CHAPTER-I

INTRODUCTION

1.1 Background of the study

Capital structure holds a major place in a financial management. "Capital Structure is the composition of debt and equity securities and is considered as financing decision undertaken by the financial manager. The financial manager must strive to obtain the best financing mix or optimal capital structure for his firm. The firm attains capital structure where the debt-equity proportion maximizes the market value of the shares. The sizes of debt affect the return and risk of the equity shareholders; it increases the return on equity fund and at the same time it also increases risk. A proper balance must be strike between the risk and return in order to maximize the market value of shares". (Pandey; 1995:54)

Capital structure is a very crucial part of financial management as the various composition of debt and equity capital may impact differently on risk and rate of return to equity holders. The fund required to business enterprises are raised either through the ownership securities (i.e. equity share and preference share) or creditor ship securities (i.e. debenture and bond). A business enterprise has to maintain a proper mix of both the securities in a manner that the cost and perception is portrayed by the firm's capital structure. The term 'Capital Structure' is the combination of long term debt and equity. "It is a part of financial structure i.e. comprised to the total combination of preferred stock, long-term debt and current liabilities. If the current liabilities are removed from it, we get capital structure (Mathur, 1979:239)"

An appropriate capital structure is a critical decision for any business organization. The decision is important not only because of the need to maximize returns to various organizational constituencies, but also because of the impact such a decision has an organization ability to deal with its competitive environment. The prevailing argument, originally developed by Modigliani and Miller (1958) is that an optimal capital structure exists which balances the risk of bankruptcy with tax saving of debt. Once established this capital structure should provide greater returns to shareholders than they would receive from an all-equity firm.

1.2 Commercial Banking Scenario on Nepal

The history of financial and monetary development in Nepal is not very old. It has gone through different stages; during the Prime minister ship of Ranadip Singh around 1872 A.D. "Tejarath Adda" was introduced, which brought reforms in economic and financial sector. The main purpose of Tejarath Adda was to provide credit facilities to general public at confessional rate. However the installment of " Kausitosh Khana" as a banking agency during the regime of King Prithivi Narayan Shah could also be regarded as the first step towards banking in Nepal. Nepal Bank Limited (NBL) was launched as the first commercial bank of Nepal, with co-operation of Imperial Bank of India in November 1937 A.D. (30th Kartik, 1994 B.S), with 51% government ownership. Nepal Bank Limited also used to function as central bank of the country till 2012 B.S. The second commercial bank Rastriya Banijya Bank comes into existence in 1996 A.D. (Magh 10, 2022 B.S) with 100% government ownership.

In early 1980's, government permitted to establish foreign joint venture banks in Nepal with up to maximum of 50% equity participation. As a result, three joint venture banks namely; Nepal Arab Bank Limited (Nabil Bank Limited), Nepal Gridlays Bank Limited (Standard Chartered Bank Limited) and Indosuez Bank Limited (Nepal Investment Bank Limited), came in to existence by the half of the end 1980s. Henceforth, a number of joint venture banks came in to existence. The basic objective to allow joint venture banks to operate in Nepal was mainly to develop banking sectors to create healthy environment for future development of already existing old banks and to introduce new technological efficiency in banking sectors.

The commercial banks collect the scattered funds through saving and place them into productive channels. They hold deposit of many persons, government establishments and business units. They make funds available through their lending and investing activities to borrowers, individuals, business firms and government establishments. They are media through which monetary policy is affected. The joint venture banks help to build the country's holistic development agenda. It is a resource for economic development. It maintains the economic confidence of various segments and extends credit to people.

1.3. Profile of concerned Banks

A. Nabil Bank Limited

Nabil Bank commenced its operation 27 years ago, on the 12th of July 1984, through a joint venture with Dubai Bank Limited marking a turning point in the banking history of Nepal. Banking has been redefined and service remodeled since then. Banking thitherto suffered setbacks and the commencement of Nabil Bank introduced new philosophies and best practices to the industry. This is essence opened up a plethora of opportunities for all: entrepreneurs, industries, individuals for better future. It has started its banking services with a team of about 50 staffs and Rs. 28 millions of capital professional banking involved through Nabil in Nepal.

Share Capital and Ownership (July 2010)

Particulars	Amounts(Rs.)
1. Share Capital	
1.1. Authorized Capital	1,600,000,000
a. 16,000,000 Ordinary shares of Rs. 100 each.	1,600,000,000
b. …… non-redeemable Preference Shares of Rs. …each	-
c. ………... redeemable Preference Shares of Rs. …each	-
1.2. Issued Capital	1,449,124,000
a. 14,491,240 Ordinary shares of Rs. 100 each.	1,449,124,000
b. …… non-redeemable Preference Shares of Rs. …each	-
c. ………... redeemable Preference Shares of Rs. …each	-
1.3. Paid Up Capital	1,449,124,000
a. 14,491,240 Ordinary shares of Rs. 100 each.	1,449,124,000
b. …… non-redeemable Preference Shares of Rs. …each	-
c. ………... redeemable Preference Shares of Rs. …each	-

Share Ownership

Particulars	Percent	Amounts (Rs.)
1. Local Ownership	50.00	724,562,000
1.1. Government of Nepal	-	-
1.2. 'Ka' class licensed Institutions	-	-
1.3. Other licensed Institutions	6.15	89,130,800
1.4. Other Entities	10.00	144,924,300
1.5. General Public	30.00	434,737,200
1.6. Others	3.85	55,769,700
2. Foreign Ownership	50.00	724,562,000
Total	100.00	1,449,124,000

Source: 26th Annual Report of Nabil Bank Limited

B. Nepal SBI Bank Limited

Nepal SBI Bank commenced its business on 7th July, 1993 through a joint venture with State Bank of India-India's largest bank, with over 204 years of history. It enjoys the backing of State Bank of India, Employees Provident Fund and non-banking Nepali financial institution. It has been commencing with a team of 465 full time employees within 23 districts through 50 physical outlets including 43 branches. It is one of the largest joint venture banks of Nepal providing modern banking services to more than 2 lakhs customers and clients nationally. And, its 18th years of operation, the bank has been continuously upgrading the quality of its services.

Share Capital and Ownership (July 2010)

Particulars	Amounts(Rs.)
1. Share Capital	
1.1. Authorized Capital	2,000,000,000
a. 20,000,000 Ordinary shares of Rs. 100 each.	2,000,000,000
b. …… non-redeemable Preference Shares of Rs. …each	-
c. ………... redeemable Preference Shares of Rs. …each	-
1.2. Issued Capital	1,661,602,896
a. 16,616,028.96 Ordinary shares of Rs. 100 each.	1,661,602,896
b. …… non-redeemable Preference Shares of Rs. …each	-
c. ………... redeemable Preference Shares of Rs. …each	-
1.3. Paid Up Capital	1,653,623,877
a. 16,536,238.77 Ordinary shares of Rs. 100 each.	1,653,623,877
b. …… non-redeemable Preference Shares of Rs. …each	-
c. ………... redeemable Preference Shares of Rs. …each	-

Share Ownership

Particulars	Percent	Amounts (Rs.)
1. Domestic Ownership	44.72	739,457,877
1.1. Government of Nepal	-	-
1.2. 'Ka' class licensed Institutions	-	-
1.3. Other licensed Institutions	-	-
1.4. Other Entities (Karmachari Sanchaya Kosh)	15.08	249,318,000
1.5. General Public	29.64	490,139,877
1.6. Others	-	-
2. Foreign Ownership	55.28	914,166,000
Total	100.00	1,653,623,877

Source: 17th Annual Report of Nepal SBI Bank Limited

C. Everest Bank Limited

Everest Bank Limited was established in 18th October, 1994 (1st Kartik, 2051 B.S) as a joint venture bank with Punjab National Bank, one of the largest banks of India having over 3700 branches and more than 300 foreign correspondents around the globe. Punjab National Bank has a century old tradition of successful banking and is known for its financial strength and will laid down modern banking system and procedures. It has been providing top management to EBL under a technical service agreement signed between the two institutions. EBL has been operating its best quality of banking services in 37 branches of kingdom with its 568 employees.

Share Capital and Ownership (July 2010)

Particulars	Amounts (Rs.)
1. Share Capital	
1.1. Authorized Capital	1,250,000,000
a. 10,500,000 Ordinary shares of Rs. 100 each.	1,050,000,000
b. 2,000,000 no. of 7% cumulative Pref. Shares of Rs. 100 each	200,000,000
1.2. Issued Capital	1,050,000,000
a. 8,500,000 Ordinary shares of Rs. 100 each.	850,000,000
b. 2,000,000 no. of 7% cumulative Pref. Shares of Rs. 100 each	200,000,000
1.3. Paid Up Capital	1,030,467,300
a. 8,304,673 Ordinary shares of Rs. 100 each.	830,467,300
b. 2,000,000 no. of 7% cumulative Pref. Shares of Rs. 100 each	200,000,000

Share Ownership

Particulars	Percent	Amounts (Rs.)
1. Promoters	50.00	417,605,400
1.1. Government of Nepal	-	-
1.2. Foreign Institutions	-	-
1.3. 'Ka' class licensed Institutions	-	-
1.4. Other licensed Institutions	-	-
1.5. Other Entities	9.34	77,605,000
1.6. Individuals	40.66	340,000,400
1.7. Others	-	-
2. General Public	30.00	245,819,700
3. Joint Venture- Punjab National Bank, India	20.00	167,042,200
Total	100.00	830,467,300

Source: 16th Annual Report of Everest Bank Limited

1.4. Statement of the Problems

Capital Structure refers to the composition of debt and equity capital. It is more difficult to obtain best financing mix or optimal capital structure, in times when the economic environment in which the organization operates presents a high degree of instability. Therefore, the selection of the proportion of debt and equity affects the value of the organization, shareholders' wealth as well as its profitability. The equity shareholders i.e. owners expect the dividend and the appreciation in the share price where as creditors expect interest at mentioned time. The equity portion cut off the risk of bankruptcy and avoids the burden of meeting maturing interest and principal payment. But it doesn't provide tax benefits. Due to transaction cost, lengthy and expensive process of issuing share may costly than debt, but debt increases the risk of bankruptcy. Thus, it is seen that capital structure management is really important factor that could enhance the ultimate performance of the organization by minimizing overall cost of capital and encouraging the management to be curious enough in choosing the best alternative of capital mix. So, this study focuses on the existing capital structure of the selected banks of Nepal, namely Nabil Bank Limited (NABIL), Nepal SBI Bank Limited (NSBI) and Everest Bank Limited (EBL). Therefore, this study seeks to answer the following questions:

a. Does the capital structure of banks affect its growth or not?

b. Does the capital structure affect the profitability of the firm?

c. How are the commercial banks managing their financial needs?

d. Do the selected banks are enjoying optimal capital structure?

1.5. Objective of the study

The main objective of the study is to examine analysis and interpret the impact of capital structure on profitability of commercial banks with reference to Nabil Bank Limited, Nepal SBI Bank Limited and Everest Bank Limited. To achieve such objective; the following objectives have been formulated:

1. To see the capital structure of sampled banks.

2. To see the solvency position of the selected banks.

3. To see the effect of capital structure on profitability of the selected banks.

4. To see the effect of capital structure on EPS, DPS, ROA, ROE of the selected banks.

1.6. Significance of the study

Company's capital structure decision determines its entire value in long run. Every company desires to have high valuation of their shares. Thus, there must be great care while determining the composition of debt and ownership capital. Therefore, this study seems to be relevant as it attempts to analyze, evaluate and determine the appropriate capital mix for the commercial bank with reference to three selected banks of Nepal and whole of this study revolves around the capital structure pattern. Therefore, the result of the study can show the actual condition of the selected banks and it could be beneficial to various groups of people as follows:

a. Investors: This study can provide the valuable information about the debt and equity ratio of the selected commercial banks. The rational investors can be aware of financial performance of the bank and it will be benefited to take investment decision.

b. Policy makers:- Policy makers refer to the Government, Nepal Rastra Bank and management of a company. The study will be helpful to them while formulating the policy regarding commercial banks.

c. Financial managers: - This study is regarding the optimal capital structure of the selected banks. Therefore, the financial managers of the concerned banks will be benefited to take right decision about the best combination of debt and equity.

d. Outsiders: - Outsiders refer to the customers, financing agencies, stock exchange/ traders, future researchers or students. They can get most important information about these banks that they really need.

1.7. Limitations of the study

The study has been done with the help of the financial reports published by the concerned banks, journals, newspapers, magazines and unpublished thesis and calculations have been done by the figures given by the bank. Further, the study has been initiated by the students rather than by some economic or financial analyst. So, study has some of its own limitations as stated below:

a. As mentioned above, this study is mainly based on secondary data. So the reliability of this study depends upon the accuracy of published data.

b. From the total population of commercial banks i.e. 31 banks, only 3 joint venture banks (NABIL, NSBI and EBL) are taken as sample for data analysis. Sample cannot represent the whole population.

c. This study only considers five periods (i.e. fiscal year 2005/06 to 2009/10), so it has s time constraint.

d. This study concentrates only on the capital structure and does not cover the other aspects of the finance.

e. To some extent, the data published in websites may vary sometimes, with that of the annual reports of commercial banks. So, the data taken from the websites are considered as authentic one.

f. In this study, only selected financial and statistical tools and techniques are used.

g. The lack of sufficient resources and time, time is the limitation of the study. The study is to fulfill the requirement of Masters of Business Studies program and has to conduct and submit within the prescribed time.

1.8. Organization of the Study

This study has been organized into five chapters; each one is devoted to some aspects of the study of capital structure:

Chapter-I: Introduction

This chapter deals with background of the study, commercial banking scenario in Nepal, profile of concerned banks, statement of the problems, objective of the study, significance of the study, limitation of the study and organization of the study.

Chapter-II: Review of Literature

The second chapter deals with conceptual framework including the fundamental concept of capital structure. It also includes the brief review of previous thesis.

Chapter-III: Research Methodology

The third chapter describes the research methodology which deals with research design, nature and sources of data and tools used for data analysis.

Chapter-IV: Data Presentation and Analysis

The fourth chapter deals with presentation and analysis of data. In order to find out the clear picture of the capital structure of selected banks, various financial and statistical tools and techniques are used. Thus, it is concerned with the findings of the analysis.

Chapter-V: Summary, Conclusion and Recommendations

This fifth chapter is the last chapter which shows the summary of whole study, draws conclusions, and offers suggestions and recommendations for the improvement of firm in the near future.

Besides these five chapters, Bibliography and Appendixes are included in this research paper.

CHAPTER-II
RIVIEW OF LITERATURE

Review of literature is an essential part of all studies. In this part of study, review of existing literature has been made. Previous research, thesis, various articles published in newspapers, journal on this topic are the main subject matter of review of literature. The previous studies cannot be ignored because they provide the foundation to this study and it provides a way to discover what other research has uncovered in the area of this problem.

This chapter has been divided into the following subchapters:

    2.1. Conceptual Framework

    2.2. Review of Journals and Articles

    2.3. Review of Thesis

2.1. Conceptual Framework

In this section, various books written by different authors are reviewed. It will make clear about conceptual foundation of this study and will help to generate new idea.

2.1.1. Concept of capital structure

"The term Capital Structure is used to represent the proportionate relationship between debt and equity. The mix of debt and equity in a firm is called its capital structure. The capital structure decision is significant financial since it affects the shareholders return and risk consequently, the market value of share." (Pandey; 1999:18) The term 'Capital Structure' is the combination of debt and equity and its critical financial decision that affects the shareholders return and market value of shares.

"Generally the term 'Capital structure' is referred to represent the proportionate relationship between the different forms of financing. However, sometimes a destination is drawn between 'financial structure' and 'capital structure.' (Weston and Brigham; 1989:249-50)

"Capital Structure refers to the combination of long term sources of fund, such as debentures, long term debt, preference shares capital and equity capital including

reserves and surpluses. Capital structure represents the relationship among different kinds of long-term sources of capital and their amount. Normally, a firm raised long-term capital through the issue of common shares, sometimes ac-complained by preference shares. The share capital is often supplemented by debt securities and other long term borrowed capital. In some cases, the firm accepts deposits. In a growing concern, retained earnings or surpluses too form a part of capital structure, except for the common shares, different kinds of external financing i.e. preference shares as well as the borrowed capital carry fixed return to the investors (Solomon, 1993:87)." "Capital structure refers to the mix of long term sources of funds, such as debentures, long term debt, preference share capital and equity share capital including reserves and surplus." (Pandey; 1999:18)

Capital structure is the analysis of the capital composition of a company. "Capital structure is the permanent financing of the firm, represent by long term debt, preferred stock and common stock-but including all short term credit. Thus a firm's capital structure is only a part of its financial structure i.e. common stock, capital surplus and accumulated retained earnings [Weston and Brigham: 1989:1986]." It can be legitimately expected that if the capital structure/ financial leverage decision affects the total value of firm, a firm should select such as a financing mix as will maximize the shareholders wealth. Such a capital structure referred to as the optimal capital structure. The optimal capital structure may be defined as that capital structure or combination of debt and equity that leads to the maximum value of the firm." [Khan and Jain 1992:473]

"If a company can change its total valuation by varying its capital structure as optimal financial mix would exist in which market price per share could be maximized." [Van Horne: 1983]

2.1.2. The Optimal Capital Structure

The combination of securities issued by the company is known as capital structure which affects cost of capital, earning per share as well as total value of the firm. Optimal Capital Structure is the financial mix of debt and equity which can help to maximize the value of the firm with the least overall cost of capital. "The optimal

capital structure is one that strikes the optimal balance between risk and return and thereby maximizes the price of stock." [Weston and Brigham: 1989]

"Optimal Capital Structure can be defined as the mix of debt and equity which will maximize the market value of a company. If such an optimal does not exist, is twofold. It maximizes the value of the company and hence the wealth of its owners it minimizes the company's cost of capital which is in turn increase its ability to new wealth creating investment (Solomon 1993:93)."

"An optimal capital structure would be obtained at the combination of debt and equity that maximize the total value of the firm (value of debt plus value of stock) or minimize the weighted average cost of capital." (Pandey: 1999:227)

"So the Optimal Capital Structure is that combination of capital structure, which maximizes the value of the firm, earning per share and minimizes the weighted average or overall cost of capital. Therefore, the firm should determine appropriate capital structure to achieve its targeted objective of maximizing the shareholders wealth. As a practical manner we cannot estimate this structure with precision." [Weston and Brigham: 1989]

2.1.2.1. Features of Optimal Capital Structure

The Optimal Capital Structure is the proportion of equity and debt that maximize the market value of the share, shareholders wealth, and total value of the firm and minimize the overall cost of capital. There are some other features of optimal capital structure which are given below:

a. Return:- The capital structure of the company should be most advantageous which should generate maximum return to the shareholders without any kinds of additional costs to them.

b. Risk:- The optimal capital structure should be less risky. The use of excessive debt threatens the solvency of the company. Company should use debt to that extent up to which it should not add significant risk, otherwise its use should be avoided.

c. Flexibility:- The capital structure should be flexible. It helps to grab market opportunity as company can raise required funds whenever it is needed for profitable

investment opportunities. It also helps to reduce costs i.e. cost of debt and preferred stock. When fund raised from debt and preferred stock are no more required in the firm.

d. Capacity:- The capital structure of the company should be determined within the debt capacity of the company. The debt capacity of a company depends upon its ability to generate future cash flows. It should have enough cash, liquidity to pay back creditors charges and principal.

e. Control:- Control power is one of the most concerned part of the management. Management always wants to maintain control over the firm. The capital structure should involve minimum risk of loss of control of the company. Issue of excess equity share to new investors may bring threats to the control by existing manager.

2.1.3. Determinants of Capital Structure Decisions

"A firm must consider the following factors, which have an important though hard to measure bearing on choice of a target capital structure (Weston and Brigham, 1987:619-623)."

a). Sales Stability: A firm whose sales are relatively stable can safely take on more debt and insure fixed charges than company with unstable sales. Utility companies, because of their stable demand, have historically been able to use more financial leverage than industrial firm.

b). Asset Structure: Firms whose assets are suitable as security for loan find to use debt rather heavily. Thus, real estate companies are usually highly levered, while companies involved in technological research employ less debt.

c). Operating Leverage: Other things the same, a firm with less operating leverage is better able to employ financial leverage because as the interaction of operating and financial leverage determines the overall of a dealing in sales on operating income and net cash flow.

d). Growth Rate: Other things the same, faster-growing firms must rely more heavily on external capital. Further, the floatation costs involved in selling common stock

exceed those incurred when selling debt, which encourages rapidly growing firms to rely more heavily on debt. At the same time, however, these firms often face greater uncertainty, which tends to reduce their willingness to use debt.

e). Profitability: One often observes that firms with very high rates of return on investment use relatively little debt. Although there is no theoretical justification for this fact, one practical explanation is that very profitable firms such as Intel, Microsoft and Coca-cola simply do not need to do much debt financing. Their high rates of return enable them to do most of their financing with internally generated funds.

f). Taxes: Interest is a tax deductible expense, and deduction is most valuable to firms with high tax rates. Therefore, the higher a firms' tax rate, the greater the advantage of debt.

g). Control: The effect of debt versus stock on management's control position can influence capital structure. If management currently has voting control (over 50% of the stock) but is not in the position to buy any more stock, it may choose debt for new financings. On the other hand, management may decide to use equity, if the firms' financial situation is so weak that the use of debt might subject it to serious risk of default, because if the firm goes into default, the managers will almost surely lose their jobs. However, if too little debt is used, management runs the risk of a takeover. Thus, control consideration could lead to the use of either debt or equity because the type of capital that best protects management will vary from situation to situation. In any event, if management is at all insecure, it will consider the control situation.

h). Management Attitude: Since no one can prove that one capital structure will lead to higher stock price than another, management can exercise its own judgment about the proper capital structure. Some management trends to be more conservative than others, and thus use less debt than the average firm in their industry, whereas aggressive managements use more debt in the quest for higher profits.

i). Lender and rating agency attitudes: Regardless of managers own analyses of the proper leverage factors for their firms, lenders' and rating agencies' attitudes frequently influences financial structure decisions. In the majority of cases, the

corporation discusses its capital structure with lenders and rating agencies and gives much weight to their advices. For example, one large utility was recently told by Moody's and Standard & Poor's that its bond would be downgraded if it issued more bonds. This influenced its decision to finance its expansion with common equity.

j). Market Conditions: Conditions in the stock and bond markets undergo both long and short-run charges that can have an important bearing on a firms' optimal capital structure. For example, during a recent credit crunch, the junk bond market dried up and there was simply no market at a 'reasonable' interest rate for any new long-term bond rated below triple B. Therefore, low rated companies in need of capital were forced to go to the stock market or to the short-term debt-market, regardless of their target capital structures. When conditions eased, however, these companies' should sold bond to get their capital structure back on target.

k). Firms' internal condition: A firms' own internal condition can also have a bearing on its target capital structure. For example, suppose firm has just successfully completed an R&D program and its forecasts higher earnings in the immediate future. However, the new earnings are not yet anticipated by investors, hence are not reflected in the stock price. This company would not want to issue stock-it would prefer to finance with debt until the higher earnings materialize and are reflected in the stock price. Then it could sell an issue of common stock, retire the debt, and return to its target capital structure.

l). Financial Flexibility: It has been noted that from an event a lot more money from good capital budgeting and quality decisions that they can from good financing decisions.

2.1.4. Capital Structure Decision

Capital structure refers to the combination of debt and equity of the firm to operate it in long run prospect. A financial manager should concentrate while choosing its proportion. A firm can raise its required fund by issuing various kinds of financial instruments. The investors and creditors are the main supplier of capital that is why they hold greater degree of risk and have claims over firms' assets and cash flow.

"Capital structure with a reasonable proportion of debt and equity is called the optimal capital structure. Since, a proper balance between risk and return on

shareholder is necessary, the financing of capital structure decision is a significant managerial decision as it influences the shareholders' return and risk. Whenever funds have too capital structure initially at the time of its promotion and subsequently, funds have to be raised to finance investment a capital structure decision is involved." (Van Horne; 1997:10)

A process of capital decision is shown in figure below:

Figure 2.1

Capital Structure Decision

```
┌──────────────────────────┐              ┌─────────────────────┐
│ Capital Budgeting Decision│─────────────▶│ •Replacement        │
└──────────────────────────┘              │ •Expansion          │
            │                             │ •Modernization      │
            ▼                             └─────────────────────┘
┌──────────────────────────┐              ┌─────────────────────┐
│    Needs to Raise Funds   │─────────────▶│ •Internal Funds     │
└──────────────────────────┘              │ •Debt               │
            │                             │ •External Equity    │
            ▼                             └─────────────────────┘
┌──────────────────────────┐
│  Capital Structure Decision│
└──────────────────────────┘
```

Existing Capital Structure	Desired Debt Equity Mix	Dividend (Retention Policy)

Effect on EPS	Effect on EPS

Effect of Cost of Capital ──────▶ Optimal Capital Structure
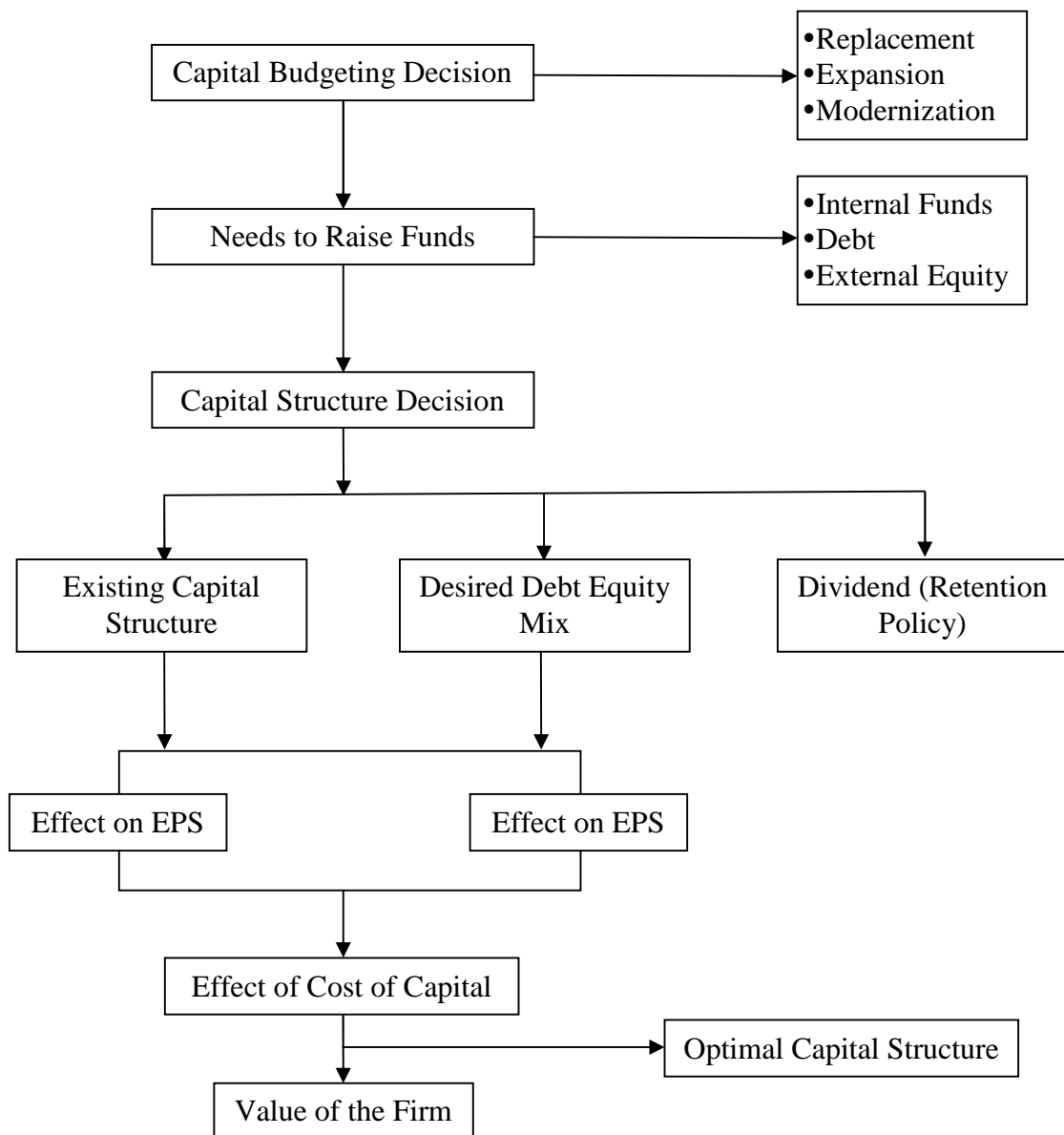
Value of the Firm

(Source: Pandey; 1988:204)

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According to the above chart, demand for funds generates a new capital structure and then the main objective of the firm with this capital structure is to maximize the value of the firm. For capital budgeting decision funds need for replacement of the capital, modernization of the capital and expansion of the capital. Ones the capital structure decision is made, the firm needs to raise fund either through internal debt or equity financing, risk is associated in proportion of its uncertainty is being paid off. The required rate of return expected by investors according to their risk is cost of capital. Therefore, a firm should try to obtain necessary fund at lower cost. This cost of capital is fully dependent upon the proportion of debt and equity i.e. financial leverage, which is actually the capital structure used by the firm.

The capital structure decision affects the overall cost of capital, total value of the firm and earning per share. Therefore, it should be well planned. It aims to maximize value of firm and earing per share by minimizing cost of capital without affecting operating earnings of the firm.

2.1.5. Theories of Capital Structure

Capital Structure is the proportion of debt, preferred stock and equity of the firm. While determining a capital structure, a firm tries to develop and optimal capital structure. The mix of capital which maximizes the value of the firm with the minimum cost of capital is optimal capital structure. "The optimal capital structure may be defined as the capital structure or combination of debt and equity that leads to the maximum value of the firm. In theory, capital structure can affect the value of a company by affecting either its expected earnings or the cost of capital or both. The capital structure decision can influence the value of the firm through the earnings available to the shareholders (Khan and Jain, 2003:111)."

Basic assumptions and definitions:

     1. There are no corporate and personal taxes.

     2. There are no bankruptcy costs.

     3. The ratio of debt to equity of a firm can change many times but the total assets remain constant.

     4. There are no transaction costs.

     5. The company pays all its earnings as dividend.

6. Operating income of the firm remains constant; that is, growth rate is equal to zero.

7. All the investors have the same subjective probability distribution of expected future operating income for a given firm, that is, investors has homogeneous expectations.

8. The firm only employs two types of capital, long term debt and common stock.

Definitions:

Cost of Debt (K_d)

$$K_d = \frac{I}{B}$$

$$\text{So, } B = \frac{I}{K_d}$$

Where,

K_d= before tax cost of debt

B= market value of debt

I= Annual interest charges

Cost of Equity (K_e)

$$K_e = \frac{NI}{S}$$

Where,

K_e= Cost of equity

NI= Net Income available to common stockholders

S= Market value of common stock outstanding

Market value of equity $(S) = \dfrac{NI}{K_e}$

Market Value of Firm (V)

Value of firm (V)= Market value of debt (B) +Market value of equity (S)

$\therefore V = B + S$

Weighted Average Cost of Capital (WACC)

$$K_o = W_d K_d + W_e K_e$$

$$= \frac{B}{S} \times K_d + \frac{S}{V} \times K_e$$

$$= \left(\frac{B}{B+S}\right) K_d + \left(\frac{S}{S+B}\right) K_e \quad \text{OR}$$

$$K_o = \frac{EBIT}{V}$$

Where,

EBIT= Earnings before interest and taxes

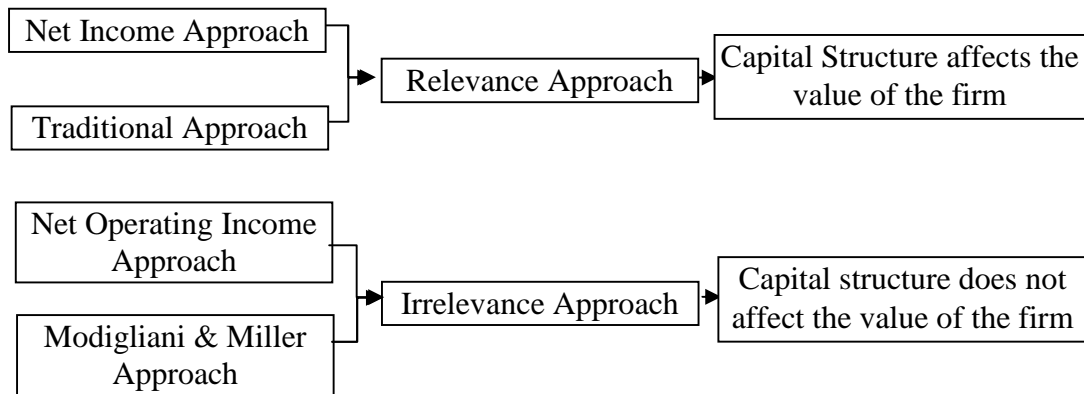V= Total value of the firm

K_o= Overall cost of capital

W_d= Weight of debt

W_e=Weight of equity

$\therefore$ Market value of the firm (V) $= \dfrac{EBIT}{K_o}$

Approaches to capital structure

2.1.5.1. Net Income Approach

Net Income approach is a relevant theory of capital structure. According to this approach capital structure decision affects the value of the firm and overall cost of capital, that is, capital structure decision is relevance to the valuation of the firm and overall cost of capital. In other words, a change in financial leverage i.e. change in proportion of debt in the capital structure will lead to change in overall cost of capital and total value of the firm. Therefore, if we increase the ratio of debt in the capital

structure, the weighted average cost of capital will decline and the value of the firm as well as market price of ordinary shares will increase. In contrast, a decrease in the debt ratio will cause an increase in the overall cost of capital and decline both the value of the firm as well as the market price of equity shares.

"Net income approach supports the traditional theory of capital. This theory assumes that the cost of debt and cost of equity constant as change in the firm's capital structure. A change in the capital structure will lead to the corresponding change in the overall cost of capital as well as total value of the firm. If the firm adds cheaper debt to its capital structure, its cost of capital declines, debt is risky than equity. On the other hand, the overall value of firm increases. Thus, if the firm increases its leverage by increasing debt in capital structure, the overall cost of capital will decline which ultimately increases the value of the firm (Van Horne; 1980:380)"

Assumptions of Net Income Approach:

   1. There are no taxes.

   2. The cost of debt (K_d) is less than the cost of equity (K_e) (i.e. $K_d < K_e$).

   3. The use of debt does not change the risk perception of investors.

   5. Net operating income remains constant.

   6. Overall cost of capital decreases as leverage increases.

The effect of leverage on overall cost of capital and total market value of the firm is shown in following figures:

Figure 2.2
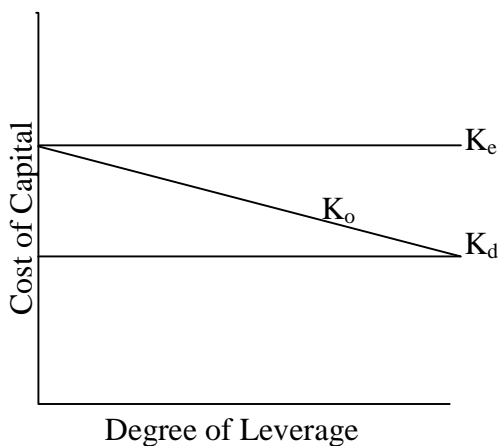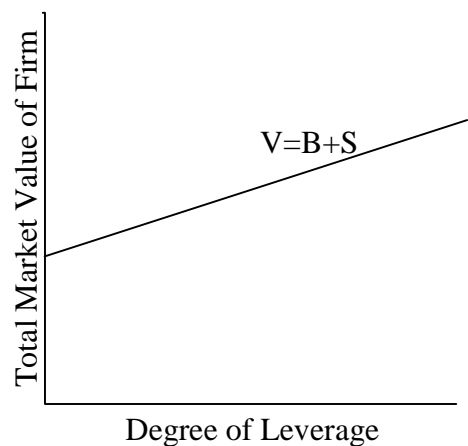**The effect of Leverage on**
Cost of Capital

Figure 2.3
The effect of Leverage on
Total market value of the firm

Net Income Approach

As shown in the figure 2.2, increase in the debt-equity ratio, overall cost of capital (K_o) decreases that directly contributes to increase in market value of the firm i.e. shown in figure 2.3. Therefore according to this approach, financial leverage is an important variable in capital structure decision of a firm. With the proper mix of debt and equity the firm can achieve highest value of firm and lowest overall cost of capital. At that structure, the market price per share should be maximum. If the firm is unlevered or do not use debt, the overall cost of capital will be equal to the cost of equity.

According to NI approach, K_e and k_d are constant and $k_d < k_e$. So the firm can lower its cost of capital by using debt. Increase in leverage will result higher the value of the firm via higher value of equity and as a result, lower overall cost of capital (K_o).

The overall cost of capital (K_o) is measured by the following formula:

$$\text{Overall Cost of Capital } (K_o) = \frac{\text{EBIT}}{V}$$

The overall cost of capital can also be measured by the following equation:

$$K_o = K_e - (K_e - K_d)\frac{B}{S}$$

2.1.5.2. Net Operating Income Approach

Net operating income approach (NOI) is an irrelevant theory of capital structure i.e. it assumes that any change in leverage (proportion of debt and equity) will not lead to any change in the value of firm and the overall cost of capital. This theory was suggested by David Durand. " The firm can achieve optimal capital structure by making judicious use of debt and equity and attempt to maximize the market price of its stock (Durand; 1959:91-116)." Under this approach, the cost of equity (K_e) is assumed to be increased linearly with leverage. As a result, the overall capitalization rate (K_o) and total value of the firm remain constant. That is K_o and value of the firm is not affected by leverage.

"Under NOI approach, the net operating income, i.e. the earnings before interest and tax (EBIT), instead of net income is taken as the base. Like the NI approach, the NOI approach also assumes a constant rate K_d, which means that the debt holders do not

demand higher rate of interest for higher level of leverage risk. However, unlike the assumption of NI approach, NOI approach assumes that the equity holders do react to higher level of risk and demand higher rate of return for higher debt-equity ratio (Pandey; 1999:31)."This approach contrasts that the cost of equity increase with the debt level and the higher cost of equity offsets the benefit of cheaper debt financing, resulting no effect at all on overall cost of capital (K_o).

The critical assumptions of NOI approach are as follows:

> 1. The market capitalizes the value of the firm as a whole. Thus, the split between debt and equity is not important.
>
> 2. The market uses an overall capitalization rate,(K_o) to capitalize the net operating income. K_o depends upon the business risk. If the business risk is assumed to remain unchanged, K_o is constant.
>
> 3. The uses of less costly debt fund increases the risk of the shareholders. This causes the equity capitalization to increase. Thus, the advantage of debt is offset exactly by the increase in the equity capitalization rate, K_e.
>
> 4. The debt capitalization rate (K_d) is constant.
>
> 5. The corporate tax do not exists.

Figure 2.4
The effect of Leverage on
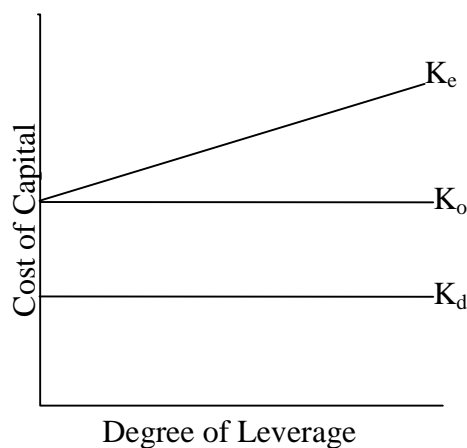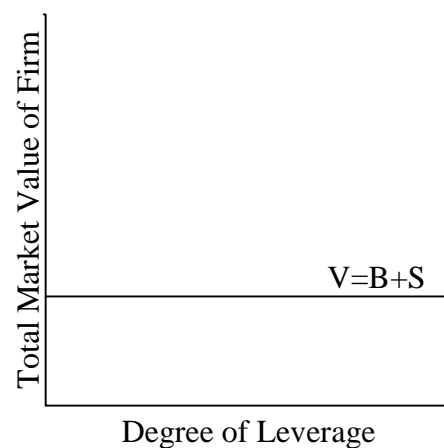**Cost of Capital**

Figure 2.5
The effect of Leverage on
Total market value of the firm

In above figure 2.4, it shows that K_o and K_d both are constant whereas K_e continuously increases as leverage increases. As the firm increases its degree of leverage, the fixed charges increases, with the result that the financial risk also

increases. As long as K_d remain constant but increases cost of equity (K_e) as shown in figure 2.4. In such a way, K_o remains constant. By this, value of the firm (V) also constant as shown in the figure 2.5. According to this approach we cannot find any range of optimal capital structure.

The cost of equity capital is found as follows:

$$\therefore K_e = K_o + (K_o - K_d)\frac{B}{S}$$

$$\therefore Ke = \frac{NOI - I}{V - B} \qquad OR$$

$$\frac{EBIT - I}{V - B} = \frac{EBT}{S}$$

2.1.5.3. Traditional Approach

This approach is relevant theory of capital structure proposed by Solomon Ezra. Because it takes some features of NI and NOI approach it is also known as intermediate approach. It resembles the net income approach in arguing that the cost of capital and total value of the firm are not independent of capital structure. But it doesn't subscribe to the view of NI approach that value of the firm will necessarily increase for all degree of leverage. In one respect it shares a feature with the NOI approach that beyond a certain degree of leverage, the overall cost of capital increases leading to a decrease in the total value of the firm.

According to this approach, there exists the optimal capital structure. Therefore, a firm can increase the total value of the   firm and reduce overall cost of capital through the wise use of leverage. The firm initially can lower its overall cost of capital through the use of cheapest debt capital and raise its total value of the firm. But the increase in leverage increases the risk to the debt holders and the debt holders demand for high interest rate. As a result, the overall cost of capital also increases.

According to the traditional approach, the manner in which the overall cost of capital reacts to change in capital structure can be divided into three stages (Ezra, Solomon, 1963:94).

Stage I: Increasing Value

In the first stage, the rates at which the shareholders capitalize their net income, i.e. the cost of equity, K_e remains constant or rises slightly with debt. However, when it

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increases, it doesn't increase fast enough to offset of the low cost debt. During this stage, the cost of debt (K_d) remains constant or rises negligibly, since the market views the use of debt as reasonable policy. As a result, the value of firm increases or the overall cost of capitalization falls with increasing leverage.

Stage II: Optimal Value

In this stage, ones the firm has reached certain degree of leverage, increase in leverage have a negligibly effect on the value or the cost of capital of the firm. This is because it increases in the cost of equity due to the added financial risk offsets the advantage of low cost debt. Within range of specific point, the value of the firm will be maximized or the cost of capital be minimum.

Stage III: Declining Value

Beyond the accepted limit of leverage, the value of the firm decreases and overall cost of capital increases with leverage. This happens because investors perceive a high degree of financial risk, which increases the equity capitalization rate, which offsets the advantage of low cost debt. Due to the increase in degree of financial risk, cost of equity (K_e) and cost of debt (K_d) increases which make overall cost of capital (K_o) increased.

The overall effect of these three stages suggests that the cost of capital is the function of leverage. It declines with leverage and after reaching a minimum point or range starts rising upwards. The relationship between cost of capital and leverage is shown in following figure:

Figure 2.6

Effect of leverage on Cost of Capital
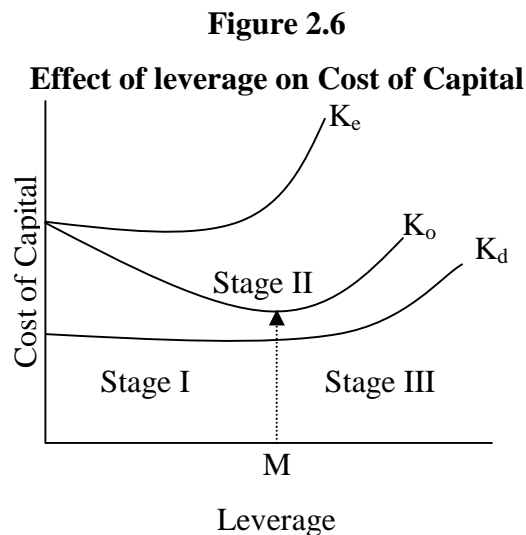
As shown in figure 2.6, the overall cost of capital (K_o) declines with increase in debt ration because the rise in K_e does not entirely offset the use of cheaper debt funds. As a result, K_o declines with moderate use of leverage. After a point, however, the increase in K_e, more than offsets the use of cheaper debt funds in the capital structure, and K_o begins to rise. The rise in K_o is supported further one K_d begins to rise. In the above figure the point M is the optimal capital structure where K_o is minimum. Then after, the overall cost of capital K_o begins to increase. Thus, the traditional approach implies that the cost of capital is dependent on capital structure of the firm and there exists optimal capital structure.

2.1.5.4. Modigliani and Miller (M-M) Model

Before 1958, all the management believed that the optimal capital structure can be obtained through the judicious mix of debt and equity capital that decrease overall cost of capital and increase the value of the firm. But in 1958, two prominent financial researchers, Franco Modigliani and Merton Miller (MM), showed that, under certain assumptions a firm's overall cost of capital and its value is independent of the capital structure. This approach is based on the following assumptions:

1. Perfect Capital Market: The implication of perfect market is that:-
• Securities are infinitely divisible.
• Investors are free to buy/sell securities.
• Investors can borrow without restriction on the same terms and conditions as firm.
• There are no transaction cost of buying and selling securities.
• Information is perfect i.e. another investor has the same information which is readily available to him without cost.
• Investors are rational and behave accordingly.

2. All investors are rational and have homogeneous expectation of firm's earrings.

3. Business risk is equal among all firms within similar operating investments. That means all firms can divide in to equivalent risk class. The term equivalent risk class means that the expected earnings have identical risk characteristics.

Firms with in an industry as assumed to have the same risk characteristics. The categorization of firms into equivalent risk class is on the basis of the industry group to which the firm belongs.

4. The dividend payout ratio is 100 percent.

5. There are no taxes. This assumption is removed later.

M-M theory without taxes:

M-M first analyzed leverage under the assumption that there are no corporate and personal taxes. Based on this assumption, they explained and algebraically proved the following propositions:

Proposition I

In this proposition, the overall cost of capital (Ko) and the value of the firm (V) are independent of its capital structure. The Ko and V are constant for all degree of leverage. The total value is given by capitalizing the expected steam of operating earnings at a discount rate appropriate for its risk class. This is their proposition I and can be expressed as follows:

Value of firm (V) = Market value of debt (B) + Market value of Equity (S)

$$= \frac{\text{Expected Net Operating Income}}{\text{Expected Overall Capitalization Rate}}$$

$$= \frac{\text{EBIT}}{K_o} \text{ or } \frac{\text{NOI}}{K_o}$$

For unlevered firm Ko = Ke (A firm that uses only equity in its capital structure is unlevered firm).

$$\therefore V_U = \frac{\text{NOI}}{Ko_U} = \frac{\text{NOI}}{Ke_U}$$

Where,

V_U = Value of unlevered firm

Ko_U = Overall capitalization rate of unlevered firm

Ke_U = Equity capitalization rate of unlevered firm

For a levered firm (A firm that uses both equity and debt in its capital structure).

$$\text{Value of levered firm } (V_L) = \frac{EBIT}{Ke_U}$$

Where,

EBIT = Earnings before interest and taxes (net operating income)

Ke_U = Cost of equity of unlevered firm

From the above proposition, M-M theory concludes that value of the firm and overall cost of capital is completely independent of capital structure.

This proposition states the implication of the earlier proposition for investment decision making. It focuses on the point that investment and financing decision are independent because the overall cost of capital is not affected by the financial decision.

Proposition II

According to this proposition, the cost of equity (K_e) is a linear function of leverage measured by the market value of debt to equity, D/S. Thus, leverage will result not only in more earnings per share to shareholders but, also increases the cost of equity. The benefit of leverage is exactly taken off by the increased cost of equity and constituently, the firms' market value will remain unaffected.

The cost of equity of the levered firm Ke_L is equal to the cost of equity of unlevered firm Ke_U, in the same risk class plus risk premium where size depends on both differentials between unlevered and firms' cost of debt and cost of equity made amount of debt used.

$Ke_L = Ke_U$ + risk premium

$\quad\quad = Ke_U + (Ke_U - K_d) \text{ D/S}$

Where,

Ke_L = Cost of equity of levered firm

Ke_U = Cost of equity of Unlevered firm

K_d = Cost of debt

D = Market value of debt

S = Market value of equity

Thus, this proposition shows the impact of financial leverage on the cost of equity. Due to the increase in the leverage, firm gets the benefit of cheaper debt, but the benefit is exactly offsets by an increase in the cost of equity in the form of risk premium expected by the shareholders against an increase in financial risk.

M-M Theory with Taxes:

M-M's original work published in 1958 assumed zero taxes. In 1963, they published the second article, which incorporated corporate taxes. Under M-M theory without taxes, the value of the firm is independent of its capital structure. However, in reality, the corporate income tax exists and interest paid to debt holders are treated as deductible expenses. Therefore, debt financing is advantageous. "In their 1963 article, M-M shows the value of firm will increase with debt due to the deductibility of the interest charges for tax computation, and the value of the levered firm will higher than the unlevered firm." (Pandey; 1995:633)

Proposition I

The value of the levered firm is equal to the value of unlevered firm in the same risk class plus the gain from leverage. The gain from leverage is the value of tax saving, found as the product of corporate tax rate, (T) and present value of debt fund uses (B).

$$V_L = V_U + B \times T$$

Where,

V_L = Value of Levered firm

V_U = Value of Unlevered firm

B = Present Value of debt

T = Corporate tax rate

Overall cost of capital $(K_o) = W_d Kd_t + W_e k_e$

Where,

Kd_t = Cost of debt after tax

Here, the important point is that when corporate tax is introduced the value of levered firm exceeds that of the unlevered firm by the amount of tax shield. According to this theory a firm can increase its gain through leverage and firm's value is maximized at 100% debt financing. With zero debt, the value of firm is equal to the firm's value of equity. The value of unlevered firm can be found by following equation.

$$V_U = \frac{EBIT(1-T)}{Ke_U}$$

Where,

V_U = Value of unlevered firm

Ke_U = Cost of equity of unlevered firm

T = Corporate tax rate

Proposition II

According to this proposition, the cost of equity of levered firm Ke_L is equal to the cost of equity of an unlevered firm (Ke_U) in the same risk class plus a risk premium whose size depends on the differential between the cost of equity and debt to an unlevered firm, the amount of financial leverage used, and the corporate tax rate. Symbolically;

$$Ke_L = Ke_U + (Ke_U - K_d)(1-T)D/S$$

Where,

Ke_L = Cost of equity capital of levered firm

Ke_U = Cost of equity capital of Unlevered firm

K_d = Cost of debt

T = Corporate tax rate

D = Value of debt

S = Value of equity

The M-M view under tax rate consideration suggests that a firm can maximize its value and minimize cost of capital continuously through the leverage because of its tax deductibility in interest charges. Therefore, a firm can obtain optimal capital

structure when it employs 100% debt in its capital structure. However, the observed expenditure doesn't entirely support this view. In practice, firms do not employ large amount of debt, nor are lenders ready to lend beyond certain limit. M-M suggests that a firm would adopt a target debt ratio so as not to violet the limit of debt level imposed by lenders.

2.2. Review of Journals and Articles

Sharma and Rao (1969), in their article, "*Leverage and the Value of the Firm*" have stated the list of M-M hypothesis on the influence of debt on the value of a firm to a non-regulated industry. They argue that estimate of cost of capital arrived at through the model will be accurate only when their hypothesis on debt and dividends are correct. This is an essential condition to employ this model. Calculations of variables are done in exactly in the same ways as MM with two expectations. They experienced with total assets and sale for deflecting the variables and the result are meaningful when a fixed asset of total assets was used as growth variable. The results were some inconsistent with economic reasoning. Therefore, they took the earnings growth rate as the growth variable for the utilization of existing and additional new capital and they concluded that debt has no tax advantages and investors prefer corporate or personal leverage and therefore the value of the firm rises up to leverage rate considered prudent.

Shrestha (1985) in his journal "*Analysis of capital structure in selected Public Enterprises*" had concluded that most of the public enterprises have very confusing capital structure. Since the corporations are not guided by objectives based on financial plans and polices. He has suggested that the debt equity ratio neither should be highly leveraged to create too much financial obligation that lies beyond capacity to meet nor should it to be much low leveraged to infuse operational strategy to bypass responsibilities without performance.

Poudyal (2002) in his article, "*Capital Structure, its impact on value of firm*" concentrated his study to examine the interrelationship between the objectives of achieving an optimal capital structure and to provide conceptual framework for the determination of the optimal capital structure. For this, a hypothetical firm is constructed and different assumptions are laid down to analyze the effect of capital.

Various statistical and financial tools like ratio analysis, correlation coefficient, coefficient of variation, are used to extract reasonable firm for the hypothetical firm. It observed the minimum value of firm and price per share are attended at debt ratio of 30 percent. Furthermore, if there is flexibility to select capital structure in any proportion, optimal capital structure range from 30 percent to 40 percent. An optimal capital structure would fulfill the interest of equity shareholders and financial requirement of a company as well as other concerned groups. [Poudyal; 2002:22]

Simerly and Li (2009), in their research "*Re-Thinking of Capital Structure Decision*" have shown the determination of appropriate debt and equity in the capital structure of competitive environment with warnings that taking on more debt to solve management problems can be dangerous for the long term health of the firm and decisions concerning the capital structure must take into consideration the competitive environment of the firm.

They have examined the economic performance of 700 firms across 31 industries. Through their examination they found that those firms in industry are characterized as exhibiting high levels of dynamics were more successful if they had relatively low levels of debt. In other words, debt was negatively related to profit in these industries. They further examined the relationship between debt and innovation with similar findings. In more dynamic environment debt holders are less likely to appreciate the need to invest in long term projects with questionable pay offs. They suggested with the practical examples from 1990's that the firms with high dynamics should choose equity over debt and which are in low dynamics should choose debt over equity in their capital structure.

2.3. Review of Thesis

Dahal (2007), has conducted study on, "*A Study on Capital and Assets Structure of Nepal Bank Limited*". The basic objectives of the study was to analyze the interrelationship between different ratio analysis of component parts of capital and assets structure; debt equity ratio, net worth, deposit investment ratio etc. To analyze facts in this study, he has used some of the statistical tools such as ratio, percentage, index, average and coefficient of correlation. He has analyzed different financial aspects of Nepal Bank Limited.

During his study, he found that major contribution to the total liabilities is deposit followed by the net worth and borrowing from other banks. The composition of total assets of the bank is loan and advances, investment in shares and debentures, cash and other bank balances and other assets. This study remarked that total deposit and total investment were not significantly related. Furthermore, he concluded that the net worth was used in unproductive assets of the bank and further commented that the bank needs to have productive use of its net worth. He also recommended that total deposits and investment must also be controlled by the bank to improve its earnings per share and market price per share.

Neupane (2008); has made a study on *"Comparative Evaluation of Capital Structure Between Selected manufacturing and Trading Companies of Nepal"* has access on debt serving capacity of the companies and as well return on equity, debt ratio, following the calculation of earnings before interest and taxes, earnings per share.

The study observed that manufacturing companies had a higher risk with higher return on the interest and debt and low dividend. The study further indicated that the amount of profit earned could only meet the interest and because of that had to suffer losses. It has concluded that there was not enough return to pay interest on debt and dividend for both types of companies although maintaining a high risk of debt. And finally, he had recommended for a regular check up the level of debt, earnings before interest and tax (EBIT) earnings before tax (EBT) and earnings per share (EPS) by monitoring authority, so that the companies would not fall in to weaker position.

Shrestha (2008), in her study on *"Analysis of Capital Structure of the Joint Venture Banks of Nepal"*, has stated main objectives of this study are to analyze the relationship of the capital structure and the cost of capital to analyze the profitability position of the banks. She has used financial and statistical tools for the analysis of data.

The study has found that all of the joint venture banks have used high percentage of debt in raising that asset. The higher ratio constitutes that the outsiders' claim in total assets of the banks is higher than owner's claim. The NI approach implies that proportion of higher leverage consequently increase the value of the firm. This

approach is well acquainted. With this study as the value of the banks has increased in accordance to the increasing portion of leverage. This study also found that the private sector banks have been successful in increasing their deposit and credit portfolio remarkable over the study period. The operating profits of all the private sector banks have gone up, so has the provision for loan loss. Therefore, she has concluded that banking sector of Nepal is somehow doing well even though they have to take a number of problems.

Rana (2008), has made the study on "*A Study of the Capital Structure of Selected Manufacturing Companies*" with a purpose to excess the relation between return on equity and total debt, return on equity and debt ratio, earning after tax and total debt, as well as interest and earnings before interest and tax. Financial and statistical tools have been used as the methodology.

The study revealed that Nepal Lever Limited is fully equity based and not been using long-term debt because of improved cash flows and effective management. The bottlers Nepal Limited is free of long-term debt. The Sri Ram Spinning Mill has 66.33 percent of assets financed with debt and hence there is less flexibility to the owners. The degree of financial leverage analysis of Jyoti Spinning Mill shows the failure of the company to gain expected profits. And the Arun Vanaspati Udhyog has fluctuating debt equity ratio. Its long-term debt is decreasing and only creditors make small share of equity.

Shrestha (2009) has conducted research on *"A Comparative Analysis of Capital Structure Between Lumbini Sugar Factory Limited and Birjung Sugar Factory Limited"*. The main objectives of this study was to analyze the various ratios of capital structure decision, net worth, earnings before interest and tax and also to suggest measures to improve the policy of the companies. She has used both financial and statistical tools like ratio analysis, trend analysis, correlation coefficient, probable error etc.

According to her study, both to these manufacturing companies were facing serious deterioration in earnings to the net operating income approach. It has been noted that both the companies had defective capital structure as debt equity ratio were not so

much satisfactory. Birgunj Sugar Factory had high debt equity ratio indicating more financial risk while Lumbini Sugar Factory had low debt equity ratio which indicates access power of equity holders. Therefore, both of the companies were unable to pay interest because they were operating at loss. As Birgunj Factory was highly levered, Lumbini Sugar Factory was unlevered, both the companies has defective capital structure. Both of the factories are suggested to change the debt equity ratio for sound capital structure management to maintain it in 1:1 ratio.

Acharya (2010) in her thesis on " *Comparative study of Capital Structure Management between Kumari Bank Limited and Siddhartha Bank Limited*" has stated main objective of the study are to find out comparative capital structure position between two banks, to analyze various sources of capital and their costs, to measure debt serving capacity of the banks and to analyze the return on capital in relation to capital employed. For this analysis, she has used financial and statistical tools like ratio analysis, trend analysis, arithmetic mean, standard deviation, coefficient of variation, correlation coefficient etc.

The study has found that both of the banks are highly levered. Therefore, the banks, when it is difficult to pay interest and principal ultimately may be laid to liquidation bankruptcy. Capital Adequacy ratio of both banks seems to be fluctuating. But Kumari Bank Limited has been able to maintain this ratio of normal rate of 10 percent where the ratio of Siddhartha Bank Limited is much higher than the normal rate. In this study it is also found that Interest coverage ratio of Siddhartha Bank Limited is higher than Kumari Bank Limited. This shows that Siddhartha bank has greater ability to handle the fixed charges and to make the payment of interest to the creditors i.e. debt serving capacity of Siddhartha is higher than Kumari bank. Kumari bank is more capable to utilize the value of the firm as compare to Siddhartha bank. So, she has recommended both of the banks to reduce the high use of debt, to analyze cost and benefit before raising fund from different sources of capital and both the banks should focus more on optimal capital structure rather than increasing debt and equity.

Research Gap

All of the above reviewed studies are concerned with either determining the capital structure or determining the capital structure or determining the capital structure and cost of capital. However, the studies have ignored the relationship of capital structure and the profitability. Moreover, this study is different in the sense that in fiscal years and the sampled companies are totally different from the above previous studies. Previously made studies included manufacturing companies, banks etc. The current study however is a comparative study of capital structure of three joint venture banks. Furthermore, this study will help research students to carry further study as well as it will helpful to the interested groups in the selected companies to analyze their position at present and search for the prospective investors.

CHAPTER-III
RESEARCH METHODOLOGY

3.1. Research Design

A research design is a plan, structure and strategy of investigation conceived so as to obtain answer to research questions and to control variance. It is an arrangement for collection and analysis of data. To achieve the objectives of the study, descriptive and analytical research design has been used. Some financial and statistical tools have been applied to examine facts descriptive techniques have been adopted to evaluate the relationship between capital structure and profitability of the banks.

3.2. Population and Sample

Till date, there are altogether 31 banks commencing their business in Nepal. Due to the limited time and unavailability of the relevant data, only three banks i.e. Nabil Bank Limited, Everest Bank Limited and Nepal SBI Bank Limited from the total population are considered as sample with in this study using the simple random sampling technique.

3.3. Nature and Sources of Data

The study is based on mainly on secondary data. The required data are extracted from AGM reports of NABIL, NSBI, EBL and NRB and other concerned organizations, bulletins, published researches, journals, articles, unpublished thesis reports, newspapers, books, authorized websites and internet.

3.4. Data Collection Techniques

The research consists of mainly secondary data. To collect the secondary data, the researchers has invited the different libraries, NABIL, EBL, NSBI, NRB, other useful book stores and collection related publication and periodicals. Official websites are searched in order to collect required information.

3.5. Tools for Analysis

The data collected from various sources leads the logical conclusion, only if the appropriate tools and techniques are adopted to analyze such data. The collected data has no meaning if such data are not analyzed. To analyze the data in this research, the researcher has used some financial and statistical tools.

3.5.1. Financial Tools

Financial analysis is the process indentifying the financial strength and weakness of the firm by properly establishing relationship between the items of the balance sheet. In this study, ratio analysis, leverage analysis and capital structure analysis are used as financial tools for data analysis.

3.5.1.1. Ratio Analysis

Ratio analysis is a technique of analyzing and interpreting financial statements to evaluate the performance of an organization by creating the ratios from figures of different accounts consisting in balance sheet and income statements. Even though there are many ratios, only those ratios which are related to this study have been covered. The major ratios carried down have been enumerated below:

A. Capital Structure

It is the mix of a company's long-term, specific short-term debt, common equity and preferred stock. The capital structure is how a firm finances its overall operations and growth by different sources of funds. Debt comes in the form of bond issues or long term notes payable, while equity is classified as common stock, preferred stock or retained earnings. Short-term debt is such as working capital requirements is also considered to be part of the capital structure.

i). Long-term debt to Total Debt

This ratio computes the proportion of a company's long-term debt compared to its total debt. Using this ratio, investors can identify the amount of leverage utilized by a specific company and compare it to others to help analyze the company's risk exposure. Generally, companies that finance a greater portion of their total debt via long-term debt are considered less risky than those which finances through short-term debt.

$$\text{Long-term debt to Total Debt Ratio} = \frac{\text{Long Term Debt}}{\text{Total Debt}} \times 100$$

ii). Debt-Equity Ratio

Debt equity ratio is equal to long term debt divided by common shareholders' equity. Investing in a company with a higher debt-equity ratio may be riskier, especially in times of raising interest rates, due to the additional interest that has to be paid out for the debt. It is important to realize that if the ratio is greater than 1, the majority of assets are financed through long term debt. If it is smaller than 1, assets are primarily finance through equity.

$$\text{Debt-equity Ratio} = \frac{\text{Long Term Debt}}{\text{Total Equtiy Capital}} \times 100$$

iii). Debt Ratio

The debt ratio compares a company's total debt to its total assets, which is used to gain a general idea as to the amount of leverage being used by a company. A low percentage means that the company is less dependent on leverage, i.e. money borrowed from and/or owned to others. The lower the percentage, the less leverage a company is using and the stronger its equity position. In general, the higher the ratio, the more risk that the company is considering to have taken on.

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

B. Solvency Ratio

The solvency ratio measures the size of the company's after tax income; excluding non-cash depreciation expenses, as compare to the firm's total debt obligations. It provides a measurement of how likely a company will be to continue meeting its debt obligations.

i). Current Assets to Short term Debt

The ratio is mainly used to give an idea of the company's ability to pay back its short-term liabilities (debt and payables) with its short-term assets (cash, inventory, receivables). The higher the current ratio, the more capable the company is of paying its short term obligations. A ratio under 1 suggests that the company would be unable

to pay off its obligations if they come due at that point while this shows the company is not in good financial health, it does not necessarily mean that it will go bankruptcy, as there are many ways to access financing, but it is definitely not a good sign/

$$\text{Current Assets to Short term Debt Ratio} = \frac{\text{Curret Assets}}{\text{Total Short term Debt}} \times 100$$

iii). Interest Coverage Ratio

Interest coverage ratio is used to determine how easily a company can pay interest expenses on outstanding debt. The ratio is calculated by dividing a company's earnings before interest and taxes (EBIT) by the company's interest expenses for the same period. The lower the ratio, the more the company is burdened by debt expenses. When a company's Interest coverage ratio is only 1.5 or lower, its ability to meet interest expenses may be questionable.

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

C. Profitability Ratios

It is a class of financial metrics that are used to assess a business's ability to generate earnings as compare to its expenses and other relevant costs incurred during a specific period of time. For most of these ratios, having a higher value related to a competitor's ratio or the same ratio from a previous period is indicative that the company is doing well.

i). Earnings per Share

Earnings Per share serve as an indicator of a company's profitability. It is the portion of a company's profit allocated to each outstanding shares of common stock. As earnings per share is generally considered to be the single most important variable in determining a share's price. It is also a major component used to calculate the price to -earnings valuation method.

$$\text{Earnings Per Share} = \frac{\text{Net Profit After tax - Dividend Paid on Preference Share}}{\text{No. of Common Share outstanding}}$$

ii). Dividend per Share

Dividend per share contrasts the company's efficiency that how much it is able to fulfill the shareholders' expectation. It is calculated by dividing total dividend available to common stock by total no. of outstanding ordinary shares.

$$\text{Dividend Per Share} = \frac{\text{Total Dividend}}{\text{No. of Common Share outstanding}}$$

iii). Return on Equity

The return on equity is the amount of Net income returned as a percentage of shareholders equity. Return on equity measures a company's profitability by revealing how much profit a company generates with the money shareholders have invested.

$$\text{ROE} = \frac{\text{Net Profit After Tax}}{\text{Equity Capital}} \times 100$$

iv). Return on Assets

Return on assets is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. The ratio is calculated by dividing company's annual earnings by its total assets and ROA is displayed as percentage. Sometimes this is referred to as 'return on investment'.

$$\text{ROA} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \times 100$$

v). Return on Total Deposits

Return on total deposits ratio measures how efficient the deposits have been mobilized. It reveals the relationship between net profit after tax and total deposits.

$$\text{ROD} = \frac{\text{Net Profit After Tax}}{\text{Total Deposits}} \times 100$$

vi). Price Earnings Ratio

The price earnings ratio shows how much investor is willing to pay per rupee of reported profit. If other things held constant P/E ratios are higher for firms with high growth prospect and they are lower for risky firms. Hence, it measures the company's growth prospects. However, the company having high P/E ratio is regarded as low riskier and high growth prospect and having lower P/E ratio is regarded as riskier company, risk associated with leverage. P/E ratio is calculated using the following formula:

$$\text{P/E ratio} = \frac{\text{Market Price Per Share}}{\text{Earnngs Per Share}}$$

3.5.1.2 Leverage Analysis

Leverage analysis is related to the measurement of risk of the company. Even though, there are three types of leverage i.e. operating leverage associated with business risk, financial leverage associated with financial risk and combined leverage associated with overall risk of the company, this study will only analyze financial leverage. Financial leverage shows the relationship between EBIT and EPS. The degree of relationship is measured by the degree of financial leverage (DFL). Degree of Financial Leverage is defined as the percentage change in EPS resulting 1percent change in EBIT. However, the higher the firm's DFL, the greater is its financial risk.

$$\text{DFL} = \frac{\%\ \text{change in EPS}}{\%\ \text{change in EBIT}} \quad \text{OR}$$

$$\text{DFL} = \frac{\text{EBIT}}{\text{EBT}}$$

3.5.1.3. Capital Structure Analysis

We have already discussed about various approaches developed under the relevance of capital structure that helps to evaluate the overall cost of capital and value of the firm. Such as Net income (NI) approach and Traditional approach under relevant theory, Net Operating Income (NOI) approach and M-M approach under irrelevant theory. In this section NI approach as relevant and NOI approach as irrelevant approach will be used.

3.5.2. Statistical Tools

The analysis could not have done without using the statistical tools. The following statistical tools have been effectively utilized for data analysis.

A). Mean ($\overline{X}$)

Arithmetic mean or simply a mean of a set of observation is the sum of all the observation divided by the number of observations. Arithmetic mean is also known as the average arithmetic mean.

Let X_1, X_2, X_3,………………..X_n be the n values of the variable then their arithmetic mean be denoted by $\overline{X}$ is defined by,

$$\text{Mean}\ (\overline{X}) = \frac{X_1 + X_2 + X_3 + ... + X_n}{N}$$

Where, N= No. of observations

B). Standard Deviation (†)

The standard deviation is the absolute measures of dispersion in which the drawbacks present in other measures of dispersion are removed. It is said to be the best measure of dispersion as it satisfies most of the good measure dispersion.

$$\text{S.D.}(\dagger) = \sqrt{\frac{\sum\left(X - \overline{X}\right)^2}{N}}$$

C). Coefficient of Variation (C.V)

The coefficient of variation is defined as the ratio of standard deviation to the mean expressed in percentage. The coefficient of variation is applicable for the comparison of variability of two or more distributions. Greater the value of C.V, less will be the uniformity (or consistency, stability) and the smaller the value of the C.V, the more will be the uniformity (or less will be the variability).

$$\text{C.V} = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

D). Correlation Coefficient (r)

Correlation coefficient is defined as the statistical technique which measures the degree of relationship between two variables. If the values of the variables are directly proportional then the correlation is said to be positive. On the other hand, if the values of the variables are inversely proportional, the correlation is said to be negative, but the correlation always remains within the limit of +1 and -1. by Karl Pearson, the simple correlation coefficient (r) is;

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

Where,

N= No. of observations

X, Y= Variables

The decisions criteria:

When,

r=0, there is no relationship between variables

r=1, the variables are perfectly positive correlated

r=-1, the variables are perfectly negative correlated

The closer the value of r is to +1 or -1, the higher the relationship between the variables.

E. Probable Error (P.E)

Probable error of the correlation coefficients is used to measure the reliability and test of significance of correlation coefficient. Significance of relationship has been tested by using the probable error and defined by the following model:

$$\text{P.E.} = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

Where,

r = Correlation coefficient

N = No. of pairs of observations

If r< P.E, the value of r is not significant i.e. there is no evidence of correlation between variables.

If r>6×P.E, the value of r is significant i.e. correlation is certain.

The upper and lower limits within which the correlation coefficient in the population is expected to lay are (r +P.E) and (r-P.E) respectively.

F. Regression Lines

The regression line is the line that gives the best estimate of one variable for any given value of the other variable. The simple regression equation of dependent variable (Y) on the dependent variable (X) is given by:

$$Y = a + b \ X$$

Where,

Y= dependent variable

X= independent variable

a, b = constants

The following two equations are solved simultaneously to find out the values of a and b.

$$dY = Na + bdX$$
$$dXY = a \ dX + bdX^2$$

G. Trend Analysis

A widely and most commonly used method to describe the trend is the method of least square. Let the trend line between the dependent variable Y and the independent variable X (i.e. time) be represented by:

$$Y_c = a + b \ X$$

Where,

Y_c = Estimated value of Y for any given value of independent variable X

a = Y- intercept or value of Y when X=0

b = Slope of the trend line or amount of change in Y per unit change in X.

CHAPTER-IV
DATA PRESENTATION AND ANALYSIS

This is the most important chapter of the study. In this chapter, the collected data will be analyzed and presented mathematically. All the above mentioned financial and statistical tools will be used to present the data.

The main objective of this study is to evaluate the capital structure of the sampled banks. To analyze the financial performance in respect to capital structure, various presentation and analysis have been presented in this chapter according to analytical research design mentioned in the third chapter using various financial and statistical tools.

4.1. Capital Structure Analysis

Under capital analysis, debt to equity ratio is important ratio analysis which provides the riskiness of a company. Normally a company financed with high debt poses greater risk as this firm is relatively high levered. A bank needs to have strong capital structure to argue the profitability of the banks. Debt and equity capital are the components of the capital structure of the bank, and thus a bank needs to have good composition of these two components.

4.1.1. Debt-Equity Ratio

Debt to equity ratio is used to show the relationship between borrowed funds and owners capital. It reflects the relative claims of creditors and shareholders against the assets of the firm. It is an important tool for the financial analysis to appraise the financial structure of a firm. IN order words, this ratio shows the relative proportion of capital contributed by owners and creditors. Debt equity ratio is calculated on the basis of shareholders equity and long-term debt. Shareholders' equity includes reserves and accumulated profit, preference share and equity capital where long term debt includes total debt minus short term debt or current liabilities.

Table 4.1

Debt-Equity Raito   (Ratio in Times)

FY	NABIL			NSBI			EBL		
	LTD	SE	D/E	LTD	SE	D/E	LTD	SE	D/E
2005/06	173.20	1874.99	0.09	812.42	982.37	0.82	300.00	962.80	0.31
2006/07	882.57	2057.05	0.48	1015.36	1163.29	0.87	300.00	1201.50	0.24
2007/08	1600.00	2437.20	0.66	1827.48	1414.64	1.29	300.00	1921.20	0.15
2008/09	1981.31	3130.24	0.63	200.00	1712.60	0.11	612.00	2203.60	0.27
2009/10	374.90	3834.22	0.10	200.00	2450.55	0.08	704.40	2759.10	0.25
Mean			0.38			0.63			0.24
S.D			0.25			0.47			0.05
C.V(%)			65.79			74.53			22.05

(Source: Appendix I)

Figure 4.1

Debt-Equity Ratio
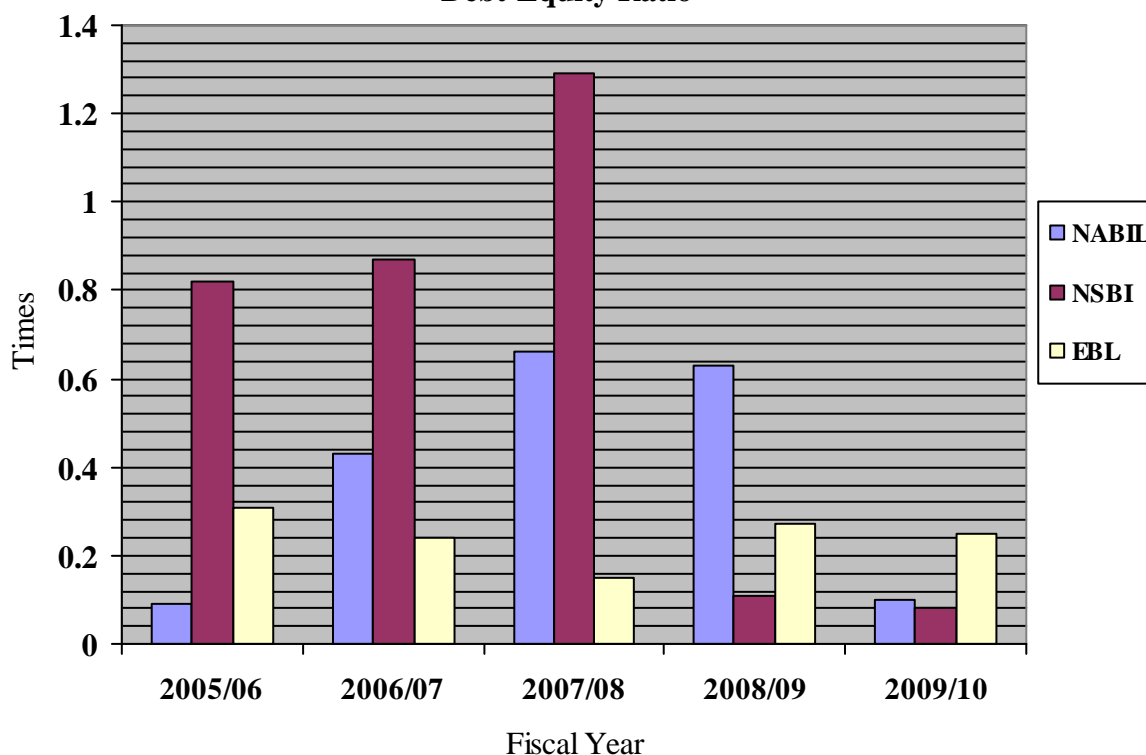
The above table shows that the usage of long term debt amount in NABIL is in increasing trend, except in fiscal year 2009/10, which means that the bank is depending on outside fund in each fiscal year in financing the total assets. The long term debt of the bank has increased from Rs. 173.20 millions in the fiscal year 2005/06 to Rs. 1981.31 millions in the fiscal year 2008/09. Similarly, the shareholders

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equity to NABIL has ranged from Rs. 1874.99 millions in the fiscal year 2005/06 to Rs. 3834.22 millions in the fiscal year 2009/10. With regard to the trend of both these variables, the debt equity ratio of the bank has increased for the first three fiscal years and thus has ranged from 0.09 times in the fiscal year 2005/06 to 0.66 times in the fiscal year 2007/08, while in the fiscal year 2009/10, it is 0.10 times. The debt equity ratio emblazons that in each fiscal year the usage of equity capital is greater than the usage of long term debt capital. However, in average the debt equity ratio of the bank is 0.38 times and the variation in the ratio is 65.79%, indicating high inconsistency.

Similarly, in NSBI, it can observe that the bank has continuously increased its long term debt for the first three fiscal years from Rs. 812.42 millions in the fiscal year 2005/06 to Rs. 1827.48 millions in the fiscal year 2007/08. But in fiscal year 2008/09, the long term debt is only Rs. 200 millions. It means the bank cut offs its uses of long term debt. Similarly, the shareholders equity of the bank is in increasing trend. Its' shareholders equity increased from Rs. 982.37 millions in the fiscal year 2005/06 to Rs. 2450.55 millions in the fiscal year 2009/10. With this increasing trend in both variables, the debt equity ratio of the bank has increased for the first three years i.e. 0.82 in 2005/06, 0.87 in 2006/07 and 1.29 times in the fiscal year 2007/08. Due to the many cutoffs in debt amounts in 2008/09 and 2009/10, debt equity ratio also decreased, i.e. 0.11 in 2008/09 and 0.08 in the fiscal year 2009/10. The average debt ratio, standard deviation and C.V of NSBI is 0.63, 0.47 and 74.53% respectively.

In EBL, the bank has not increased its long term debt for the first three fiscal years, i.e. Rs. 300 millions in the fiscal years 2005/06, 2006/07 and 2007/08. From fiscal year 2008/09, its usage of long term debt started raising, Rs. 612 millions in the fiscal year 2008/09 and Rs. 712.10 millions in the fiscal year 2009/10. But the above table shows that the shareholders equity is in increasing trend and continuously increases from Rs. 962.80 millions in the fiscal year 2005/06 to Rs. 2759.10 millions in the fiscal year 2009/10. Similarly, as the bank increased its shareholders equity, its debt equity ratio because decreased for the first three fiscal years ranging from 0.31 times in the fiscal year 2005/06 to 0.15 times in the fiscal year 2007/08. But, when the bank increased both debt and equity in the last two fiscal years, its debt ratio increased to 0.27 times in 2008/09 and 0.25 times in 2009/10. The average debt equity ratio, standard deviation and C.V of EBL are 0.24, 0.05 and 22.05% respectively.

Regarding this analysis it can be concluded that the sampled banks believes in financing the total assets through the extensive use of internal funds, since the debt financing of the bank is lower than equity financing in each fiscal year. However, comparing the banks on the basis of the debt ratio, it can be said that NSBI is more risk taker than two other banks, since average debt equity ratio is higher than other two banks. Similarly, it can be assumed that EBL is least risk taker than NABIL and NSBI, i.e., it has lowest value of average debt equity ratio. Since, the debt equity ratio of NSBI is greater, the capital structure of NSBI is more dominated by debt capital percentage than in EBL and NABIL. EBL has least value of debt equity ratio and its capital structure is dominated by equity capital than rest of two banks. Similarly, NSBI has the highest standard deviation and C.V, EBL has least standard deviation and C.V. It shows that there is higher variability in NSBI and higher stability in EBL.

4.1.1.2. Long-Term Debt to Total Debt

Debt capital should be limited up to a level, which the earning capacity of the firm can support. Otherwise, it may be the cause of liquidation of the company. The ratio of long term debt to total debt indicates that the percentage of company's total debts is included in the form of long term debt.

Table 4.2

Long-Term Debt to Total Debt (Ratio in %)

FY	NABIL			NSBI			EBL		
	LTD	TD	Ratio	LTD	TD	Ratio	LTD	TD	Ratio
2005/06	173.20	20454.98	0.85	812.42	12053.46	6.74	300.00	15331.20	1.96
2006/07	882.57	25196.34	03.50	1015.36	12737.91	7.97	300.00	20649.60	1.45
2007/08	1600.00	34695.56	4.61	1827.48	15772.80	11.59	300.00	25725.30	1.17
2008/09	1981.31	40737.15	4.86	200.00	28453.83	0.70	612.00	35298.10	1.73
2009/10	374.90	48245.50	0.78	200.00	35597.12	0.56	704.40	39223.70	1.80
Mean			2.92			5.51			1.62
S.D			1.78			4.29			0.28
C.V (%)			61.01			77.89			17.27

(Source: Appendix I)

Figure 4.2

Long-Term Debt to Total Debt

Fiscal Year
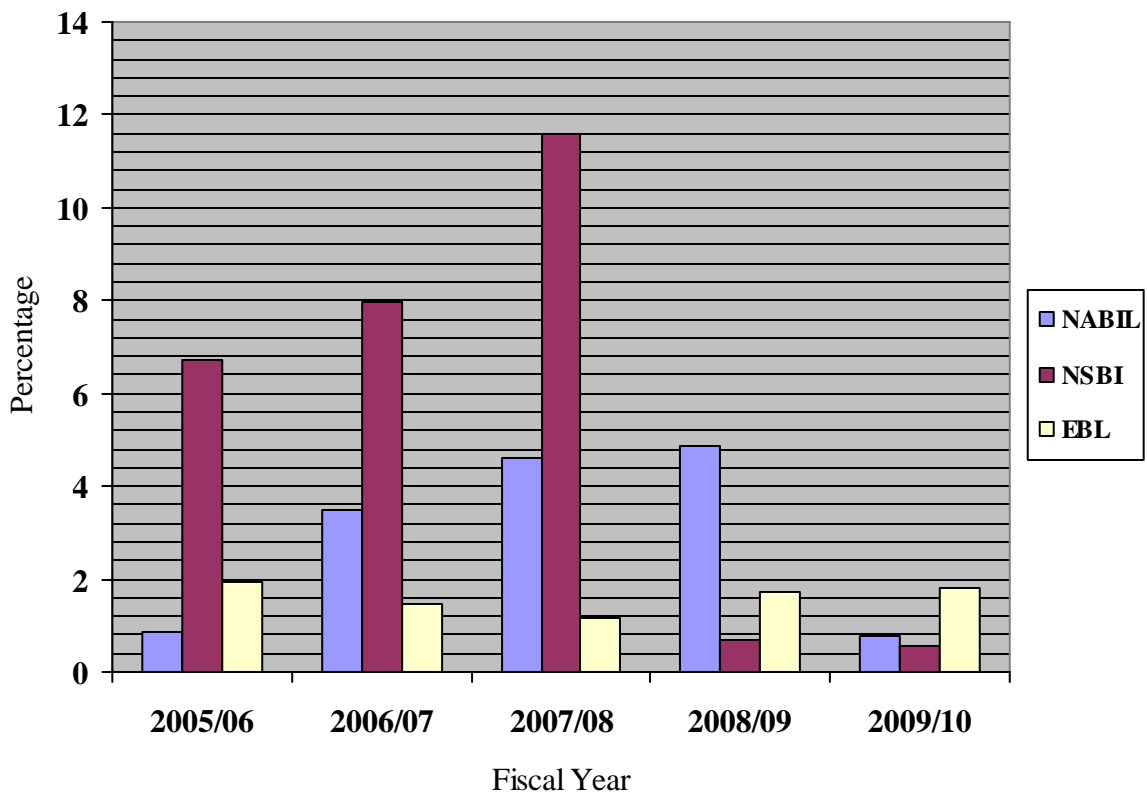
Long term debt to total debt ratio in the above table shows that all the three banks have extremely very lower borrowing of long term debt with compare to short term debt to meet their fund requirement. The ratio of long term debt to total debt of NABIL has increased in small percent to the fiscal year 2008/09, i.e. from 0.85% in the fiscal year 2005/06 to 4.86% in the fiscal year 2008/09, and finally it has decreased to 0.78% in the fiscal year 2009/10. The average ratio, standard deviation and C.V are 2.92%, 1.78 and 61.01% respectively. Out of total debt, 2.92% financed from long term debt and rest i.e. 97.08% of the debt has been financed by short term debt.

In contrast to NABIL, the ratio of long term to total debt of NSBI has increased in large percent during the first three study periods, i.e. from 6.74% in the fiscal year 2005/06 to 11.59% in the fiscal year 2007/08. In the fiscal year 2008/09, it seems to be great falls in the ratio, i.e. 0.7% due to much more decrease in long term debt i.e. Rs. 200 millions. Finally, it has decreased to 0.56%, the lowest recorded ratio in this study period. However, the bank has its debt capital from Rs. 12053.46 millions in the fiscal year 2005/06 to Rs, 35,597.12 millions in the fiscal year 2009/10. The average long term debt to total debt ratio of NSBI is 5.51%, standard deviation is 4.29 and

C.V. is 77.89%. NSBI has fulfilled 5.51% of its fund requirement through long term debt and 94.49% through short term debt.

In compare to NABIL and NSBI, EBL has low percent of long term debt to total debt in average. The long term debt to total debt of EBL for the first three year fiscal years are in decreasing trend i.e. 1.96% in fiscal year 2005/06 to 1.45% in the fiscal year 2006/07 and 1.17% in the fiscal year 2007/08. After it, with the increase in long term debt financing, the ratio also increased, i.e. 1.73% in the fiscal year 2008/09 and 1.80% in the fiscal year 2009/10. The average ratio, standard deviation and C.V. are 1.62%, 0.28 and 17.27% respectively. EBL uses 98.38% of total debt through short term debt.

Form the above analysis, it can be concluded that all the three banks extensively uses short term debt to meet the debt capital. On the basis of long term debt to total debt ratio, it has been determined that EBL has least average ratio. It regards that EBL is more risk taking bank than other two banks, since the usage of short term debt in total debt is higher in EBL; however, short term debt is riskier than long term debt. Similarly, NSBI has highest average long term debt to total debt ratio. It means, this bank prefers less risk than other two banks. On the basis of S.D and C.V, it can be concluded that EBL has more stability in such ratio since it has lowest value of S.D and C.V whereas NSBI has more variability on of that ratio.

4.1.1.3. Debt Ratio

Debt ratio is financial ratio that indicates the percentage of a company's assets that are provided via debt. It is the ratio of total debt and total assets. Total debt includes the sum of current liabilities and long term liabilities and total assets includes the sum of current assets, fixed assets and other assets such as goodwill.

Table 4.3

Debt Ratio (Ratio in %)

FY	NABIL			NSBI			EBL		
	TD	TA	Ratio	TD	TA	Ratio	TD	TA	Ratio
2005/06	20454.98	22329.97	91.60	12053.46	13035.83	92.46	15331.20	16294.00	94.09
2006/07	25196.34	27253.39	92.45	12737.91	13901.20	91.63	20649.60	21851.10	94.50
2007/08	34695.56	37132.76	93.44	15772.80	17187.44	91.77	25725.30	27646.50	93.05
2008/09	40737.15	43867.39	92.86	28453.83	30916.64	92.03	35298.10	37501.70	94.12
2009/10	48245.50	52079.72	92.64	35597.12	38047.67	93.56	39223.70	41982.80	93.43
Mean			92.60			92.29			93.84
S.D			0.60			0.70			0.52
C.V(%)			0.65			0.76			0.56

(Source: Appendix

I)

Figure 4.3
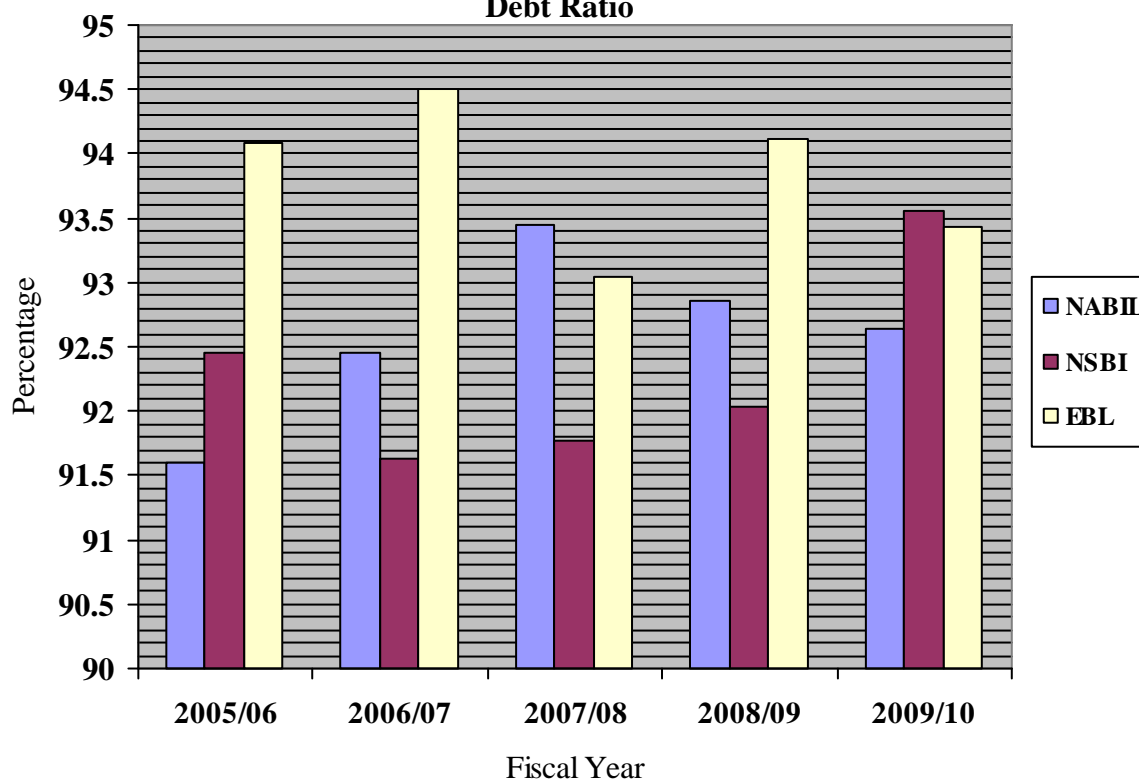
The debt financing to the total asset of NABIL has increased for the first three years i.e. 91.60% in the fiscal year 2005/06, 92.45% in the fiscal year 2006/07 and 93.44% in the fiscal year 2007/08, and it is slightly increased from fiscal year 2008/09 and onwards, and finally reached to 92.64% in the fiscal year 2009/10. Average debt ratio, S.D and C.V are 92.60%, 0.60 and 0.65% respectively.

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The debt ratio of NSBI for the first two fiscal years has slightly decreased i.e. 92.46% in the fiscal year 2005/06 to 91.63% in the fiscal year 2006/07. Then after, this ratio has increased from 91.77% in the fiscal year 2007/08 to 93.56% in the fiscal year 2009/10. However, average debt ratio of NSBI is 92.29% with 0.70 S.D and 0.76% of coefficient of variation.

In the financing of total assets through debt capital of EBL, 94.09% in the fiscal year 2005/06, 94.12% in the fiscal year 2006/07, 93.05% in the fiscal year 2007/08, 94.12% in the fiscal year 2008/09 and finally 93.43% in the fiscal year 2009/10. This ratio increased slightly for the first two years, then decreased in the fiscal year 2007/08 and increased in the fiscal year 2008/09 and finally decreased in the fiscal year 2009/10. The average debt ratio is 93.84%, standard deviation is 0.52 and C.V is 0.56%.

Summarizing the analysis, it can be concluded that total asset of these banks depend upon outside financing and thus the inside financing has little contribution to meet the required fund. Thus, the total assets of each banks bears high risk. More specially, the total assets of EBL is slightly risky than NABIL and NSBI, since average debt ratio is little greater in EBL than rest of two banks. However, EBL has more uniformity than NABIL and NSBI since it has less S.D and C.V and NSBI has more variability, since S.D and C.V is higher than that of other banks.

4.1.2. Solvency Position of the banks

Solvency, in finance or business, is the degree to which the current assets of an individual or entity exceed the current liabilities of that individual or entity Solvency position delineates the capacity of the bank to meet the short term debt that it has borrowed for financing the current assets. Under this criterion, current assets to short term debt and interest coverage ratio of the banks have been measured.

4.1.2.1 Current assets to Short term Debt

Funds can be raised through short term financing and long term financing. The funds raised from sources of short term financing should not used to acquire fixed assets. It should be used to increase the level of current assets and to increase the working

capital. Thus, the bank should be in good solvency position to meet such short term repayments.

Table 4.4

Current Assets to Short Term Debt   (Ratio in Times)

FY	NABIL			NSBI			EBL		
	CA	STD	Ratio	CA	STD	Ratio	CA	STD	Ratio
2005/06	22010.88	20281.78	1.09	12969.13	11241.04	1.15	16141.91	15031.20	1.07
2006/07	26966.50	24313.77	1.11	13803.98	11722.54	1.18	21681.00	20349.60	1.07
2007/08	36534.72	33095.56	1.10	17067.22	13945.32	1.22	27285.99	25425.30	1.07
2008/09	43206.40	38755.86	1.11	30663.06	28253.83	1.09	37074.54	34686.10	1.07
2009/10	51298.24	47870.60	1.07	37629.43	35397.12	1.06	41519.71	38159.10	1.08
Mean			1.10			1.14			1.07
S.D			0.02			0.06			0.005
C.V(%)			1.41			5.11			0.44

(Source: Appendix I)

Figure 4.4

Current Assets to Short Term Ratio

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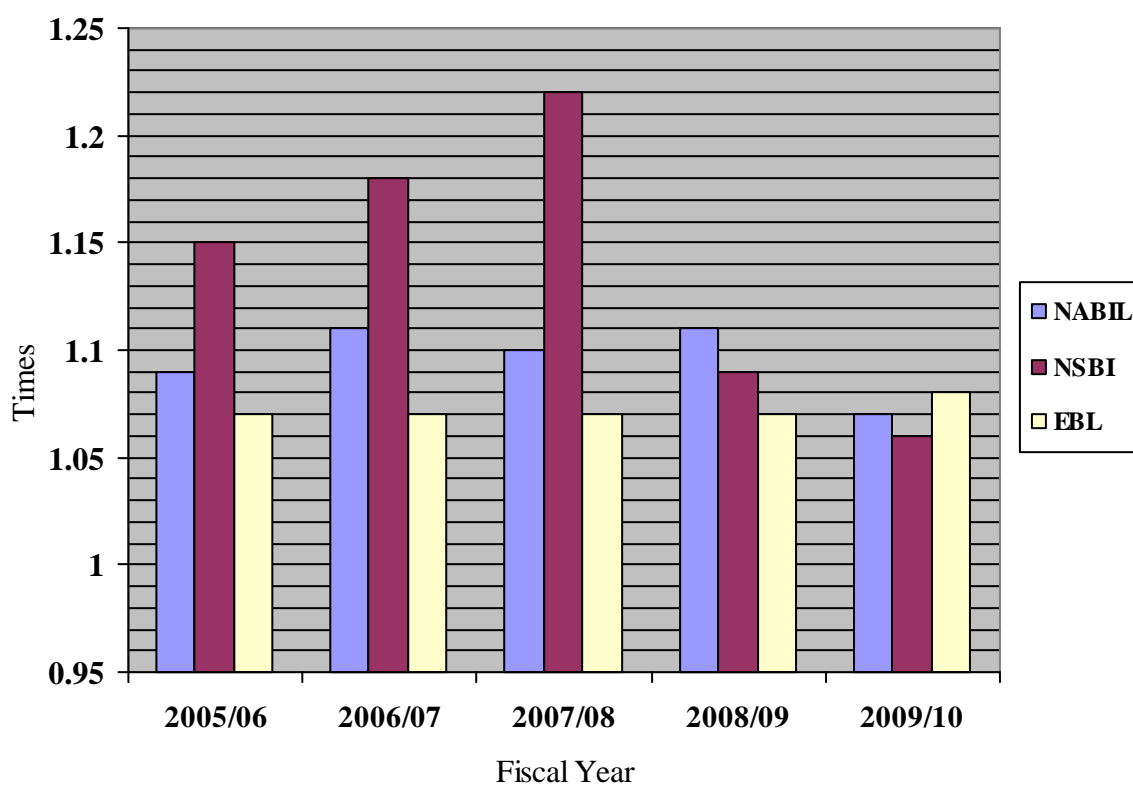
The above table shows that all these banks are almost quite satisfactory solvency position to repay the short term debt that they have financed for the current assets. Both the current assets and short term debt of all the banks have increased in each fiscal year. However, the increment rate in current assets of NABIL and NSBI does not synchronize with the increment rate in short term debt, as a result the current assets to short term debt ratio during the study period, i.e. it has ranged from 1.07 times in the fiscal year 2009/10 to 1.11 times in the fiscal years 2006/07 and 2008/09 of NABIL. Likewise, it has ranged from 1.06 times in the fiscal year 2009/10 to 1.22 times in the fiscal year 2007/08 of NSBI. The average ratio, S.D and C.V of NABIL are 1.10 times, 0.02 and 1.82% and that of NSBI are 1.14 times, 0.06 and 5.26% respectively.

In contrast to NABIL and NSBI, there is more stability in the ratio in EBL. EBL has kept a single ratio of 1.07 times for the first four fiscal years, i.e. from fiscal year 2005/06 to 2008/09, and there is slightly increment to 1.08 times in the fiscal year 2009/10. Thus, there is good harmony between the increment rate of current assets and the increment rate of short term debt in EBL. The average ratio is 1.07 times, S.D is 0.01 and C.V is 0.32%.

Though all these banks are in quite satisfactory solvency position to meet the immediate short term debt payment, the solvency position of NSBI is greater than NABIL and EBL, since its average ratio is comparatively higher than that of NABIL and EBL. EBL has less solvency capacity. However, S.D and C.V of EBL is comparatively less than that of rest two banks whereas NSBI has greater value of S.D and C.V. Therefore, EBL stands in greater stability and NSBI stands in greater variability.

4.1.2.2. Interest Coverage Ratio

Interest coverage ratio is a great tool to measure a company's ability to meet its interest obligations. When the interest coverage ratio is smaller than 1, it reflects that the company is not generating enough cash from its operating income (EBIT) to meet its interest obligations. When this ratio is too high than 1, it regards that the company has involved unused debt capacity.

Table 4.5

Interest Coverage Ratio   (Ratio in Times)

FY	NABIL			NSBI			EBL		
	EBIT	INT.	ICR	EBIT	INT.	ICR	EBIT	INT.	ICR
2005/06	1255.16	357.16	3.51	534.53	334.77	1.60	747.00	401.40	1.86
2006/07	1550.76	555.71	2.79	758.85	412.26	1.84	971.87	517.17	1.88
2007/08	1847.43	758.44	2.44	802.95	454.91	1.77	1498.76	632.61	2.37
2008/09	2631.94	1153.28	2.28	1267.73	824.70	1.54	1904.19	1012.87	1.88
2009/10	3584.59	1960.11	1.83	1982.06	1443.69	1.37	2760.78	1572.79	1.76
Mean			2.57			1.62			1.95
S.D			0.56			0.17			0.21
C.V(%)			21.79			10.49			10.77

(Source: Appendix I)

Figure 4.5

Interest Coverage Ratio
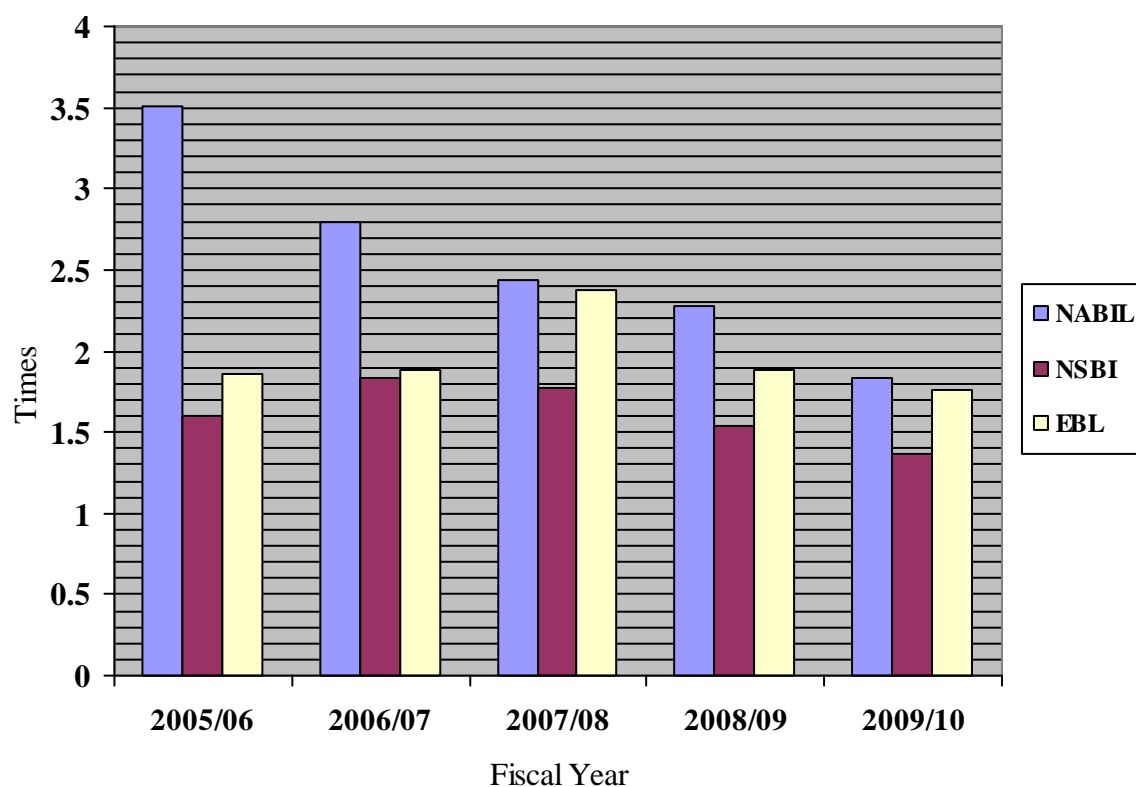
Fiscal Year

Above table shows that the EBIT and interest expenses of NABIL are in increasing trend, i.e. EBIT Rs. 1255.16 millions in the fiscal year 2005/06 to Rs. 3584.59 millions in the fiscal year 2009/10 and interest expenses Rs. 357.16 millions in the fiscal year 2005/06 to Rs. 1960.11 millions in the fiscal year 2009/10. But ICR of the

bank has decreased gradually during the study period i.e. 3.51 times in the fiscal year 2005/06 to 1.83 times in the fiscal year 2009/10. It means the bank is unable to generate enough EBIT as compare to increase in interest expenses. Even though, EBIT of NABIL is sufficient to cover the interest expenses. The average ICR, S.D and C.V are 2.57 times, 0.56 and 21.79% respectively.

Similarly the interest expenses and EBIT of NSBI has increased over these five years study periods, i.e. EBIT of NSBI increased from Rs. 534.53 millions in the fiscal year 2005/06 to Rs. 1982.06 millions in the fiscal year 2009/10 and interest expenses increased from Rs. 334.77 millions in the fiscal year 2005/06 to Rs. 1443.69 millions in the fiscal year 2009/10. However, ICR of NSBI has fluctuated during the study periods, ranging from 1.37 times in the fiscal year 2009/10 to 1.84 times in the fiscal year 2006/07. The average ratio, S.D and C.V are 1.62 times, 0.17 and 10.49% respectively.

Comparing these three banks with regards to ICR, it can be concluded that NABIL has greater capacity to meet interest expenses, since it has greater value of average ICR. NSBI has least capacity to meet their interest obligation. Even though, all the sampled banks are capable to meet the interest expenses, since the average ICR is greater than 1. However, NSBI has more stability and NABIL has more variability on its ICR according to S.D and C.V analysis.

4.1.3 Profitability of Banks

Profit is one of the most important parts of a business organization. It can be said as the ultimate goal of every organization. Each company should earn enough profit to sustain in long run. The bank should also need to accumulate profit to secure its position in the market and to meet the expectation of investors. Thus, the profitability position of the banks has been measured using different financial tools.

4.1.3.1 Earnings per Share

The profitability of the bank from the view point of ordinary shareholders is earning per share. Earnings per share refer the rupee amount earned per share of common stock outstanding. It measures the return of each equity shareholders. The higher earnings indicate the better achievements of the profitability of the bank mobilizing their funds and vice versa.

<div align="center">Table 4.6</div>

<div align="center">**Earning Per Share**   (Ratio in Rs.)</div>

FY	NABIL	NSBI	EBL
	EPS	EPS	EPS
2005/06	129.21	18.27	62.78
2006/07	137.08	39.35	78.42
2007/08	108.31	28.33	91.82
2008/09	106.76	36.17	99.99
2009/10	78.61	23.69	100.16
Mean	111.99	29.16	86.63
S.D	20.40	7.77	14.32
C.V(%)	18.20	26.66	16.53

(Source: Appendix I)

<div align="center">**Figure 4.6**</div>

<div align="center">**Earning Per Share**</div>
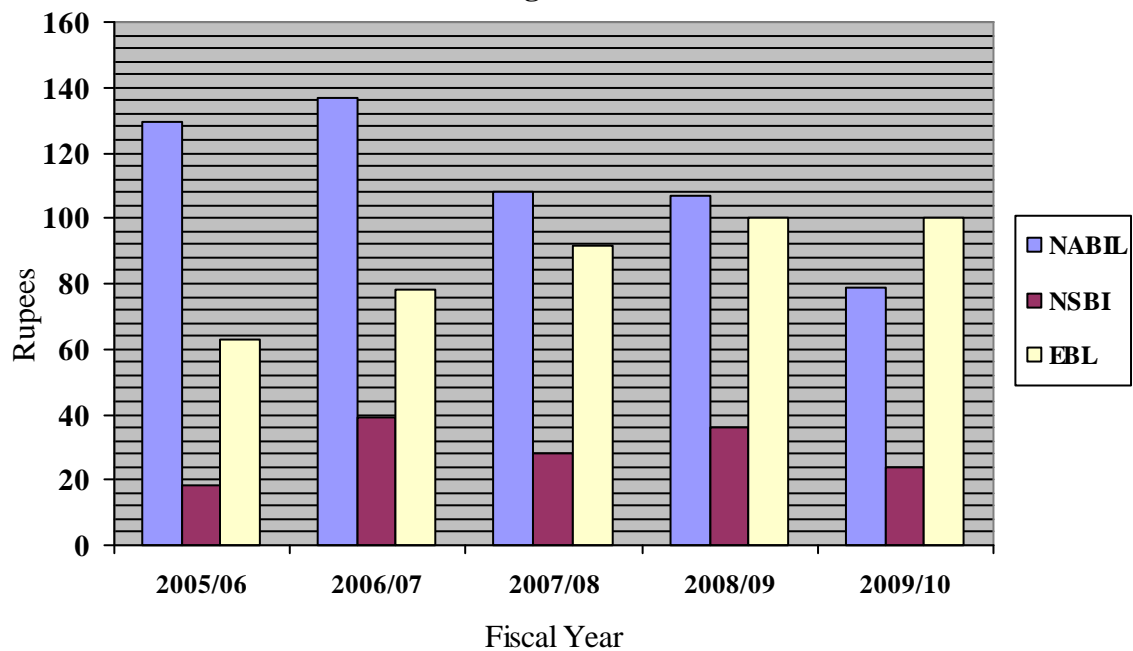
The earnings per share of NABIL have increased up to fiscal year 2006/07 and then it has followed decreasing trend. In this five years of study period, the EPS of NABIL is Rs. 129.21 in the fiscal year 2005/06, which has increased to Rs. 137.08 in the fiscal year 2006/07, and then it has started to decrease and finally it has reached to Rs. 78.61 in the fiscal year 2009/10. Although the net profit of the bank is in increasing trend, this decrement in EPS indicates that the bank has issued ordinary shares to increase

<div align="center">57</div>

equity capital. Average earnings per share, S.D and C.V are Rs. 111.99, 20.40 and 18.20% resp.

Likewise, the EPS of NSBI has fluctuated over the observed periods ranging from Rs. 18.27 in the fiscal year 2005/06 to Rs. 39.35 in the fiscal year 2006/07. The average EPS is Rs. 29.16 with standard deviation of 7.77 and C.V of 26.66%.

Similarly, the EPS of EBL is gradually increases during the study periods, i.e. Rs. 62.78 in the fiscal year 2005/06 to Rs. 100.16 in the fiscal year 2009/10. The average earnings per share of EBL is Rs. 86.63. However, the standard deviation is 14.32 and coefficient of variation is 16.53% indicating inconsistency.

Comparing these three banks on the basis of EPS, it can be said that the NABIL is stronger than NSBI and EBL, in terms of profitability, since the average EPS of NABIL is more than three times of that of NSBI. NSBI has the lowest EPS than that of NABIL and EBL, which regards that this bank does not have enough earnings for the better achievements of the profitability of the banks by mobilizing their funds. Although NSBI has least standard deviation than NABIL and EBL, it has the higher C.V of 26.66% that means the higher variability. Because EBL has least value of C.V, comparatively, it is regarded as more stable in providing earnings to its shareholders.

4.1.3.2 Dividend per Share

Dividend per share is calculated to know the share of earnings that the shareholders receive in relation to the paid up value of the share. An institution offering a high dividend per share is regarded as efficient in fulfilling shareholders expectations which will also increase the value of an institution. Dividend per share is the earnings distributed to ordinary shareholders. It is calculated dividing total dividend by the no. of ordinary shares outstanding.

Table 4.7

Dividend Per Share (Ratio in Rs.)

FY	NABIL	NSBI	EBL
	DPS	DPS	DPS
2005/06	85.00	5.00	25.00
2006/07	140.00	47.59	40.00
2007/08	100.00	0.00	50.00
2008/09	85.00	42.11	60.00
2009/10	70.00	17.50	60.00
Mean	96.00	22.44	47.00
S.D	23.96	19.24	13.27
C.V (%)	24.96	85.75	28.33

(Source: Appendix I)

Figure 4.7

Dividend Per Share
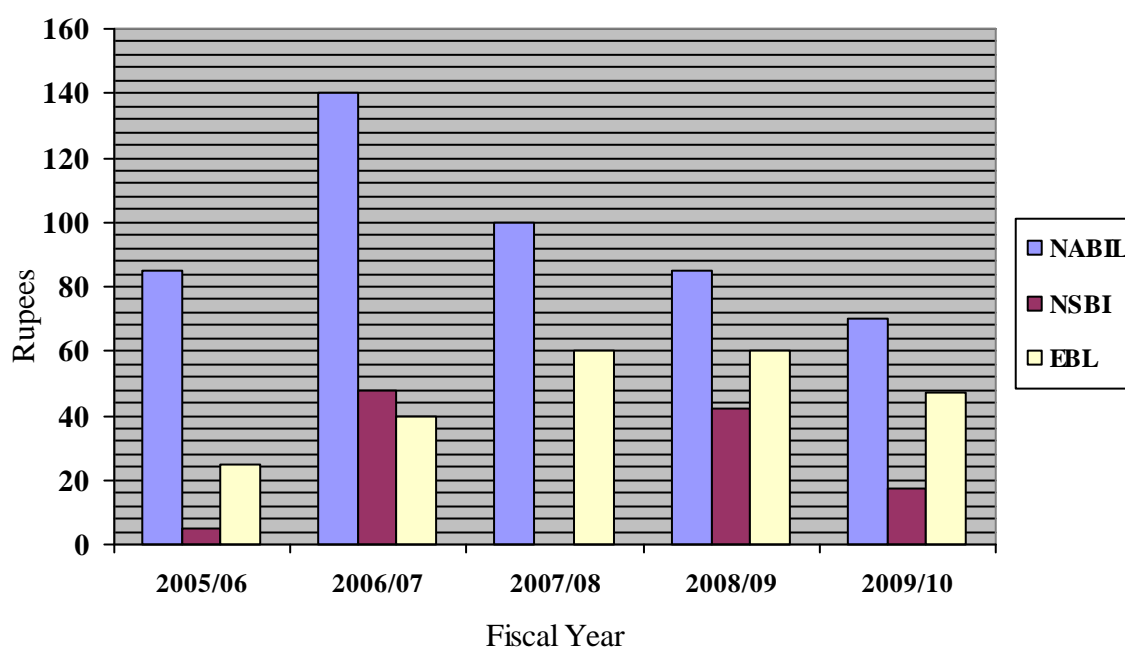
The above table and figure shows the DPS of selected banks over the five years of study periods. DPS of NABIL has increased from Rs. 85 in the fiscal year 2005/06 to Rs. 140 in the fiscal year 2006/07. Then after, it has decreased gradually from fiscal year 2007/08 and onwards and finally reached Rs. 70, the lowest DPS for the period. The average dividend per share of NABIL is Rs. 96 with the variation of 24.96%. Similarly, DPS of NSBI is in fluctuating trend, since its DPS ranged from Rs. 5 in the

fiscal year 2005/06 to Rs. 47.59 in the fiscal year 2006/07. In the fiscal year 2007/08, the bank has not distributed any amount of dividend although its EPS is Rs. 28.33. It means the bank retained all its earnings to increase its internal funding. The average DPS of NSBI is Rs. 22.40 with high variability of 85.74%.

Likewise, EBL has increased its DPS gradually over the first four years of observed periods, i.e. Rs. 25 in the fiscal year 2005/06 to Rs. 60 in the fiscal year 2008/09. Finally, the DPS in the fiscal year 2009/10 remain equal to as in the fiscal year 2008/09. The average DPS is Rs. 47 with S.D of 13.27 and C.V of 28.23%.

Comparing these banks on the basis of DPS, it can clearly observe that NABIL is much more capable to provide return to the shareholders, since it has highest average dividend per share with least variability. However, NSBI stands in the least return provider to its shareholders as compare to other two banks, its DPS is lowest with high inconsistency.

4.1.3.2 Return on Equity

Return on equity measures the rate of return on the ownership interest (shareholders equity) of the common stock owners. It measures a firm's efficiency at generating profit from every unit of shareholder's equity (also known as net assets or assets minus liabilities).

Table 4.8

Return on Equity   (Ratio in %)

FY	NABIL			NSBI			EBL		
	NPAT	SE	ROE	NPAT	SE	ROE	NPAT	SE	ROE
2005/06	635.26	1874.99	33.88	117.00	982.37	11.91	237.20	962.80	24.64
2006/07	673.96	2057.05	32.76	254.90	1163.29	21.91	296.40	1201.50	24.67
2007/08	746.47	2437.20	30.63	247.77	1414.64	17.51	451.20	1921.20	23.49
2008/09	1031.05	3130.24	32.94	316.37	1712.60	18.47	638.70	2203.60	28.98
2009/10	1138.57	3824.22	29.77	391.74	2450.55	15.99	813.80	2759.10	29.50
Mean			32.00			17.16			26.25
S.D			1.54			3.27			2.48
C.V(%)			4.81			19.06			9.45

(Source: Appendix I)

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Figure 4.8

Return on Equity
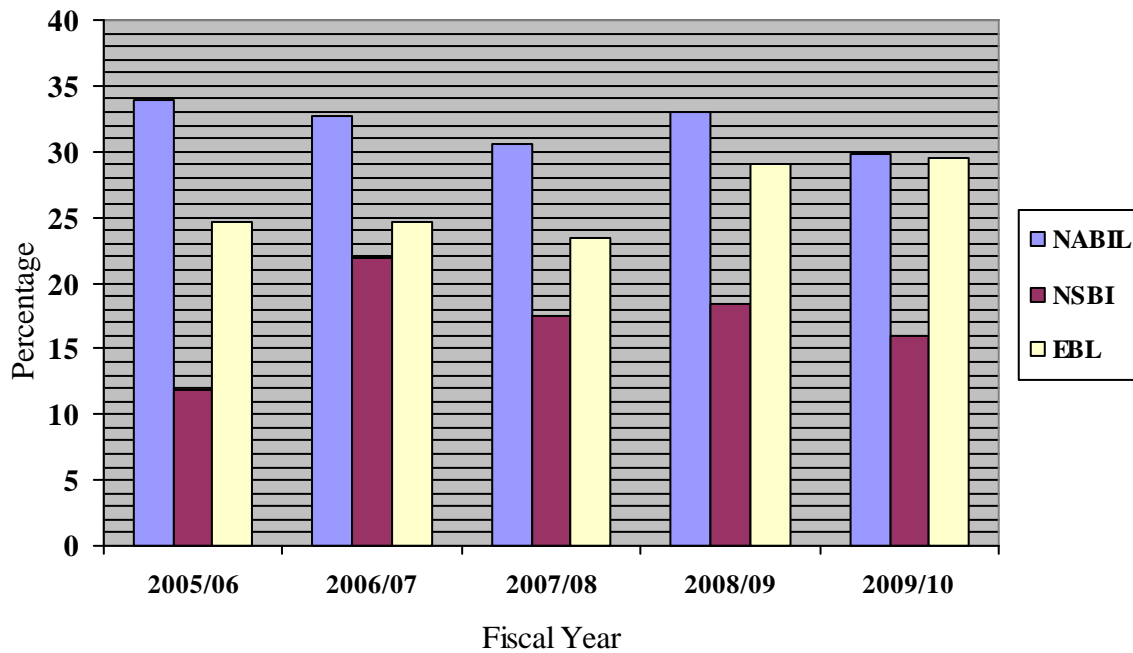
The table and figure show that the net profit after tax and shareholders' equity of all sampled banks have increased during the study periods. Along with the increment in shareholders' equity, the net profit of NABIL has also increased in each fiscal year. The net profit of the bank has been raised from Rs. 635.26 millions in the fiscal year 2005/06 to Rs.1138.57 millions in the fiscal year 2009/10. However, the pace of growth in net profit could not cope with the pace of growth of shareholders' equity, as a result, the return on equity of the bank has followed fluctuating trend. The highest, the ROE of the bank is 38.88% in the fiscal year 2005/06 and the lowest, the ROE of the bank is 29.77% in the fiscal year 2009/10. In average, the bank has maintained 32% ROE in the last five consecutive fiscal years, which means that the bank has generated Rs. 32 net profit from the mobilization of Rs. 100 shareholders' equity.

Likewise, the net profit in NSBI has also followed increasing trend. The net profit of NSBI has increased Rs 117 millions in the fiscal year to Rs. 391.74 millions in the fiscal year 2009/10. However, the return on equity of the bank has fluctuated during the study periods, indicating weak harmony between the net profit and shareholders' equity. The ROE of NSBI has ranged from 11.91% in the fiscal year 2005/06 to 21.91% in the fiscal year 2006/07. The average ROE of NSBI is 17.16% which indicates Rs. 17.16 of net profit generated investing Rs. 100 in equity capital. The S.D and C.V are 3.27 and 19.06% respectively.

Similarly, the net profit and shareholders' equity of EBL has also increased gradually over the observed periods. The ROE of EBL has ranged from 24.64% in the fiscal year 2005/06 to 29.50% in the fiscal year 2009/10. The average ROE of EBL is 26.25%; standard deviation and coefficient of variation are 2.48 and 9.45% respectively.

On the basis of ROE, NABIL can be said as efficient bank in mobilizing the equity capital, as a result NABIL has earned more net profit from same amount of rupee of investment in equity. However, NSBI became unable to generate enough net profit from the mobilization of its equity capital, since its ROE is lowest. Similarly, NSBI has greatest percentage of C.V that refers high variability and NABIL has the high stability in ROE since its C.V is lowest.

4.1.3.3 Return on Assets

Return on Assets is an indicator of how profitable a company is before leverage, and is compare with companies in the same industry. Return on assets is a common figure used for comparing performance of financial institution such as banks, because the majority of their assets will have carrying value that is close to their actual market value.

Table 4.9

Return on Assets (Ratio in %)

FY	NABIL			NSBI			EBL		
	NPAT	TA	ROA	NPAT	TA	ROA	NPAT	TA	ROA
2005/06	635.26	22329.97	2.84	117.00	13035.83	0.90	237.20	16294.00	1.46
2006/07	673.96	27253.39	2.47	254.90	13901.20	1.83	296.40	21851.10	1.36
2007/08	746.47	37132.76	2.01	247.77	17187.44	1.44	451.20	27646.50	1.63
2008/09	1031.05	43867.39	2.35	316.37	30916.64	1.02	638.70	37501.70	1.70
2009/10	1138.57	52079.72	2.19	391.74	38047.67	1.03	813.80	41982.80	1.94
Mean			2.37			1.25			1.62
S.D			0.28			0.35			0.20
C.V(%)			11.93			27.75			12.50

(Source: Appendix I)

Figure 4.9

Return on Assets
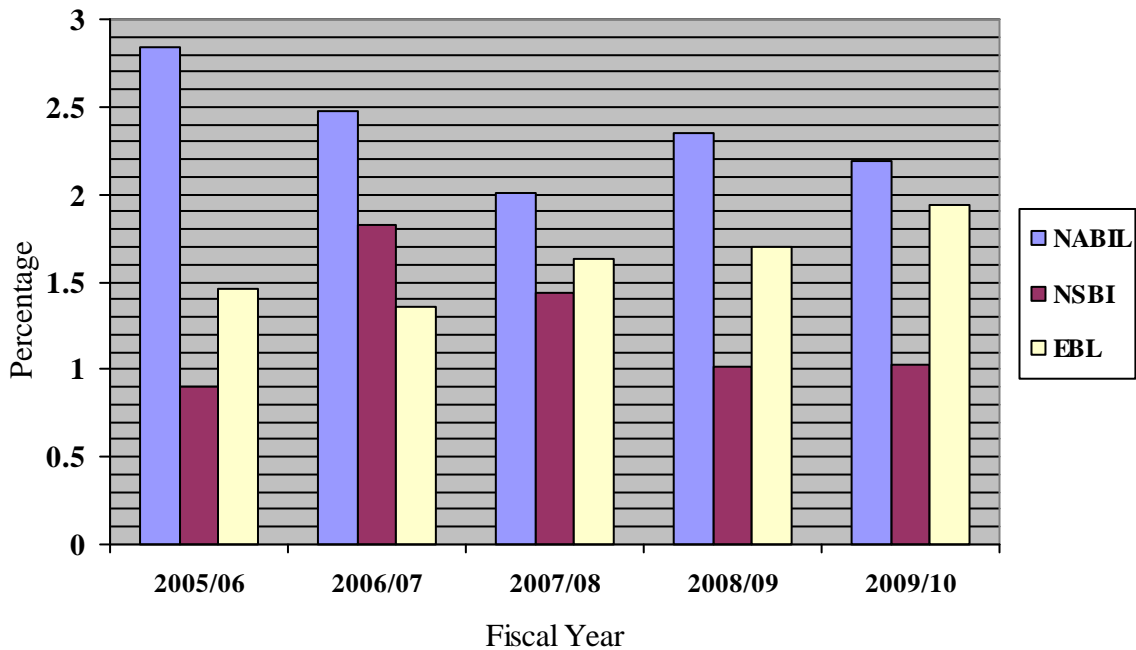
Fiscal Year

As shown in the above table and figure, net profit of NABIL and total assets has increased in each fiscal year. The total asset of the bank has ranged from Rs. 22329.97 millions in the fiscal year 2005/06 to Rs. 52079.72 millions in the fiscal year 2009/10. Inversely, the ROA of NABIL has decreased for the first three years i.e. from 2.84% in the fiscal year 2005/06 to 2.01% in the fiscal year 2007/08 and finally it has decreased to 2.19% in the fiscal year 2009/10. However, the average ROA of NABIL is 2.37% with the variation of 11.81% indicating quite consistency. The average ratio implies that the bank has generated Rs. 2.37 net profit from Rs. 100 mobilization of total assets.

Likewise, the total asset of NSBI is also in increasing trend, and thus it has increased its total assets from Rs. 13035.83 millions in the fiscal year 2005/06 to Rs. 38047.67 millions in the fiscal year 2009/10. Further, the ROA of the bank has fluctuated during the periods, ranging from 0.90% in the fiscal year 2005/06 to 1.83% in the fiscal year 2006/07. The average ROA of NSBI is 1.62% which indicates that the bank has generated Rs. 1.62 net profit with Rs. 100 investment of total assets. The S.D and C.V of NSBI is 0.35 and 28% respectively.

Similarly, the total asset of EBL is also in increasing trend. It has increased from Rs. 16294 millions in the fiscal year 2005/06 to Rs. 41982.80 millions in the fiscal year 2009/10. The ROA of EBL for the first two years has decreased i.e. 1.46% in the fiscal year 2005/06 to 1.36% in the fiscal year 2006/07. In the fiscal year 2007/08 and onwards, the ROA of EBL has increased and reached to 1.94% in the fiscal year 2009/10. The average ROA is 1.62% with the C.V of 12.50% indicating quite consistency. EBL has been able to generate Rs. 1.62 through Rs. 100 mobilization of total asset.

Comparing the banks on the basis of ROA, it can be concluded that NABIL is more efficient than NSBI and EBL in effectively mobilizing the total assets, since the net profit generation from mobilization equal amount of total asset is higher in NABIL than in NSBI and EBL with more uniformity. Thus, it can be said that the profitability management of NABIL is much better that of NSBI and EBL.

4.1.3.4 Return on Deposits

Deposit is the major source of short term fund of the banks. Return on total deposit ratio measures how efficiently the deposits have been mobilized. It refuels the relationship between net profit after tax and total deposits. The return on deposits of NABIL, NSBI and EBL has presented below.

Table 4.10

Return on Deposits (Ratio in %)

FY	NABIL			NSBI			EBL		
	NPAT	Deposits	ROD	NPAT	Deposits	ROD	NPAT	Deposits	ROD
2005/06	635.26	19347.40	3.28	117.00	11002.04	1.06	237.20	13804.40	1.72
2006/07	673.96	23342.29	2.89	254.90	11445.29	2.23	296.40	18186.20	1.63
2007/08	746.47	31915.05	2.34	247.77	13715.40	1.81	451.20	23976.30	1.88
2008/09	1031.05	37348.25	2.76	316.37	27957.22	1.13	638.70	33322.90	1.92
2009/10	1138.57	46340.70	2.46	391.74	34896.42	1.12	813.80	36932.30	2.20
Mean			2.75			1.47			1.87
S.D			0.33			0.47			0.20
C.V(%)			12.15			31.72			10.54

(Source: Appendix I)

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Figure 4.10

Return on Deposits
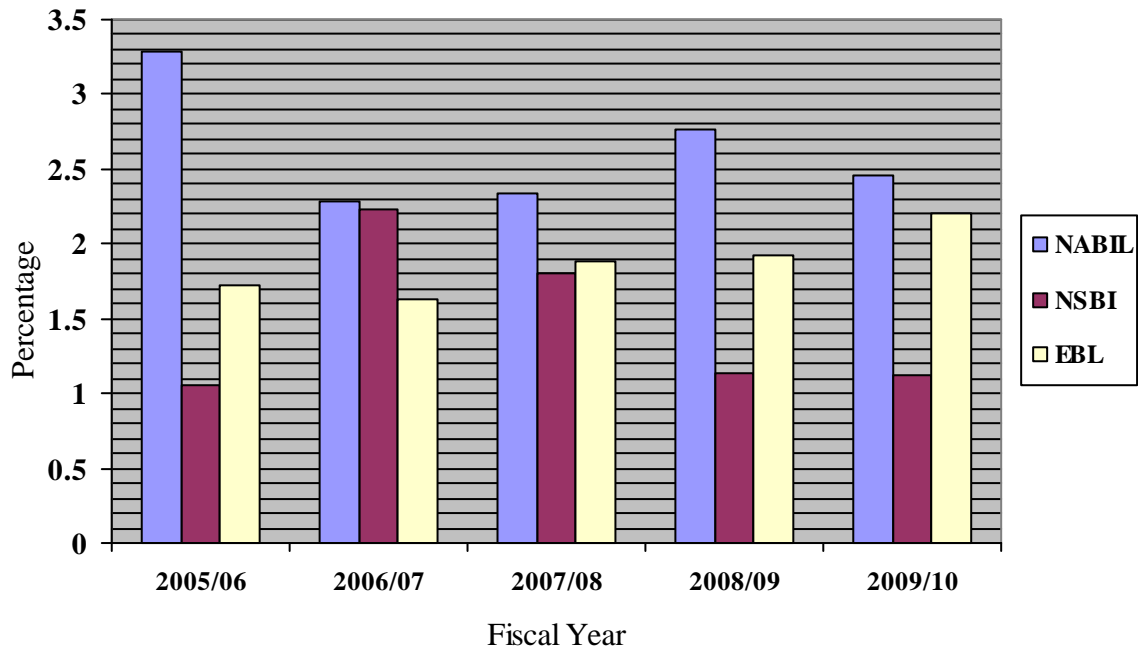
The above table and figure shows that the net profit with compare to total deposit of NABIL has been almost in decreasing trend, regardless of the increasing trend of deposit, which has increased form Rs. 19347.40 millions in the fiscal year 2005/06 to Rs., 46340.70 millions in the fiscal year 2009/10., Thus, the return on deposit has ranged from 3.28% in the fiscal year 2005/06 to 2.34% in the fiscal year 2007/08, while in the fiscal year 2009/10, it is 2.46%. In average, NABIL has earned 2.75% of the total deposit and the variation in such earnings is 12%.

Alike in NABIL, the total deposit of NSBI has also in increasing trend, i.e. total deposit has increased from Rs. 11002.04 millions in the FY 2005/06 to Rs. 34896.42 millions in the FY 2009/10. However, the ROD of NSBI has been in fluctuating trend during this study periods. The ratio is 1.06% in the FY 2005/06, recorded as the lowest ratio and 2.23% in the fiscal year 2006/07, recorded as the highest ratio of five years of study period. The ratio decreased from 1.81% in the FY 2007/08 to 1.12% in the FY 2009/10. The average ROD of NSBI is 1.47% with C.V of 31.97%.

Similarly, total deposit of EBL increased from Rs. 13804.20 millions in the FY 2005/06 to Rs. 36932.30 millions in the FY 2009/10. However, the ROD of EBL has decreased for the first two FY i.e. 1.72% in the FY 2005/06 and 1.63% in the FY

2006/07. Then after, this ratio has increased and finally reached to 2.20% in the FY 2009/10. In average, EBL has earned 1.87% of total deposit as net profit and the instability in such ratio is just 10.70%.

Comparing the banks on the basis of ROD, it can be concluded that NABIL posses greater efficient than NSBI and EBL in mobilizing the total deposit to generate high net profit. The net profit generated mobilizing deposit of EBL has greater stability i.e. C.V is lower with compare to other two banks. However, NSBI has more variability in ROD since its C.V is greater in percentage.

4.1.9 Price Earnings Ratio

Price earnings ratio reflects the price currently being paid by the market for each rupee of currently reported EPS. In order words, it measures investors' expectation and the market appraisal of the performance of the bank. It is an indication of the way investors think that the bank would perform better in the future. Higher market price suggests that investors expect earnings to grow and this gives a high P/E implies that investors feel that earnings are not likely for rise.

Table 4.11

Price Earning Ratio (Ratio in Times)

FY	NABIL			NSBI			EBL		
	MPS	EPS	P/E	MPS	EPS	P/E	MPS	EPS	P/E
2005/06	2240	129.21	17.34	612	18.27	33.49	1379	62.78	21.97
2006/07	5050	137.08	36.84	1176	39.35	28.89	2430	78.42	30.99
2007/08	5275	108.31	48.70	1511	28.33	53.34	3132	91.82	34.11
2008/09	4899	106.76	45.89	1900	36.17	52.52	2455	99.99	24.55
2009/10	2384	78.61	30.33	741	23.69	31.28	1630	100.16	16.27
Mean			35.82			39.90			25.58
S.D			11.31			10.74			6.37
C.V (%)			31.58			26.91			24.90

(Source: Appendix I)

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Figure 4.11

Price Earnings Ratio
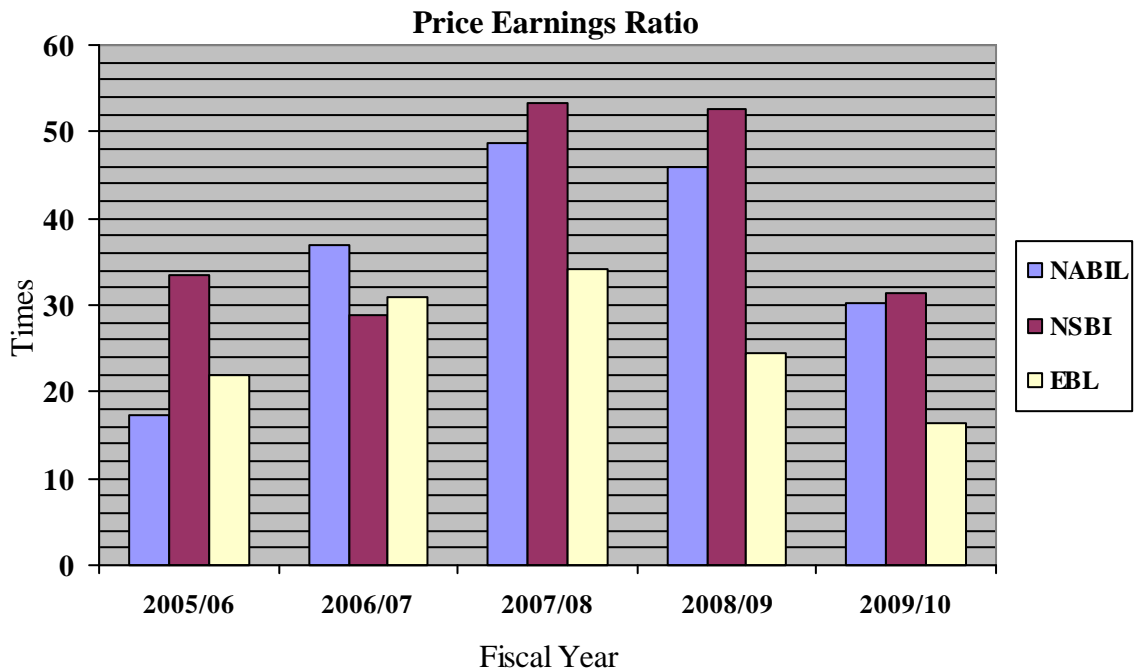
From the above table and figure, it can be observed that the MPS of NABIL has increased for the first three study periods i.e. from Rs 2240 in the FY 2005/06 to Rs. 5275 in the FY 2007/08. Then, it seems to be increased i.e. Rs. 4899 in the FY 2008/09 and Rs. 2384 in the FY 2009/10. As MPS increased, P/E ratio also increased for the first three years, from 17.34 times in the FY 2005/06 to 48.70 times in the FY 2007/08. Therefore, it started to decrease and finally reached to 30.33 times in the FY 2009/10. The average P/E ratio is 35.82 times with standard deviation of 11.31 and C.V of 31.58%.

Similarly, MPS of NSBI is in increasing trend till the FY 2008/09, finally it has decreased in the fiscal year 2009/10 i.e. Rs. 612 in the FY 2005/06 to Rs. 1900 in the FY 2008/09 and finally Rs. 741 in the FY 2009/10. However, the P/E ratio seems little fluctuated ranging from 31.28 times in the FY 2009/10 to 53.34 times in the FY 207/08. However, its average P/E ratio is the highest with compare to NABIL and EBL, i.e. 39.90 times with S.D of 10.74 and C.V of 26.91%.

Likewise, the MPS of EBL has increased from Rs. 1379 in the FY 2005/06 to Rs. 3132 in the FY 2007/08. Then after, MPS has decreased gradually for the last two study periods, i.e. Rs. 2455 in the FY2008/09 ad Rs. 1630 in the FY 2009/10. As the increment in MPS, P/E ratio of EBL has also been increasing for the first three years of observation, i.e. 21.97 times in the FY 2005/06 to 34.11 times in the FY 2007/08.

However, for the last two fiscal years, P/E ratio has decreased i.e. 24.55 times in the FY 2008/09 and 16.27 times in the FY 2009/10. It's S.D and C.V is 6.37 and 24.90% respectively.

Comparing these selected regarding P/E ratio, it can be concluded that NSBI poses in better position to attract the investors, since its average P/E ratio is higher than NABIL and EBL. EBL has the lowest P/E ratio, but it has more stability than others.

4.2 Analysis of Capital Structure
4.2.1 Net Income Approach
NI approach is known as dependent hypothesis of capital structure. The essence of this approach is that the firm can reduce its cost of capital by using debt and increase total valuation of the firm through the reduction in the cost of capital leading to increase in the cost of capital thus leading to increase in the degree of leverage. This theory assumes that the cost of debt and cost of equity remain constant as charge in the firms' capital structure. In other words, the firm can increase its value or lover the overall cost of capital by increasing the proportion of debt in the capital structure. It gives attention on overall capitalization rate. According to this theory optimal capital structure is that where the total value of the firm is highest and the overall capitalization rate is lowest. The overall capitalization rate can be calculated simply by dividing EBIT by the value of the company.

Table 4.12

Overall Capitalization Rate (Ko) and Vo

FY	NABIL		NSBI		EBL	
	Ko (%)	Vo (Rs. M)	Ko (%)	Vo (Rs. M)	Ko (%)	Vo (Rs. M)
2005/06	11.22	11186.26	11.30	4730.66	13.55	5512.62
2006/07	6.03	25711.12	8.79	8633.47	10.25	9485.40
2007/08	4.87	37956.14	5.34	15041.60	9.55	15690.65
2008/09	5.34	49293.26	7.54	16816.03	11.69	16295.06
2009/10	10.26	34922.02	15.92	12453.35	19.39	14241.02
Mean	7.54	31813.76	9.78	11535.02	12.88	12244.95
S.D	2.65		3.62		3.53	
C.V (%)	35.21		37.06		27.39	

(Source: Appendix I)

Figure 4.12

Overall Capitalization Rate
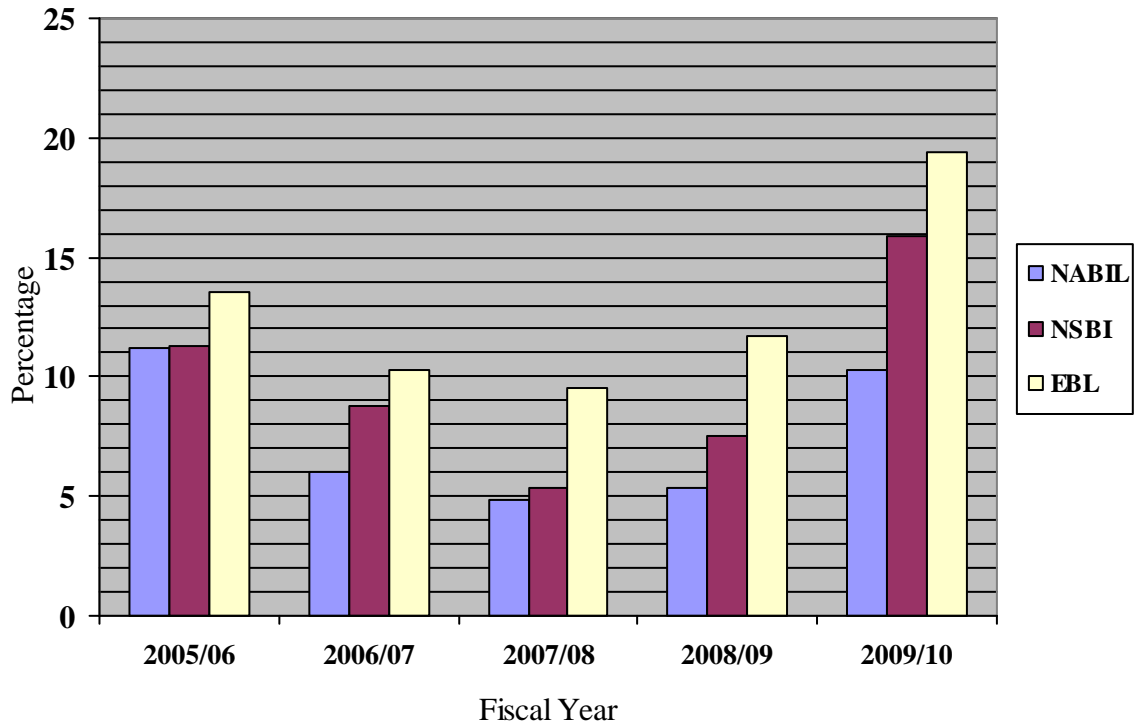
Figure 4.13

Total Value of the Firm
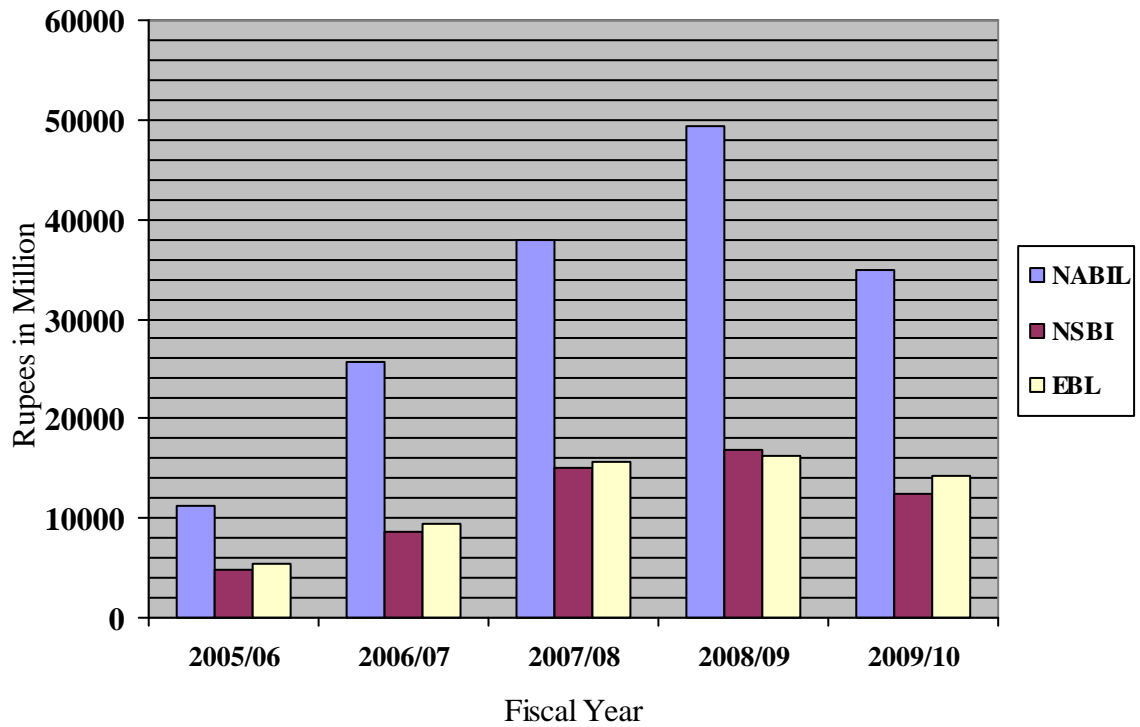
The above table and figure shows that the overall capitalization rate is in decreasing trend for the first three FY in all the sampled banks. The Ko of NABIL is 11.22%, 6.03% and 4.87% in the FY 2005/06, 2006/07 and 2007/08 respectively. After this, Ko has increased, i.e. 5.34% and 10.26% in the fiscal year 2008/09 and 2009/10 respectively. Such a rate of NSBI is 11.30%, 8.79%, 5.37%m 7.54% and 15.92% in the FY 2005/06, 2006/07, 2007/08, 2008/09 and 2009/10 respectively. Similarly, Ko of EBL has decreased from 13.55% in the FY 2005/06 to 9.55% in the fiscal year 2008/08 and final two year, Ko increased from 11.69% in the FY 2008/09 to 19.39% in the FY 2009/10.

The average Ko, S.D and C.V of NABIL, NSBI and EBL are 7.54%, 2.65 and 35.21%, 9.78%, 3.62 and 37.06% and 12.88%, 3.53 and 27.39% respectively.

Similarly, it can be observed that the value of the banks has rapidly grown for the first four years in all banks. The value of NABIL has increased from Rs. 11186.26 millions in the FY 2005/06 to Rs. 49293.26 millions in the FY 2008/09. At the end of the study period, its total value decreased to Rs. 34922.02 millions. The average value of the bank for the period is Rs. 31813.76 millions. In such a way, value of NSBI has also increased from Rs. 4730.66 millions in the FY 2005/06 to Rs. 16816.03 millions in the FY 2008/09. In the FY 2009/10, its value decreased to Rs. 11535.02 millions. Similarly, value of EBL has increased from Rs. 5512.62 millions in the FY 2005/06 to Rs. 16295.06 millions in the FY 2008/09. Finally, its total value decreased to Rs. 14241.02 millions in the fiscal year 2009/10. Its average total value is Rs. 12244.95 millions.

Comparing the banks NI criteria, the average overall cost of capital is lower in NABIL with greater value of the bank than that of NSBI and EBL. NSBI has the least value of the firm and overall capitalization rate of EBL is higher than others. Analysis shows that the value of the firm increases and overall cost of capital decreases as the debt in amount increases.

4.2.2 Net Operating Income Approach

It is an independent hypothesis of capital structure decision of the firm and which is irrelevant to the value of the firm and overall cost of capital. However, the change in the leverage ratio will not lead to change in the overall cost of capital, market value of

the share and total value of the firm. The increment in leverage increases financial risk of the common stockholders. To minimize such a risk, the shareholders demand for higher return on their investments. Increase in the equity capitalization rate exactly offsets by using cheaper debt fund keeping overall cost of capital constant. Hence, equity capitalization rate is calculated here by dividing EBT by the market value of common equity.

Table 4.13

Equity Capitalization Rate (In Percent)

FY	NABIL			NSBI			EBL		
	EBT	MVS	Ke	EBT	MVS	Ke	EBT	MVS	Ke
2005/06	898.00	11013.06	8.15	199.76	3918.24	5.10	345.60	5212.62	6.63
2006/07	995.05	24828.55	4.01	346.59	7618.11	4.55	454.70	9185.40	4.95
2007/08	1088.99	36356.14	3.00	348.04	13214.12	2.63	866.15	15390.65	5.63
2008/09	1478.66	47311.95	3.13	443.03	16616.03	2.67	891.32	15683.06	5.68
2009/10	1624.48	34547.12	4.70	538.37	12253.35	4.39	1187.99	13536.62	8.78
Mean			4.6			3.39			6.33
S.D			0.02			0.01			0.01
C.V (%)			38.53			25.76			22.91

(Source: Appendix I)

Figure 4.14

Equity Capitalization Rate
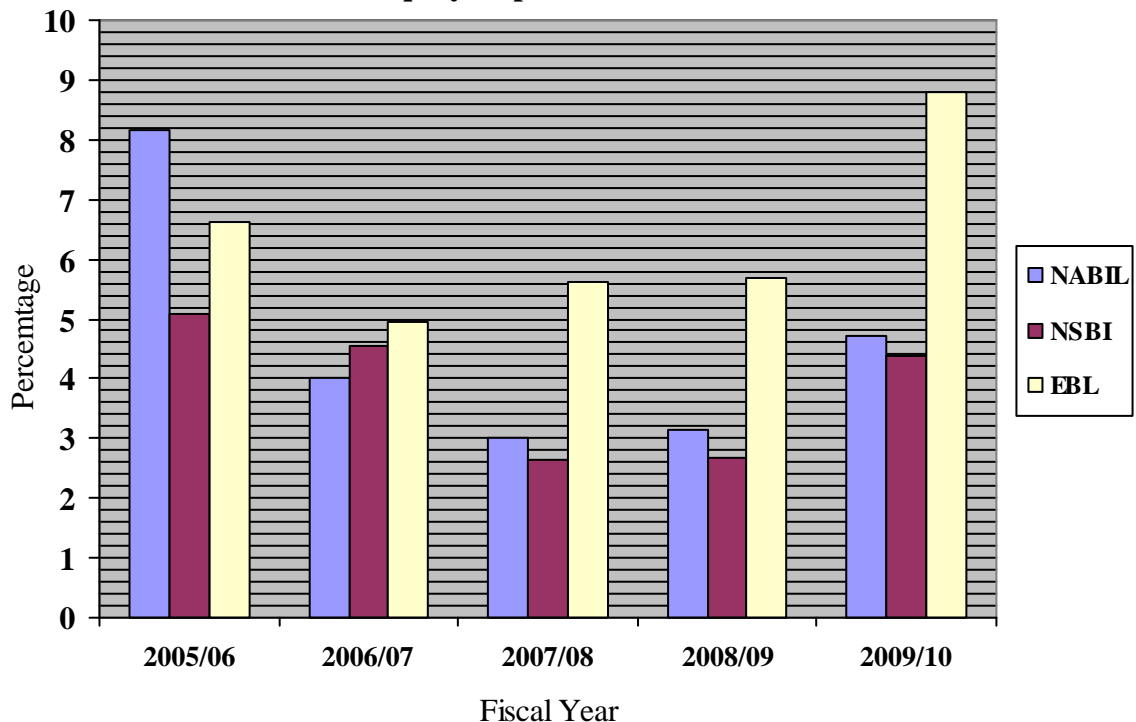
In above table and figure, it can be observed that the equity capitalization rate of NABIL is in fluctuating trend over the study periods ranging from 3% in the fiscal year 2007/08 to 8.15% in the fiscal year 2005/06. In contrast that the bank can not generate enough earnings before tax as increase in market value of share. Its average cost of equity is 4.60%, while standard deviation and C.V is 0.02 and 38.53% respectively.

Likewise, the equity capitalization rate of NSBI is in decreasing trend for the first three fiscal years i.e. 5.10% in the FY 2005/06 to 2.63% in the FY 2007/08.Then after, it increased in 2008/09 and 2009/10 i.e. 2.67% and 4.39% respectively. Market value of share has been increasing for the first four FYs i.e. Rs. 3918.24 millions in the FY 2005/06 to Rs. 16616.03 millions in the FY 2008/09. Finally, it decreased in the FY 2009/10 i.e. Rs. 12253.35 millions. The average cost of equity is 3.87% while the standard deviation and C.V is 0.01 and 25.76% respectively.

Similarly, market value of share of EBL has increased for the first four study periods i.e. Rs. 5212.62 millions in the FY 2005/06 and Rs. 15683.06 millions in the FY 2008/09. Finally, in the FY 2009/10, its MV of shares has decreased i.e. Rs. 13536.62 millions. However, equity capitalization rate of EBL has decreased till FY 2006/07 i.e. 6.63% in the FY 2005/06 and 4.95% in the FY 2006/07. Then after, it has increased gradually over the end of the study periods i.e. 5.63% in the FY 2007/08, 8.78% to 8.78% in the FY 2009/10. The average Ke is 6.33% with 0.01 standard deviation and 22.91% C.V.

Comparatively, these three banks regarding Ke, EBL have greater capability to make shareholders satisfaction since its Ke is greatest among others with greater stability i.e. lowest percent of C.V. However, NSBI has the lowest value of Ke, with moderate variability where as NABIL has greater variability.

4.3 Leverage Analysis

Leverage and capital structure are closely related concepts linked to cost of capital and therefore capital budgeting decision. Leverage involves the use of fixed operating costs (depreciation, salaries, rent etc) and fixed capital costs (interest, preferred stock

dividend) by a firm. Change in leverage results change in level of return and associated risk. Generally, increase in leverage increases the firm's return and risk. The amount of leverage is the mix of long term debt and equity maintain by the firm can significantly affect its value by affecting risk and return, because of its value the financial manager must understand how to measure and evaluate leverage when attempting to create the best capital structure.

Leverage is used to describe about utilization of funds for which the firm has to pay fixed costs and to have more return than normal having more risk as well. Leverage may be used to boost owner's return but it is used as the risk of increasing losses if the firms' economic fortune declines. Thus gain and losses are magnified by leverage. Thus, higher the leverage employed by the firm, the greater will be the volatility of its return. There are three types of leverage i.e. operating leverage- its shows the relationship between EBIT and sales. It is measured in degree of operating leverage which indicates the business risk. Financial leverage- shows the relationship between EBIT and EPS and indicates financial risk and combined leverage, that shows firm's overall volatility of EPS due to the use of fixed operating and capital costs, as sales level change.

However, financial leverage is related to the capital structure of the firm, it is the relevant issue of this study which is explained in this study.

4.3.1 Analysis of Financial Leverage

Financial leverage exists when a company employs funds in the capital structure carrying fixed charges like interest. Even though, the high leverage creates the advantage of tax shield, it affects to the owners return as well as net profit. Financial leverage shows the relationship between EBIT and net income of the company. In other words, it measures the financial risk of the company. DFL can be calculated either dividing percentage change in EPS by percentage change in EBIT or simply EBIT by EBT.

<div align="center">Table 4.14</div>

<div align="center">**Degree of Financial Leverage**</div>

(Ratio in Times)

FY	NABIL			NSBI			EBL		
	EBIT	EBT	DFL	EBIT	EBT	DFL	EBIT	EBT	DFL
2005/06	1255.16	898.00	1.40	534.53	199.76	2.68	747.00	345.60	2.16
2006/07	1550.76	995.05	1.56	758.85	346.59	2.19	971.87	454.70	2.14
2007/08	1847.43	1088.99	1.70	802.95	348.04	2.31	1498.76	866.15	1.73
2008/09	2631.94	1478.66	1.78	1267.73	443.03	2.86	1904.19	891.32	2.14
2009/10	3584.59	1624.48	2.21	1982.06	538.37	3.68	2760.78	1187.99	2.32
Mean			1.73			2.74			2.10
S.D			0.27			0.53			0.20
C.V (%)			15.74			19.28			9.36

(Source: Appendix I)

<div align="center">**Figure 4.15**</div>

<div align="center">**Degree of Financial Leverage**</div>
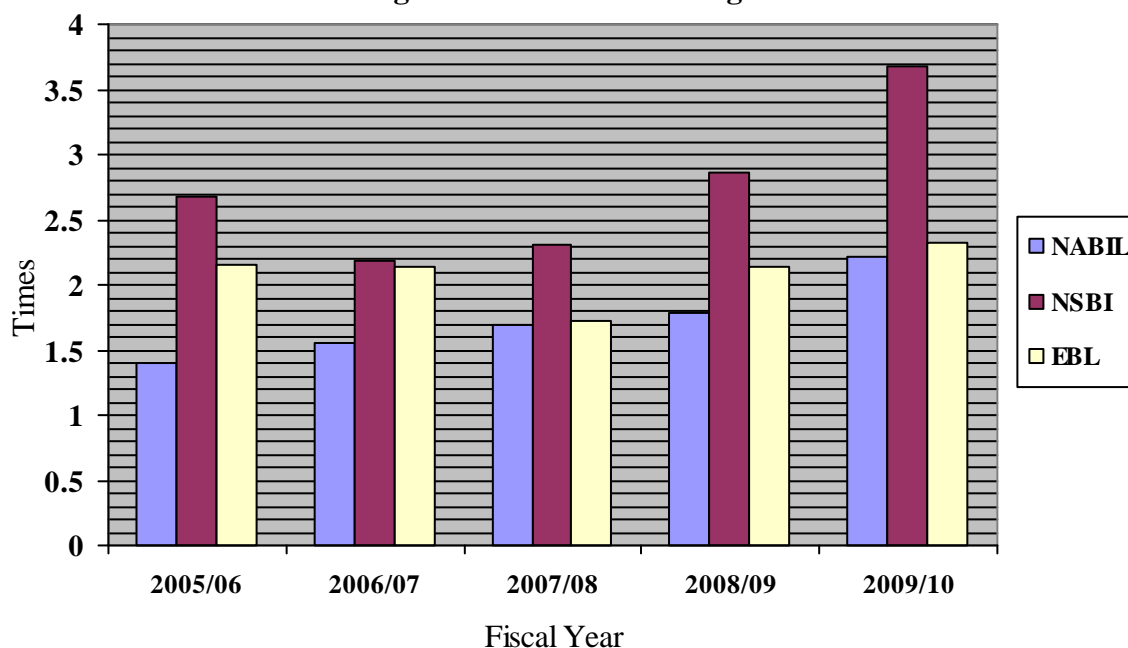
From the above table and figure, it can be observed that the DFL of NABIL is in increasing trend over the study periods. The DFL of NABIL is increasing from 1.40 times in the FY 2005/06 to 2.21 times in the FY 2009/10. The average DFL is 1.72 times with S.D of 0.27 and 15.74% C.V. Similarly, the DFL of NSBI is in fluctuating trend. Its DFL minimum of 2.19 times in the FY 2006/07 and highest is 3.68 times in

the FY 2009/10. The average DFL is 2.74 times and S.D, C.V is 0.53 and 19.28% respectively.

Likewise, the DFL of EBL is in decreasing trend for the first three FYs i.e. 2.16 times in the FY 2005/06 to 1.73 times in the FY 2007/08.Then after, it increases gradually and finally it is highest in 2009/10 i.e. 2.32 times. However, the average DFL is 2.10 times, S.D is 0.20 and C.V is 9.36%.

Comparing these three banks on the basis of DFL, NSBI is regarded as the riskiest bank consisting financial risk since its DFL is highest and NABIL is regarded as least risky bank consisting least financial risk. On the basis of C.V, it can be concluded that EBL consists high stability in DFL since its C.V is lowest and NSBI consists high variability in DFL since its C.V is highest.

4.1.4. Statistical Analysis

Under this part of analysis, the impact of capital structure on profitability of the bank has been measured and the trend value of debt equity ratio and the net profit for the forthcoming five fiscal years have been estimated.

4.1.4.1. Relationship between Debt Equity Ratio and NPAT

The net profit of the bank somewhat depends upon the capital structure. So the impact of DER to the NPAT is measured using correlation coefficient and regression analysis.

Table 4.15

Relationship between DER and NPAT

Banks	r	P.E	6 P.E	Regression	Remarks
NABIL	-0.0438	0.3011	1.8064	NPAT = 858.80 – 35.97 DER	Insignificant
NSBI	-0.2111	0.2882	1.7292	NPAT = 345.28 – 125.74 DER	Insignificant
EBL	-0.1212	0.2972	1.7833	NPAT = 615.23 – 523.63 DER	Insignificant

(Source: Appendix III)

The table shows that DER has negative relationship with NPAT in all these three banks. As the correlation coefficient between these two variables is 0.0438 in NABIL, -0.2111 in NSBI and -0.1212 in EBL. This shows that all these banks should decrease

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its long term debt or increase shareholders equity to increase net profit after tax. However, NABIL has least negative correlation and NSBI has higher negative correlation between DER and NPAT.

The regression analysis shows that 1% increase in DER leads to Rs. 35.97 million decreases in NPAT of NABIL, Rs. 125.74 million decreases in NSBI and Rs. 523.63 million in EBL. However, NPAT is not totally depends upon DER, since the calculated correlation coefficient between two variables is lower than 6 P.E of all three banks. Thus, it can be assumed that the relationship between DER and NPAT is statistically insignificant and thus it is not obligatory that net profit should increase/decrease with the increase/decrease of DER in NABIL, NSBI and EBL.

4.1.4.2 Relationship between Debt Ratio and NPAT

To measure the relationship between DR and NPAT, NPAT is considered as dependent variable on independent variable DR.

Table 4.16

Relationship between DR and NPAT

Banks	r	P.E	6 P.E	Remarks
NABIL	0.3511	0.2645	1.5868	Insignificant
NSBI	0.4384	0.2437	1.4620	Insignificant
EBL	-0.4484	0.2410	1.4460	Insignificant

(Source: Appendix III)

The table shows that NABIL and NSBI has low positive correlation between total debt to total assets ratio and NPAT and such a correlation is negative in EBL. The correlation between these two variables is 0.3511 in NABIL, 0.4384 in NSBI and -0.4484 in EBL. The positive correlation indicates that the increment in total debt capital can lead increment in net profit and negative correlation indicates that the increment in total debt capital can lead decrement in the NPAT that is in EBL.

Comparatively, the effect of debt ratio in NPAT is higher in EBL than in NSBI and NABIL. However, the relationship between these variables is statistically insignificant in all these sampled banks, since value of 'r' is less than 6 P.E. Therefore, the NPAT may or may not change as change in debt ratio.

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4.1.4.3 Trend Analysis of NPAT

Under trend analysis of net profit after tax, we have assumed NPAT is dependent variable on independent variable time period. Then the estimated value of net profit for the forthcoming periods and regression equation of Net profit on time period have been presented in the table below:

Table 4.17

Estimated Values of NPAT

FY	NABIL	NSBI	EBL
2005/06	572.22	143.37	188.36
2006/07	708.64	204.46	337.91
2007/08	845.06	265.56	487.46
2008/09	981.48	326.65	637.01
2009/10	1117.90	387.75	786.56
2010/11	1254.32	448.84	936.11
2011/12	1390.74	509.94	1085.66
Regression	NPAT=845.06+ 136.42×X	NPAT=265.556+ 61.095×X	NPAT=487.46+ 149.55×X

(Source: Appendix IV)

Figure 4.16
Estimated values of NPAT
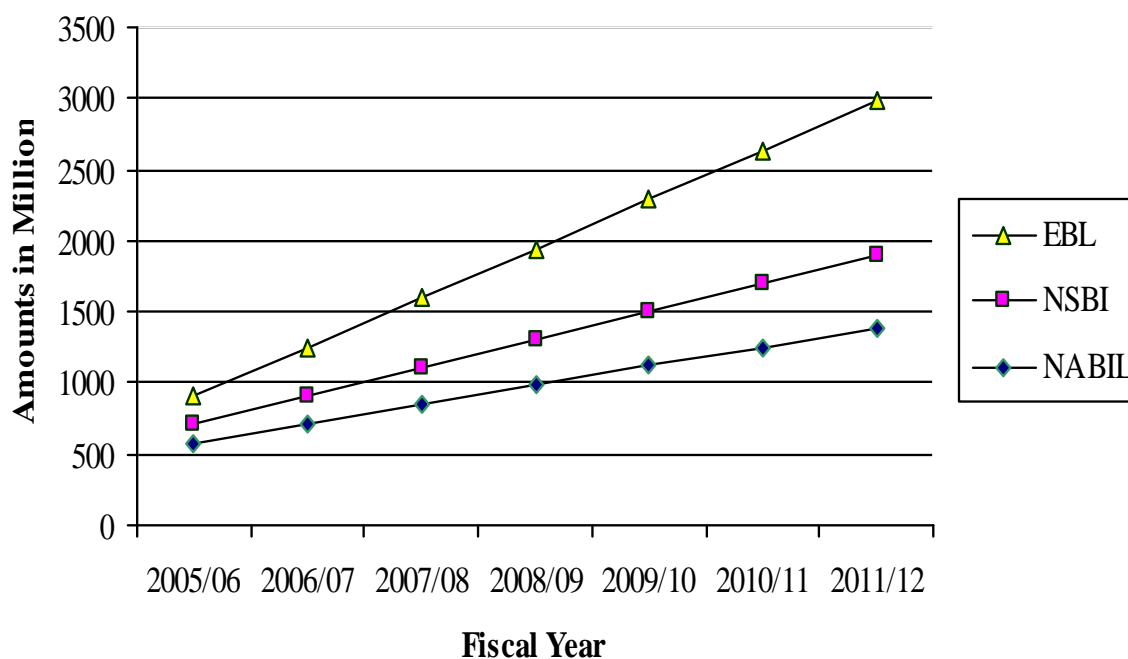
Trend analysis of NPAT indicates that the NPAT of all these banks will have positive relationship with the time period and thus net profit of all these banks will increase in forthcoming fiscal years. The NPAT of NABIL will increase by Rs. 136.42 million in each FY that of NSBI will increase by Rs. 61.095 million and that of EBL will

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increase by Rs. 149.55 million. This indicates that the pace of growth of NPAT in NSBI will be lower than NABIL and EBL where EBL will be greater in future. Finally, in the FY 2011/12, the estimated value of NPAT of NABIL, NSBI and EBL will be Rs. 1390.74, 509.94 and 1085.66 million respectively.

4.1.4.3 Trend Analysis of DER

Debt Equity ratio has been considered as dependent variable on independent variable time period. Then the estimated debt equity ratios for the forthcoming five fiscal years are shown in the following table:

Table 4.18

Estimated Values of DER

FY	NABIL	NSBI	EBL
2005/06	0.34	1.08	0.26
2006/07	0.36	0.86	0.25
2007/08	0.38	0.63	0.24
2008/09	0.40	0.41	0.24
2009/10	0.43	0.19	0.23
2010/11	0.45	-0.04	0.22
2011/12	0.47	-0.26	0.21
Regression	DER= 0.3820 + 0.022 $\times$X	DER= 0.6340 – 0.224 $\times$X	DER= 0.244 – 0.009 $\times$X

(Source: Appendix IV)

Figure 4.17

Estimated values of DER
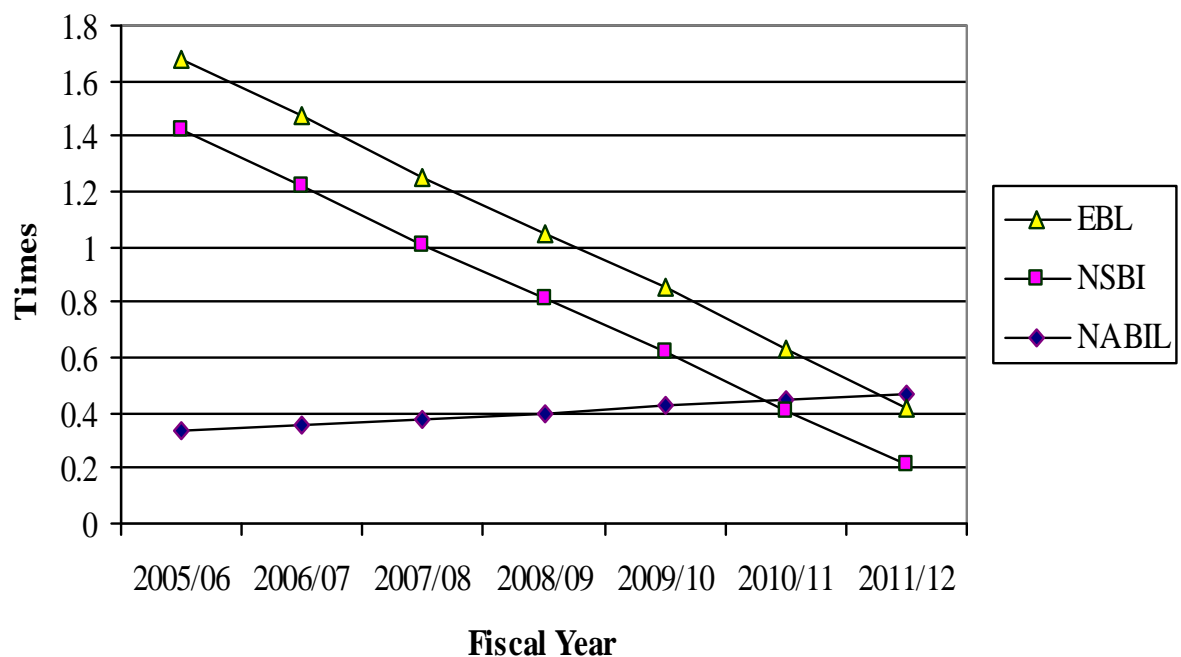
Fiscal Year

The above table, trend analysis of debt equity ratio shows that debt equity ratio of NABIL will be in increasing trend, that mean NABIL is going to increase its debt amount in the forthcoming fiscal years, whereas NSBI and EBL will prefer to decrease the debt equity ratio. The debt equity ratio of NABIL will increase debt by 0.022 times in each fiscal year; NSBI will decrease its debt by 0.224 times each fiscal years. Similarly, EBL will cut off its long term debt by 0.009 times each forthcoming fiscal year. By the end of FY 2011/12, the estimated value of DER of NABIL will be 0.47 times which indicates the bank will finance its fund almost half of equity as long term debt capital. The debt equity ratio in the fiscal year 2011/12 will be 0.21 of EBL which refers extensive use of equity than long term debt.

Major findings of the study

On the basis of the analysis, the following major findings have been drawn;

⬦The equity capital financing of all the banks are greater than the long term debt financing, as a result the average debt equity ratio of NABIL is 0.38 times, NSBI is 0.63 times and that of EBL is 0.24 times. Comparatively, NSBI uses more long term debt.

⬦The usage of long term debt in term of total debt in NSBI is about two times higher than that of NABIL and three times higher than that of EBL. Consequently, the average long term debt to total debt of NABIL, NSBI and EBL is 2.92%, 5.51% and 1.62% respectively.

⬦Total assets of EBL is more risky than that of NABIL and NSBI, since the average debt ratio of EBL i.e. 93.84% is higher than that of NABIL i.e. 92.60% and NSBI 92.39%.

⬦The current asset of NSBI is more promising to meet the short term debt than that of NABIL and EBL. The average current assets to short term debt of NABIL, NSBI and EBL is 1.10 times, 1.14 times and 1.07 times respectively indicating strong solvency in NSBI.

⬦EBIT of NABIL is stronger than that of NSBI and EBL in meeting the interest liability. The average interest coverage ratio of NABIL is 2.57 times, that of NSBI is 1.62 times and that of EBL is 1.95 times.

⬦The EPS of NABIL is greater than that of EBL and more than three times greater than that of NSBI. The average EPS of NABIL, NSBI and EBL is Rs. 111.99, Rs. 29.16 and Rs. 86.63 respectively.

⧫Dividend per share of NABIL is more than 4 times greater than that of NSBI and more than two times greater than that of EBL. The average DPS of NABIL is Rs. 96, that of NSBI is Rs. 22.40 and that of EBL is Rs. 47.

⧫Further, NABIL is much efficient than NSBI and EBL in mobilizing equity capital, total assets and total deposits to yield profit. The average ROE, ROA and ROD of NABIL is 32%, 2.37% and 2.75% respectively, those of NSBI is 17.16%, 1.25% and 1.47% respectively and those of EBL is 26.25%, 1.62% and 1.87% respectively.

⧫NSBI is in better position than NABIL and EBL in fulfilling investors' expectations, since its P/E ratio is greater than that of NABIL and EBL. However, the average P/E ratio of NSBIL is 35.82 times, that of NSBI is 40.10 times and that of EBL is 25.58 times.

⧫The NI approach shows that the value of the firm of NABIL is greater that of NSBI and EBL with the lowest overall cost of capital. The average overall capitalization rate of NABIL, NSBI and EBL is 7.54%, 9.78% and 12.88% respectively. Similarly, average value of the firm of NABIL, NSBI and EBL is Rs. 31813.76 million, 11535.02 million and 12244.95 million respectively. In addition to this, analysis of capital structure of sampled banks under NOI approach shows that the average equity capitalization rate of NABIL, NSBI and EBL is 4.6%, 3.87% and 6.33% respectively.

⧫The degree of financial leverage shows the financial risk of the firm and capital structure of NSBI consist more financial risk than that NABIL and EBL, since the value of DFL is greater than other two banks. The average DFL of NABIL, NSBI and EBL is 1.73 times, 2.74 times and 2.10 times respectively.

⧫The statistical analysis shows that the correlation coefficient between DER and NPAT is -0.0438 in NABIL, -0.2111 in NSBI and -0.1212 in EBL, statistically insignificant in all these samples banks. Similarly, correlation coefficient between debt ratio and NPAT is 0.3511 in NABIL, 0.4384 in NSBI and -0.4484 in EBL, statistically insignificant in all the sampled banks.

⧫Trend analysis shows that NPAT will be Rs. 1390.74 million in NABIL, Rs. 509.94million in NSBI and Rs. 1085.66 million in EBL by the end of FY 20011/12. Similarly, the DER of NABIL will be 0.47 times, that of NSBI will be -0.26 times and that of EBL will be 0.21 times by the end of FY 20011/12.

CHAPTER-V
SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter is the last chapter of this study. This chapter is divided into three sections; Summary, Conclusion and recommendation. Generally, summary represents the short form of the study: conclusion represents the some idea and view from the analysis and presentation of data and recommendation represents some suggestions that could be useful to stockholders, future researchers and concerned banks as well. They can use these suggestions to take required corrective actions.

5.1 Summary

The capital structure of the company involves the choice of an appropriate mix of different sources of funds i.e. owners funds and outsiders funds. Normally, there are two forms of capital: equity capital and debt capital. Even though, each capital has its own benefit and drawbacks, the management should take appropriate decision regarding its capital structure that structure should maximize shareholders wealth with the least overall cost of capital. Because capital structure is very important element for the firm's profitability, it should select and use appropriate debt equity ratio. Therefore, the successful selection and use of the debt equity ratio is one of the key elements of the firm's financial strategy.

This study is conducted to analyze about capital structure management of commercial banks with preference to three joint venture commercial banks; Nabil Bank Limited, Nepal SBI Bank Limited and Everest Bank Limited. To make the study more reliable, the whole study has been divided into five chapters. This study endeavors to evaluate capital structure of commercial banks with reference to the sampled companies. The main objective of the study is to examine analysis and interpret the impact of capital structure on profitability of commercial banks. For the realistic study, review of various books, research studies and articles have been used. Various sequential steps to adopt a systematic analysis have been explained in third chapter. Most of the data used in this study are secondary in nature. Five years of data i.e. FY 2005/06 to FY 2009/10 are taken as sampled years, which are analyzed by using financial and statistical tools, such as ratio analysis, leverage analysis, correlation analysis, regression analysis, trend analysis etc. It has employed simple regression model to evaluate the relationship between net profit after tax with debt equity ratio and debt equity ratio. Least square method have been used

to calculate trend values for NPAT and DER, All these calculations were done using Microsoft Excel which are presented in the appendix.

5.2 Conclusion

This study is particularly deals with conclusion about "A Study of Capital Structure Management of Commercial Banks- NABIL, NSBI and EBL." The capital structure decision is crucial because of the need to maximize returns to various organizational constituencies and also because of the impact such a decision has an organizational ability to deal with its competitive environment. This, present study evaluates the capital structure ratios and the relationship between capital structure and profitability of the firms.

Analyzing the capital structure of the banks, it has been found that NSBI is more risk taker than NABIL and EBL, since the debt equity ratio of NSBI is greater than that of NABIL and EBL and as a result, capital structure of NSBI is more dominated by the debt capital than in NABIL and EBL. However, EBL is least risk taker than NABIL and NSBI, since its debt equity ratio is less than others and NABIL prefer moderate risk as compare to other two banks. On the basis of long term debt to total debt ratio, it has been found that EBL is more risk taker than NABIL and NSBI, since the usage of short term debt in total debt is higher in EBL. Because, short term debt carries higher risk than long term debt, it can be conclude that the total assets of NABIL and EBL bears greater risk than that of NSBI. More specifically, the total assets of EBL is slightly risky than that of NABIL and NSBI, since the average debt ratio of EBL is greater than NABIL and NSBI. In addition to these, the solvency position of NSBI is greater than that of NABIL and EBL, since the average current asset to short term debt ratio of NSBI is comparatively higher than that of NABIL and EBL. Eventually, EBIT of NABIL has greater capacity to meet the interest expenses on long term debt, since interest coverage ratio of NABIL is greater than that of NSBI and EBL.

Analyzing the profitability of the banks, it can be concluded that NABIL is stronger than NSBI and EBL in terms of profitability, since the EPS and DPS of NABIL is higher than that of NSBI and EBL almost in each fiscal year. Further, NABIL is most efficient in mobilizing equity capital. As a result, NABIL has earned more profit form same rupees of investment of equity. Also NABIL is more efficient in mobilizing total assets and total deposits, since the net profit generation from mobilizing equal amount of total assets and

total deposits is higher in NABIL than in NSBI and EBL. Therefore, it can be concluded that profitability management of NABIL is stronger than that of NSBI and EBL. Among these three banks, EBL stands in second position for its profitability management and NSBI stands in last position. Moreover, price earnings ratio of NSBI is higher than that of NABIL and EBL.

Analyzing the capital structure of the banks under NI approach, NABIL is regarded as in strong position, since its average value of the firm is very high than that of NSBI and EBL with lowest overall capitalization rate. So it can be said that NABIL has optimal capital structure. Similarly, equity capitalization rate of EBL is greater than that of NABIL and NSBI. In addition to this, the capital structure of NSBI is more risky in terms of financial risk, since its value of DFL is greater than that of NABIL and EBL. NABIL consist lowest financial risk.

The statistical analysis aids to conclude that the net profit is not totally depends on the DER, since the calculated correlation coefficient between these two variables is lower than the value of 6 P.E of these three banks. The effect of debt ratio in NPAT is higher in EBL than in NABIL and NSBI, but net profit may or may not change due to change in debt ratio, since the relationship between these two variables is statistically insignificant in all these sampled banks. However, the trend analysis shows that NPAT will in increasing trend in all the sampled banks. The growth rate in NPAT of EBL is higher than that of NABIL and NSBI. Similarly, the trend analysis of DER shows that NABIL will increase its DER in forthcoming fiscal years whereas NSBI and EBL will decrease its long term debt.

5.3 Recommendations

On the basis of the above analysis, the following recommendations are suggested. It is expected that the provided suggestions would be helpful to the concerned banks to take appropriate decision regarding to the capital structure.

◆It would be worthwhile if the bank measures the ratio of debt to equity ratio that generates higher profit and then practices such ratio, since NABIL and EBL have used low long term debt in comparison to equity capital than that of NSBI.

◆The weight of long term debt to total debt in NABIL and EBL is very low. Both the banks are recommended to increase the amount of long term debt to minimize the risk, as the short term debt carries higher risk.

◆Even though the solvency position of NSBI is strong than that of NABIL and EBL, it should be aware that the ratio is in decreasing trend and should increase its current asset or decrease its short term debt to be stable sound solvency position.

◆NSBI needs to decrease operating expenses to increase EBIT, since its EBIT is very low than that of NABIL and EBL and to have strong position to meet the interest liability.

◆The EPS is directly proportional to the net profit of the company, as the net profit increases the EPS also raises. Therefore, the banks should give a proper attention towards their operation to earn adequate amount of profit. Thus, NSBI should increase its EPS. Moreover, NSBI has weak earnings as compare to NABIL and EBL and it needs to restructure the capital structure, decrease costs and increase investments in high yield profitable sectors to have strong profitability.

◆Most of the Nepalese investors are very much concerned about the payment of cash dividends. So dividend payout ratio should be determined considering the shareholder' expectation and the growth requirement of the banks. Thus, NABIL and NSBI should maintain consistent dividend payout ratio.

◆The sampled banks need to adopt moderate policy. This means that the bank should balance between the equity capital and the debt capital to obtain optimal capital structure and to minimize all kinds of risks and to increase after tax profit.

◆More specifically, NSBI seems to weak position in comparison to NABIL and EBL in most of the aspects and strongly recommended that the management should be considered about the existing managers, staffs, banking technologies and capital structure of the bank.

◆The banks are established to uplift the economic development of the nation. The economic development is possible developing the urban as well as rural part of the nation. There is no doubt that the sampled have been playing significant role in contributing in the modern banking system. But the rural areas should not be neglected. To make balanced development of the nation, all these banks are recommended to think about the extension of branches towards such areas.

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APPENDIX-I: Calculation of Standard Deviation and Coefficient of Variation

1. Debt Equity Ratio:

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$(X-\overline{X})^2$	X	$\overline{X}$	$(X-\overline{X})^2$	X	$\overline{X}$	$(X-\overline{X})^2$
2005/06	0.09	0.38	0.0841	0.82	0.63	0.0361	0.31	0.24	0.0049
2006/07	0.43	0.38	0.0025	0.87	0.63	0.0576	0.24	0.24	0.0000
2007/08	0.66	0.38	0.0784	1.29	0.63	0.4356	0.15	0.24	0.0081
2008/09	0.63	0.38	0.0625	0.11	0.63	0.2704	0.27	0.24	0.0009
2009/10	0.10	0.38	0.0784	0.08	0.63	0.3025	0.25	0.24	0.0001
$\Sigma(X-\overline{X})^2$			0.3059			1.1022			0.0140
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			0.25			0.47			0.05
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			65.09			74.53			22.05

2. Long term Debt to Total Debt Ratio

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	0.85	2.92	4.2984	6.74	5.51	1.5132	1.96	1.62	0.1134
2006/07	3.50	2.92	0.3396	7.97	5.51	6.0573	1.45	1.62	0.0280
2007/08	4.61	2.92	2.8613	11.59	5.51	36.9211	1.17	1.62	0.2060
2008/09	4.86	2.92	3.7778	0.70	5.51	23.1083	1.73	1.62	0.0130
2009/10	0.78	2.92	4.5922	0.56	5.51	24.4843	1.80	1.62	0.0309
$\Sigma(X-\overline{X})^2$			15.8693			92.0842			0.3912
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			1.78			4.29			0.28
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			61.01			77.89			17.27

3. Debt Ratio

FY	NABIL X	NABIL $\overline{X}$	NABIL $\Sigma(X-\overline{X})^2$	NSBI X	NSBI $\overline{X}$	NSBI $\Sigma(X-\overline{X})^2$	EBL X	EBL $\overline{X}$	EBL $\Sigma(X-\overline{X})^2$
2005/06	91.60	92.60	0.9935	92.46	92.39	0.0055	94.09	93.84	0.0630
2006/07	92.45	92.60	0.0219	91.63	92.39	0.5750	94.50	93.84	0.4375
2007/08	93.44	92.60	0.6998	91.77	92.39	0.3852	93.05	93.84	0.6228
2008/09	92.86	92.60	0.0699	92.03	92.39	0.1267	94.12	93.84	0.0807
2009/10	92.64	92.60	0.0014	93.56	92.39	1.3672	93.43	93.84	0.1697
$\Sigma(X-\overline{X})^2$			1.7864			2.4596			1.3737
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			0.60			0.70			0.52
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times 100$			0.65			0.76			0.56

4. Current Assets to Short Term Debt

FY	NABIL X	NABIL $\overline{X}$	NABIL $\Sigma(X-\overline{X})^2$	NSBI X	NSBI $\overline{X}$	NSBI $\Sigma(X-\overline{X})^2$	EBL X	EBL $\overline{X}$	EBL $\Sigma(X-\overline{X})^2$
2005/06	1.09	1.10	0.0001	1.15	1.14	0.0001	1.07	1.07	0.0000
2006/07	1.11	1.10	0.0001	1.18	1.14	0.0016	1.07	1.07	0.0000
2007/08	1.10	1.10	0.0000	1.22	1.14	0.0064	1.07	1.07	0.0000
2008/09	1.11	1.10	0.0001	1.09	1.14	0.0025	1.07	1.07	0.0000
2009/10	1.07	1.10	0.0009	1.06	1.14	0.0064	1.08	1.07	0.0001
$\Sigma(X-\overline{X})^2$			0.0012			0.0170			0.0001
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			0.02			0.06			0.0047
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times 100$			1.41			5.1149			0.4382

5. Interest Coverage Ratio

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	3.51	2.57	0.8836	1.60	1.62	0.0004	1.86	1.95	0.0081
2006/07	2.79	2.57	0.0484	1.84	1.62	0.0484	1.88	1.95	0.0049
2007/08	2.44	2.57	0.0169	1.77	1.62	0.0225	2.37	1.95	0.1764
2008/09	2.28	2.57	0.0841	1.54	1.62	0.0064	1.88	1.95	0.0049
2009/10	1.83	2.57	0.5476	1.37	1.62	0.0625	1.76	1.95	0.0361
$\Sigma(X-\overline{X})^2$			1.5806			0.1402			0.2304
S.D.$(\sigma)=\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			0.56			0.17			0.21
$C.V.=\dfrac{\dagger}{\overline{X}}\times100$			21.88			10.34			11.01

6. Earnings per Share

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	129.21	111.99	296.53	18.27	29.16	118.59	62.78	86.63	568.82
2006/07	137.08	111.99	629.51	39.35	29.16	103.84	78.42	86.63	67.40
2007/08	108.31	111.99	13.54	28.33	29.16	0.69	91.82	86.63	26.94
2008/09	106.76	111.99	27.35	36.17	29.16	49.14	99.99	86.63	178.49
2009/10	78.61	111.99	1114.22	23.69	29.16	29.92	100.16	86.63	183.06
$\Sigma(X-\overline{X})^2$			2081.16			302.18			1024.71
S.D.$(\sigma)=\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			20.40			7.77			14.32
$C.V.=\dfrac{\dagger}{\overline{X}}\times100$			11.93			27.75			12.50

7. Dividend per Share

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	85.00	96.00	121.00	5.00	22.44	304.15	25.00	47.00	484.00
2006/07	140.00	96.00	1936.00	47.59	22.44	632.52	40.00	47.00	49.00
2007/08	100.00	96.00	16.00	0.00	22.44	503.55	50.00	47.00	9.00
2008/09	85.00	96.00	121.00	42.11	22.44	386.91	60.00	47.00	169.00
2009/10	70.00	96.00	676.00	17.50	22.44	24.40	60.00	47.00	169.00
$\Sigma(X-\overline{X})^2$			2870.00			1851.54			880.00
S.D.(σ)= $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			23.96			19.24			13.27
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			24.96			85.75			28.23

8. Return on Equity

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	33.88	32.00	3.5371	11.91	17.16	27.5628	24.64	26.25	2.6035
2006/07	32.76	32.00	0.5828	21.91	17.16	22.5814	24.67	26.25	2.4990
2007/08	30.63	32.00	1.8819	17.51	17.16	0.1258	23.49	26.25	7.6434
2008/09	32.94	32.00	0.8805	18.47	17.16	1.7242	28.98	26.25	7.4769
2009/10	29.77	32.00	4.9613	15.99	17.16	1.3787	29.50	26.25	10.5308
$\Sigma(X-\overline{X})^2$			11.8436			53.3729			30.7537
S.D.(σ)= $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			1.54			3.27			2.48
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			4.81			19.04			9.45

9. Return on Assets

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	2.84	2.37	0.2255	0.90	1.25	0.1242	1.46	1.62	0.0270
2006/07	2.47	2.37	0.0106	1.83	1.25	0.3407	1.36	1.62	0.0695
2007/08	2.01	2.37	0.1294	1.44	1.25	0.0367	1.63	1.62	0.0001
2008/09	2.35	2.37	0.0004	1.02	1.25	0.0514	1.70	1.62	0.0069
2009/10	2.19	2.37	0.0338	1.03	1.25	0.0486	1.94	1.62	0.1014
$\Sigma(X-\overline{X})^2$			0.3997			0.6016			0.2049
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			0.28			0.35			0.20
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			11.93			27.75			12.50

10. Return on Deposits

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	3.28	2.75	0.2846	1.06	1.47	0.1653	1.72	1.87	0.0230
2006/07	2.89	2.75	0.0188	2.23	1.47	0.5732	1.63	1.87	0.0577
2007/08	2.34	2.75	0.1690	1.81	1.47	0.1132	1.88	1.87	0.0001
2008/09	2.76	2.75	0.0001	1.13	1.47	0.1145	1.92	1.87	0.0022
2009/10	2.46	2.75	0.0859	1.12	1.47	0.1207	2.20	1.87	0.1112
$\Sigma(X-\overline{X})^2$			0.5584			1.0870			0.1942
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			0.33			0.47			0.20
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			12.15			31.72			10.54

11. Price Earnings Ratio

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	17.34	35.82	341.65	33.50	40.10	43.59	21.97	25.58	13.06
2006/07	36.84	35.82	1.04	29.89	40.10	104.33	30.99	25.58	29.24
2007/08	48.70	35.82	165.97	53.34	40.10	175.18	34.11	25.58	72.76
2008/09	45.89	35.82	101.36	52.52	40.10	154.14	24.55	25.58	1.06
2009/10	30.33	35.82	30.17	31.28	40.10	77.81	16.27	25.58	86.60
$\Sigma(X-\overline{X})^2$			640.20			555.06			202.72
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			11.32			10.54			6.37
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			31.59			26.27			24.89

12. Overall Cost of Capital

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	11.22	7.54	13.55	11.30	9.78	2.31	13.55	12.88	0.45
2006/07	6.03	7.54	2.28	8.79	9.78	0.98	10.25	12.88	6.94
2007/08	4.87	7.54	7.14	5.34	9.78	19.73	9.55	12.88	11.08
2008/09	5.34	7.54	4.84	7.54	9.78	5.02	11.69	12.88	1.43
2009/10	10.26	7.54	7.42	15.92	9.78	37.65	19.39	12.88	42.33
$\Sigma(X-\overline{X})^2$			35.23			65.69			62.22
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			2.65			3.62			3.53
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			35.21			37.06			27.39

13. Equity Capitalization Rate

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	8.15	4.60	12.63	5.10	3.87	1.51	6.63	6.33	0.09
2006/07	4.01	4.60	0.35	4.55	3.87	0.46	4.95	6.33	1.90
2007/08	3.00	4.60	2.57	2.63	3.87	1.53	5.63	6.33	0.49
2008/09	3.13	4.60	2.17	2.67	3.87	1.45	5.68	6.33	0.42
2009/10	4.70	4.60	0.01	4.39	3.87	0.27	8.78	6.33	5.98
$\Sigma(X-\overline{X})^2$			17.74			5.22			8.89
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			1.88			1.02			1.33
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			40.95			26.41			21.06

14. Degree of Financial Leverage

FY	NABIL			NSBI			EBL		
	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$	X	$\overline{X}$	$\Sigma(X-\overline{X})^2$
2005/06	1.40	1.73	0.1104	2.68	2.74	0.0041	2.16	2.10	0.0038
2006/07	1.56	1.73	0.0294	2.19	2.74	0.3031	2.14	2.10	0.0014
2007/08	1.70	1.73	0.0011	2.31	2.74	0.1874	1.73	2.10	0.1366
2008/09	1.78	1.73	0.0025	2.86	2.74	0.0148	2.14	2.10	0.0013
2009/10	2.21	1.73	0.2272	3.68	2.74	0.8866	2.32	2.10	0.0501
$\Sigma(X-\overline{X})^2$			0.3706			1.3960			0.1933
S.D.$(\sigma)=$ $\sqrt{\dfrac{\Sigma(X-\overline{X})^2}{N}}$			0.27			0.53			0.20
$C.V.$ $=\dfrac{\dagger}{\overline{X}}\times100$			15.74			19.28			9.36

APPENDIX-II: Calculation of value of the firm
V=B+S

FY	NABIL			NSBI			EBL		
	MVS	B	V	MVS	B	V	MVS	B	V
2005/06	11013.06	173.20	11186.26	3918.24	812.42	4730.66	5212.62	300.00	5512.62
2006/07	24828.55	882.57	25711.12	7618.11	1015.36	8633.47	9185.40	300.00	9485.40
2007/08	36356.14	1600.00	37956.14	13214.12	1827.48	15041.60	15390.65	300.00	15690.65
2008/09	47311.95	1981.31	49293.26	16616.03	200.00	16816.03	15683.06	612.00	16295.06
2009/10	34547.12	374.90	34922.02	12253.35	200.00	12453.35	13536.62	704.40	14241.02
Average			31813.76			11535.02			12244.95

APPENDIX-III: Calculation of Correlation Coefficient

1. NPAT and Debt Equity Ratio
a. NABIL

FY	X(DER)	Y(NPAT)	XY	X^2	Y^2
2005/06	0.09	635.26	57.17	0.01	403555.27
2006/07	0.43	673.96	289.80	0.18	454222.08
2007/08	0.66	746.47	492.67	0.44	557217.46
2008/09	0.63	1031.05	649.56	0.40	1063064.10
2009/10	0.10	1138.57	113.86	0.01	1296341.64
N = 5	ΣX=1.91	ΣY=4225.31	ΣXY=1603.06	ΣX^2=1.04	ΣY^2=3774400.56

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

$$= \frac{5 \times 1603.06 - 1.91 \times 4225.31}{\sqrt{5 \times 1.04 - 1.91^2}\sqrt{5 \times 3774400.56 - 4225.31^2}}$$

$$= -0.0428$$

$$P.E = 0.6745 \times \frac{1-r^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1-(-0.0438)^2}{\sqrt{5}}$$

$$= 0.3011$$

Regression Line

Regression equation of NPAT (Y) on DER (X) is given by

Y = a + bX-------------------- (i)

The values of a and b can be determined by solving the following two normal equations (applying a principle of method of least square)

d**Y = Na + bdX** --------------- **(ii)**

d**XY = adX + b dX^2** ----------- **(iii)**

Substituting the values of N, ΣX, ΣY, ΣXY, ΣX^2 and ΣY^2 in equation ii and iii, we get,

4225.31 = 5a + b 1.91

$\therefore$ 5a +1.91b = 4225.31-------- **(iv)**

1603.06 = a 1.91 + b 1.04

$\therefore$ 1.91a +1.04b = 1603.06-------- **(iv)**

Now, applying [Eq^n iv × 1.91 – Eq^n v × 5] we get,

9.55a +3.65b	= 8070.34
9.55a +5.20b	= 8015.30
- -	-_____

_____

-1.55 b	= 55.04
$\therefore$ b	= - 35.5097

Putting the value of b in Eq^n (iv), we get,

5a + 1.91 × -35.5097 = 4225.31

∴ a = 858.6267

Substituting the value of a and b in Eq^n (i), we get the regression equation NPAT on DER,

$$\boxed{\text{NPAT} = 858.63 - 35.51 \text{ DER}}$$

b. NSBI

FY	X(DER)	Y(NPAT)	XY	X^2	Y^2
2005/06	0.82	117.00	95.94	0.67	13689.00
2006/07	0.87	254.90	221.76	0.76	64974.01
2007/08	1.29	247.77	319.62	1.66	61389.97
2008/09	0.11	316.37	34.80	0.01	100089.98
2009/10	0.08	391.74	31.34	0.01	153460.23
N=5	ΣX=3.17	ΣY=1327.78	ΣXY=703.47	ΣX²=3.11	ΣY²=393603.19

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

$$= \frac{5 \times 703.47 - 3.17 \times 1327.78}{\sqrt{5 \times 3.11 - 3.17^2} \sqrt{5 \times 393603.19 - 1327.78^2}}$$

$$= -0.2111$$

$$P.E = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1 - (-0.2111)^2}{\sqrt{5}}$$

$$= 0.2882$$

Regression Line

Regression equation of NPAT (Y) on DER (X) is given by

$$Y = a + bX \text{--------------------- (i)}$$

The values of a and b can be determined by solving the following two normal equations (applying a principle of method of least square)

$$d Y = Na + b dX \text{---------------- (ii)}$$
$$d XY = a dX + b \, dX^2 \text{----------- (iii)}$$

Substituting the values of N, ΣX, ΣY, ΣXY, ΣX^2 and ΣY^2 in equation ii and iii, we get,

$$1327.78 = 5a + b \, 3.17$$
$$\therefore \; 5a + 3.17 \, b = 1327.78 \text{-------- (iv)}$$

$$703.47 = a \, 3.17 + b \, 3.11$$
$$\therefore \; 3.17 \, a + 3.11 \, b = 703.47 \text{-------- (iv)}$$

Now, applying [Eq^n iv $\times$ 3.17 – Eq^n v $\times$ 5] we get,

$$15.85a + 10.0489b \quad = 4209.0626$$
$$9.55a + 15.5500b \quad = 3517.3500$$

$$
\begin{array}{llr}
- & - & - \rule{4cm}{0.4pt} \\
\hline
\end{array}
$$

$$-5.5011 \, b \quad = 691.7126$$
$$\therefore \; b \quad = -125.7408$$

Putting the value of b in Eq^n (iv), we get,

$$5a + 3.17 \times -125.7408 = 1327.78$$
$$\therefore \; a = 345.2757$$

Substituting the value of a and b in Eq^n (i), we get the regression equation NPAT on DER,

$$\boxed{\textbf{NPAT} = \textbf{345.28} - \textbf{125.74 DER}}$$

c. EBL

FY	X(DER)	Y(NPAT)	XY	X^2	Y^2
2005/06	0.31	237.20	73.53	0.10	56263.84
2006/07	0.24	296.40	71.14	0.06	87852.96
2007/08	0.15	451.20	67.68	0.02	203581.44
2008/09	0.27	638.70	172.45	0.07	407937.69
2009/10	0.25	813.80	203.45	0.06	662270.44
Total	1.22	2437.30	588.25	0.31	1417906.37

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

$$= \frac{5 \times 588.25 - 1.22 \times 2437.30}{\sqrt{5 \times 0.31 - 1.22^2}\sqrt{5 \times 1417906.37 - 2437.30^2}}$$

$$= -0.1212$$

$$P.E = 0.6745 \times \frac{1-r^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1-(-0.1212)^2}{\sqrt{5}}$$

$$= 0.2972$$

Regression Line

Regression equation of NPAT (Y) on DER (X) is given by

Y = a + bX--------------------- (i)

The values of a and b can be determined by solving the following two normal equations (applying a principle of method of least square)

$$d\mathbf{Y} = \mathbf{N}a + \mathbf{b}d\mathbf{X} \text{ --------------- (ii)}$$

$$d\mathbf{XY} = \mathbf{a}d\mathbf{X} + \mathbf{b}\, d\mathbf{X^2} \text{ ----------- (iii)}$$

Substituting the values of N, ΣX, ΣY, ΣXY, ΣX^2 and ΣY^2 in equation ii and iii, we get,

$$2437.30 = 5a + b\, 1.22$$

$$\therefore\ 5a + 1.22\, b = 2437.30 \text{ -------- (iv)}$$

$$588.25 = a\, 1.22 + b\, 0.31$$

$$\therefore\ 1.22\, a + 0.31\, b = 588.25 \text{ -------- (iv)}$$

Now, applying [Eq$^\text{n}$ iv $\times$ 1.22 – Eq$^\text{n}$ v $\times$ 5] we get,

$$6.10a + 1.4884b \qquad = 2973.5060$$

$$6.10a + 1.5500b \qquad = 2941.2500$$

$$\begin{array}{lll} - & - & \quad -\underline{\hspace{4cm}} \end{array}$$

$$\underline{\hspace{6cm}}$$

$$-0.0616\, b \qquad = 32.2560$$

$$\therefore\ b \qquad = -523.6364$$

Putting the value of b in Eq$^\text{n}$ (iv), we get,

$$5a + 1.22 \times -523.6264 = 2437.30$$

$$\therefore\ a = 615.2273$$

Substituting the value of a and b in Eq$^\text{n}$ (i), we get the regression equation NPAT on DER,

$$\boxed{\textbf{NPAT = 615.23 – 523.64 DER}}$$

1. NPAT and Debt Ratio

a. NABIL

FY	X(DR)	Y(NPAT)	XY	X^2	Y^2
2005/06	91.60	635.26	58189.82	8390.56	403555.27
2006/07	92.45	673.96	62307.60	8547.00	454222.08
2007/08	93.44	746.47	69750.16	8731.03	557217.46
2008/09	92.86	1031.05	95743.30	8622.98	1063064.10
2009/10	92.64	1138.57	105477.12	8582.17	1296341.64
N=5	ΣX=462.99	ΣY=4225.31	ΣXY=391468.00	ΣX²=42873.75	ΣY²=3774400.56

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

$$= \frac{5 \times 391468 - 462.99 \times 4225.31}{\sqrt{5 \times 42873.75 - 462.99^2}\sqrt{5 \times 3774400.56 - 4225.31^2}}$$

$$= 0.3511$$

$$P.E = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1 - \left(0.3511\right)^2}{\sqrt{5}}$$

$$= 0.2645$$

b. NSBI

FY	X(DR)	Y(NPAT)	XY	X^2	Y^2
2005/06	92.46	117.00	10817.82	8548.85	13689.00
2006/07	91.63	254.90	23356.49	8396.06	64974.01
2007/08	91.77	247.77	22737.85	8421.73	61389.97
2008/09	92.03	316.37	29115.53	8469.52	100089.98
2009/10	93.56	391.74	36651.19	8753.47	153460.23
N=5	$\Sigma X=461.45$	$\Sigma Y=1327.78$	$\Sigma XY=122678.89$	$\Sigma X^2=42589.64$	$\Sigma Y^2=393603.19$

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

$$= \frac{5 \times 122678.89 - 461.45 \times 1327.78}{\sqrt{5 \times 42589.64 - 461.45^2}\sqrt{5 \times 393603.19 - 1327.78^2}}$$

$$= 0.4384$$

$$P.E = 0.6745 \times \frac{1 - r^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1 - \left(0.4384\right)^2}{\sqrt{5}}$$

$$= 0.2437$$

c. EBL

FY	X(DR)	Y(NPAT)	XY	X^2	Y^2
2005/06	94.09	237.20	22318.15	8852.93	56263.84
2006/07	94.50	296.40	28009.80	8930.25	87852.96
2007/08	93.05	451.20	41984.16	8658.30	203581.44
2008/09	94.12	638.70	60114.44	8858.57	407937.69
2009/10	93.43	813.80	76033.33	8729.16	662270.44
N=5	ΣX=469.19	ΣY=2437.30	ΣXY=228459.89	ΣX^2=44029.22	ΣY^2=1417906.37

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

$$= \frac{5 \times 228459.89 - 469.19 \times 2437.30}{\sqrt{5 \times 44029.22 - 469.19^2}\sqrt{5 \times 1417906.37 - 2437.30^2}}$$

$$= -0.4484$$

$$P.E = 0.6745 \times \frac{1-r^2}{\sqrt{N}}$$

$$= 0.6745 \times \frac{1 - (-0.4484)^2}{\sqrt{5}}$$

$$= 0.2410$$

APPENDIX-IV: Calculation of Trend Values

Calculations of Trend values for NPAT

a. NABIL

FY (x)	NPAT (Y)	X=(x-7)	X^2	XY
2005/06(5)	635.26	-2	4	-1270.52
2006/07(6)	673.96	-1	1	-673.96
2007/08(7)	746.47	0	0	0
2008/09(8)	1031.05	1	1	1031.05
2009/10(9)	1138.57	2	4	2277.14
N=5	ΣY=4225.31	ΣX=0.00	$ΣX^2$=10.00	ΣXY=1363.71

Trend Line for dependent variable NPAT(Yc) on independent variable Time(X) is given by,

$$Yc = a + bX \text{----------------------- (i)}$$

The values of a and b can be determined by solving the following normal equations (applying principle of method of least square)

$$dY = Na + bdX \text{--------------- (ii)}$$
$$dXY = adX + b\, dX^2 \text{----------- (iii)}$$

When, ΣX=0,

$$a = \frac{\sum Y}{N}$$

$$= \frac{4225.31}{5}$$

$$= 845.062$$

$$b = \frac{\sum XY}{N}$$

$$= \frac{1364.20}{10}$$

$$= 136.42$$

Substituting the values of a and b in equation (i), we get trend line of NPAT on Time,

$$\boxed{\textbf{NPAT = 845.062 + 136.42 X}}$$

Calculation of Trend values

FY	X=x-7	NPAT=845.062+136.42*Time
2010/11(10)	3	1254.32
2011/12(11)	4	1390.74
2012/13(12)	5	1527.16
2013/14(13)	6	1663.58
2014/15(14)	7	1800.00

b. NSBI

FY (x)	NPAT (Y)	X=(x-7)	X²	XY
2005/06(5)	117.00	-2	4	-234
2006/07(6)	254.90	-1	1	-254.9
2007/08(7)	247.77	0	0	0
2008/09(8)	316.37	1	1	316.37
2009/10(9)	391.74	2	4	783.48
N=5	ΣY=1327.78	ΣX=0.00	ΣX²=10.00	ΣXY=610.95

Trend Line for dependent variable NPAT (Yc) on independent variable Time(X) is given by,

Yc = a + bX---------------------- (i)

The values of a and b can be determined by solving the following normal equations (applying principle of method of least square)

$$dY = Na + bdX \text{ --------------- (ii)}$$

$$dXY = adX + b\, dX^2 \text{ ----------- (iii)}$$

When, $\Sigma X = 0$,

$$a = \frac{\sum Y}{N}$$

$$= \frac{1327.78}{5}$$

$$= 265.556$$

$$b = \frac{\sum XY}{N}$$

$$= \frac{610.95}{10}$$

$$= 61.095$$

Substituting the values of a and b in equation (i), we get trend line of NPAT on Time,

$$\boxed{\textbf{NPAT = 265.556 + 61.095 X}}$$

Calculation of Trend values

FY	X=x-7	NPAT=265.556+61.095×Time
2010/11(10)	3	448.84
2011/12(11)	4	509.94
2012/13(12)	5	571.03
2013/14(13)	6	632.13
2014/15(14)	7	693.22

c. EBL

FY (x)	NPAT (Y)	X=(x-7)	X^2	XY
2005/06(5)	237.20	-2	4	-474.4
2006/07(6)	296.40	-1	1	-296.4
2007/08(7)	451.20	0	0	0
2008/09(8)	638.70	1	1	638.7
2009/10(9)	813.80	2	4	1627.6
N=5	ΣY=2437.30	ΣX=0.00	$ΣX^2$=10.00	ΣXY=1495.50

Trend Line for dependent variable NPAT (Yc) on independent variable Time(X) is given by,

Yc = a + bX----------------------- (i)

The values of a and b can be determined by solving the following normal equations (applying principle of method of least square)

d**Y = Na + b**d**X --------------- (ii)**

d**XY = a**d**X + b** d**X^2 ----------- (iii)**

When, ΣX=0,

$$a = \frac{\sum Y}{N}$$

$$= \frac{2437.30}{5}$$

$$= 487.46$$

$$b = \frac{\sum XY}{N}$$

$$= \frac{1495.50}{10}$$

$$= 149.55$$

Substituting the values of a and b in equation (i), we get trend line of NPAT on Time,

$$\boxed{\textbf{NPAT = 487.46 + 149.55 X}}$$

Calculation of Trend values

FY	X=x-7	NPAT=487.46 + 149.55 ×Time
2010/11(10)	3	936.11
2011/12(11)	4	1085.66
2012/13(12)	5	1235.21
2013/14(13)	6	1384.76
2014/15(14)	7	1534.31

Calculation of Trend Values for DER
a. NABIL

FY (x)	DER (Y)	X=(x-7)	X^2	XY
2005/06(5)	0.09	-2	4	-0.18
2006/07(6)	0.43	-1	1	-0.43
2007/08(7)	0.66	0	0	0
2008/09(8)	0.63	1	1	0.63
2009/10(9)	0.10	2	4	0.2
N=5	ΣY=1.91	ΣX=0.00	$\Sigma X^2 = 10.00$	ΣXY=0.22

Trend Line for dependent variable DER (Yc) on independent variable Time(X) is given by,

$\qquad$ **Yc = a + bX----------------------- (i)**

The values of a and b can be determined by solving the following normal equations (applying principle of method of least square)

d$\mathbf{Y}$ = $\mathbf{N}$a + $\mathbf{b}$d$\mathbf{X}$ --------------- (ii)

d$\mathbf{XY}$ = $\mathbf{a}$d$\mathbf{X}$ + $\mathbf{b}$ d$\mathbf{X}^2$ ----------- (iii)

When, $\Sigma X = 0$,

$$a = \frac{\sum Y}{N}$$

$$= \frac{1.91}{5}$$

$$= 0.3820$$

$$b = \frac{\sum XY}{N}$$

$$= \frac{0.22}{10}$$

$$= 0.022$$

Substituting the values of a and b in equation (i), we get trend line of DER on Time,

$$\boxed{\mathbf{DER = 0.3820 + 0.022\ X}}$$

Calculation of Trend values

FY	X=x-7	DER= 0.3820 + 0.022 ×Time
2010/11(10)	3	0.45
2011/12(11)	4	0.47
2012/13(12)	5	0.49
2013/14(13)	6	0.51
2014/15(14)	7	0.54

b. NSBI

FY (x)	DER (Y)	X=(x-7)	X^2	XY
2005/06(5)	0.82	-2	4	-1.64
2006/07(6)	0.87	-1	1	-0.87
2007/08(7)	1.29	0	0	0
2008/09(8)	0.11	1	1	0.11
2009/10(9)	0.08	2	4	0.16
N=5	$\Sigma Y=3.17$	$\Sigma X=0.00$	$\Sigma X^{2=}10.00$	$\Sigma XY=-2.24$

Trend Line for dependent variable DER (Yc) on independent variable Time(X) is given by,

Yc = a + bX----------------------- (i)

The values of a and b can be determined by solving the following normal equations (applying principle of method of least square)

d**Y = Na + b**d**X --------------- (ii)**

d**XY = a**d**X + b** d**X^2 ----------- (iii)**

When, $\Sigma X=0$,

$$a = \frac{\sum Y}{N}$$

$$= \frac{3.17}{5}$$

$$= 0.6340$$

$$b = \frac{\sum XY}{N}$$

$$= \frac{-2.24}{10}$$

$$= -0.224$$

Substituting the values of a and b in equation (i), we get trend line of DER on Time,

$$\boxed{\textbf{DER = 0.6340 – 0.224 X}}$$

Calculation of Trend values

FY	X=x-7	DER= 0.6340 – 0.224 ×Time
2010/11(10)	3	-0.04
2011/12(11)	4	-0.26
2012/13(12)	5	-0.49
2013/14(13)	6	-0.71
2014/15(14)	7	-0.93

c. EBL

FY (x)	DER (Y)	X=(x-7)	X^2	XY
2005/06(5)	0.31	-2	4	-0.62
2006/07(6)	0.24	-1	1	-0.24
2007/08(7)	0.15	0	0	0
2008/09(8)	0.27	1	1	0.27
2009/10(9)	0.25	2	4	0.5
N=5	ΣY=1.22	ΣX=0.00	ΣX^2=10.00	ΣXY=-0.09

Trend Line for dependent variable DER (Yc) on independent variable Time(X) is given by,

Yc = a + bX---------------------- (i)

The values of a and b can be determined by solving the following normal equations (applying principle of method of least square)

d**Y = Na + b**d**X --------------- (ii)**

d**XY = a**d**X + b** d**X² ----------- (iii)**

When, ΣX=0,

$$a = \frac{\sum Y}{N}$$

$$= \frac{1.22}{5}$$

$$= 0.244$$

$$b = \frac{\sum XY}{N}$$

$$= \frac{-0.09}{10}$$

$$= -0.009$$

Substituting the values of a and b in equation (i), we get trend line of DER on Time,

$$\boxed{\textbf{DER} = \textbf{0.244} - \textbf{0.009 X}}$$

Calculation of Trend values

FY	X=x-7	DER= 0.244 – 0.009 ×Time
2010/11(10)	3	0.22
2011/12(11)	4	0.21
2012/13(12)	5	0.20
2013/14(13)	6	0.19
2014/15(14)	7	0.18