 20**  
**Coefficient of Correlation**  
**Between Total Income and Net Worth of Nabil Bank**

(Rs. in million)

F.Y	Total Income (X)	Net Worth (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	1639.12	1146.42	-231.83	53745.15	-563.46	317487.17	130626.93
2004/05	1427.45	1146.42	-443.50	196692.25	-395.69	156570.58	175488.52
2005/06	1426.44	1146.42	-444.51	197589.14	-228.2	52075.24	101437.18
2006/07	1510.68	1146.42	-360.27	129794.47	-52.24	2729.02	18820.505
2007/08	1717.41	1146.42	-153.54	23574.53	165.11	27261.31	-25350.989
2008/09	2922.59	1146.42	1051.64	1105947.69	347.17	120527.01	365097.86
2009/10	2452.95	1146.42	582.00	338724.00	727.32	528994.38	423300.24
Total	$\sum X = 13096.64$	$\sum Y = 11969.17$	$\sum x = -0.01$	$\sum x^2 = 2046066.23$	$\sum y = 0.01$	$\sum y^2 = 1205644.71$	$\sum xy = 1189420.24$

$$\text{Mean of 'X'} (\bar{X}) = \frac{\sum X}{n} = \frac{13096.64}{7} = 1870.95$$

$$\text{Mean of 'Y'} (\bar{Y}) = \frac{\sum Y}{n} = \frac{11969.17}{7} = 1709.88$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 1189420.24 - (-0.01) \times (0.01)}{\sqrt{7 \times 2046066.23 - (-0.01)^2} \sqrt{7 \times 1205644.71 - (0.01)^2}} = 0.7573$$

Coefficient of Determination ( $r^2$ ) =  $(0.7573)^2 = 0.5735$  i.e. 57.35%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.5735}{\sqrt{7}} = 0.1087$$

$$6(\text{PE}) = 0.6524$$

**Appendix 21**  
**Coefficient of Correlation**  
**Between Total Deposit and Interest Expenses of Nabil Bank**

(Rs. in million)

F.Y	Total Deposit (X)	Interest Expenses (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	15506.43	462.08	-3388.494	11481893.52	36.76	1351.30	-124561.04
2004/05	13447.66	317.35	-5447.264	29672688.20	-107.97	11657.52	588141.09
2005/06	14119.03	282.95	-4775.894	22809166.23	-142.37	20269.22	679944.03
2006/07	14586.61	243.54	-4308.31	18561535.06	-181.78	33043.97	783164.59
2007/08	19347.40	357.16	452.48	204738.15	-68.16	4645.79	-30841.04
2008/09	23342.29	555.71	4447.37	19779099.92	130.39	17001.55	579892.57
2009/10	31915.05	758.44	13020.13	169523785.22	333.12	110968.93	4337265.71
Total	$\sum X = 132264.5$	$\sum Y = 2977.23$	$\sum x = 0.02$	$\sum x^2 = 272032906.29$	$\sum y = -0.01$	$\sum y^2 = 198938.28$	$\sum xy = 6813005.92$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{132264.5}{7} = 18894.92$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{2977.23}{7} = 425.32$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 6813005.92 - (0.02) \times (-0.01)}{\sqrt{7 \times 272032906.29 - (0.02)^2} \sqrt{7 \times 198938.28 - (-0.01)^2}} = 0.9261$$

Coefficient of Determination ( $r^2$ ) =  $(0.9261)^2 = 0.8577$  i.e. 85.77%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.8577}{\sqrt{7}} = 0.0363$$

$$6(\text{PE}) = 0.2177$$

## Appendix 22

### Coefficient of Correlation Between Total Deposit and Loan and Advance of Nabil Bank

(Rs. in million)

F.Y	Total Deposit (X)	Loan and Advance (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	15506.43	7437.89	-3388.494	11481893.52	-4534.02	20557337.36	15363499.57
2004/05	13447.66	7755.95	-5447.264	29672688.20	-4215.96	17774318.72	22965447.13
2005/06	14119.03	8189.99	-4775.894	22809166.23	-3781.92	14302918.89	18062049.04
2006/07	14586.61	10586.17	-4308.31	18561535.06	-1385.74	1920275.35	5970197.50
2007/08	19347.40	12922.54	452.48	204738.15	950.63	903697.40	430141.06
2008/09	23342.29	15545.78	4447.37	19779099.92	3573.87	12772546.78	15894322.22
2009/10	31915.05	21365.05	13020.13	169523785.22	9393.14	88231079.06	122299903.91
Total	$\sum X =$ 132264.5	$\sum Y =$ 83803.37	$\sum x =$ 0.02	$\sum x^2 =$ 272032906.29	$\sum y = 0$	$\sum y^2 =$ 156462173.55	$\sum xy =$ 200985560.43

$$\text{Mean of 'X'} (\bar{X}) = \frac{\sum X}{n} = \frac{132264.5}{7} = 18894.92$$

$$\text{Mean of 'Y'} (\bar{Y}) = \frac{\sum Y}{n} = \frac{83803.37}{7} = 11971.91$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 200985560.43 - (0.02) \times (0)}{\sqrt{7 \times 272032906.29 - (0.02)^2} \sqrt{7 \times 156462173.55 - (0)^2}} = 0.9742$$

Coefficient of Determination ( $r^2$ ) =  $(0.9742)^2 = 0.9491$  i.e. 94.91%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.9491}{\sqrt{7}} = 0.0130$$

$$6(\text{PE}) = 0.0779$$

## Appendix 23

### Coefficient of Correlation Between Total Deposit and Operating Expenses of Nabil Bank

(Rs. in million)

F.Y	Total Deposit (X)	Operating Expenses (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	15506.43	134.32	-3388.494	11481893.52	-32.23	1038.77	109211.16
2004/05	13447.66	166.20	-5447.264	29672688.20	-0.35	0.12	1906.54
2005/06	14119.03	150.76	-4775.894	22809166.23	-15.79	249.32	75411.37
2006/07	14586.61	153.37	-4308.31	18561535.06	-13.18	173.71	56783.53
2007/08	19347.40	190.30	452.48	204738.15	23.75	564.06	10746.40
2008/09	23342.29	182.70	4447.37	19779099.92	16.15	260.82	71825.03
2009/10	31915.05	188.18	13020.13	169523785.22	21.63	467.86	281625.41
Total	$\sum X = 132264.5$	$\sum Y = 1165.83$	$\sum x = 0.02$	$\sum x^2 = 272032906.29$	$\sum y = -0.02$	$\sum y^2 = 2754.67$	$\sum xy = 607509.43$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{132264.5}{7} = 18894.92$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{1165.83}{7} = 166.55$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 607509.43 - (0.02) \times (-0.02)}{\sqrt{7 \times 272032906.29 - (0.02)^2} \sqrt{7 \times 2754.67 - (-0.02)^2}} = 0.7018$$

Coefficient of Determination ( $r^2$ ) =  $(0.7018)^2 = 0.4925$  i.e. 49.25%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.4925}{\sqrt{7}} = 0.1294$$

$$6(\text{PE}) = 0.7763$$

**Appendix 24**  
**Coefficient of Correlation**  
**Between Interest Income and Interest Expenses of Nabil Bank**

(Rs. in million)

F.Y	Interest Income (X)	Interest Expenses (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	1120.18	462.08	-177.66	31563.08	36.76	1351.30	-6530.78
2004/05	1017.87	317.35	-279.97	78383.20	-107.97	11657.52	30228.36
2005/06	1001.62	282.95	-296.22	87746.29	-142.37	20269.22	42172.84
2006/07	1068.75	243.54	-229.09	52482.23	-181.78	33043.97	41643.98
2007/08	1310.00	357.16	12.16	147.87	-68.16	4645.79	-828.83
2008/09	1587.76	555.71	289.92	84053.61	130.39	17001.55	37802.67
2009/10	1978.70	758.44	680.86	463570.34	333.12	110968.93	226808.08
Total	$\sum X = 9084.88$	$\sum Y = 2977.23$	$\sum x = 0$	$\sum x^2 = 797946.60$	$\sum y = -0.01$	$\sum y^2 = 198938.28$	$\sum xy = 371296.33$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{9084.88}{7} = 1297.84$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{2977.23}{7} = 425.32$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 371296.33 - (0) \times (-0.01)}{\sqrt{7 \times 797946.60 - (0)^2} \sqrt{7 \times 198938.28 - (-0.01)^2}} = 0.9319$$

Coefficient of Determination ( $r^2$ ) =  $(0.9319)^2 = 0.8685$  i.e. 86.85%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.8685}{\sqrt{7}} = 0.0335$$

$$6(\text{PE}) = 0.2011$$

## Appendix 25

### Coefficient of Correlation Between Interest Income and Loan and Advance of Nabil Bank

(Rs. in million)

F.Y	Interest Income (X)	Loan and Advance (Y)	$x = X - \bar{X}$	$x^2$	$y = Y - \bar{Y}$	$y^2$	xy
2003/04	1120.18	7437.89	-177.66	31563.08	-4534.02	20557337.36	805513.99
2004/05	1017.87	7755.95	-279.97	78383.20	-4215.96	17774318.72	1180342.32
2005/06	1001.62	8189.99	-296.22	87746.29	-3781.92	14302918.89	1120280.34
2006/07	1068.75	10586.17	-229.09	52482.23	-1385.74	1920275.35	317459.18
2007/08	1310.00	12922.54	12.16	147.87	950.63	903697.40	11559.66
2008/09	1587.76	15545.78	289.92	84053.61	3573.87	12772546.78	1036136.39
2009/10	1978.70	21365.05	680.86	463570.34	9393.14	88231079.06	6395413.30
Total	$\sum X = 9084.88$	$\sum Y = 83803.37$	$\sum x = 0$	$\sum x^2 = 797946.60$	$\sum y = 0$	$\sum y^2 = 156462173.55$	$\sum xy = 10866705.19$

$$\text{Mean of 'X' } (\bar{X}) = \frac{\sum X}{n} = \frac{9084.88}{7} = 1297.84$$

$$\text{Mean of 'Y' } (\bar{Y}) = \frac{\sum Y}{n} = \frac{83803.37}{7} = 11971.91$$

Coefficient of Correlation (r)

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}$$

$$r = \frac{7 \times 10866705.19 - (0) \times (0)}{\sqrt{7 \times 797946.60 - (0)^2} \sqrt{7 \times 156462173.55 - (0)^2}} = 0.9725$$

Coefficient of Determination ( $r^2$ ) =  $(0.9725)^2 = 0.9458$  i.e. 94.58%

$$\text{Probable Error (PE)} = 0.6745 \times \frac{1 - r^2}{\sqrt{n}} = 0.6745 \times \frac{1 - 0.9458}{\sqrt{7}} = 0.0138$$

$$6(\text{PE}) = 0.0829$$

