

# **CHAPTER - I**

## **INTRODUCTION**

### **1.1 Background of the Study**

Domestic airline has crucial role in flourishing the Nepalese economy and the tourism industry even in the critical and ruined situation of the country. The government is responsible for the formulation of appropriate policy, rules, regulation and providing facilities, to uplift of the domestic airlines in the airlines industry. Different analysis shows that the economic growth of domestic airlines sector is not satisfactory, because of the instability of the government, unsound policy, security problem, unhealthy competition, weak infrastructure as runway, politically affiliated trade union's strike and so on. In addition to the external environment, the internal environment of the airline is also equally responsible for the debilitating financial performance of the airline business. To confront both the internal and external influencers, the airlines need to have buttress capital structure, which should be possible only by adopting optimal capital structure.

Capital structure refers to the combination of long-term sources of funds, such as, long-term debt, preference stock and common equity including reserves and surpluses (i.e. retained earnings). Capital structure represents the relationship among different kinds of long-term sources of capital and their amount. Normally, a firm raises long-term capital through the issue of common shares, sometimes accompanied by preference shares. The share capital often supplemented by debt securities and other long-term borrowed capital. In a going concern, retained earnings or surpluses too form a part of capital structure. Except for the commons shares, different kinds of external financing i.e. preference shares as well as the borrowed capital carry fixed return to the investors.

Financial manager should be very much careful while designing capital structure of the firm because capital structure decision affects the cost of capital and value of the firms. Company's financial manager should try to minimize the cost of capital and maximize the shareholders' wealth/vale. The structure of long-term financing which minimizes the overall cost of capital or maximizes the value of the firms is call optimal capital structure. Optimal capital structure is the structure at which the firms should ultimately plan to operate. Thus as per the necessity, the firm should restructure its capital structure.

A capital restructuring involves raising debt to finance the return of capital to shareholders accompanied by a new dividend policy that maintains the desired level of financial leverage. Capital structure is part of a company's package of financial policies, which include dividend policy and the type and amount of debt and equity claims issued. The impact of capital structure and the necessity of capital restructuring also widespread in the airline business of Nepal.

There is an intensive pressure on airlines companies to optimize their capital structure. As in other industries, value creation is one of the most important challenges of an airline company. Shareholder value has been a buzzword. A method to increase this shareholder value is the optimization of the capital structure. However, airline companies are partly limited in increasing the shareholder value since the growth in this industry is rather low. Thus, capital structure optimization gains even more importance for airline companies.

### **1.1.1 History of Civil Aviation**

The Nepalese Aviation history is hardly just fifty years old. The first charter flight by Himalayan Aviation Dakota was from Gaucharan to Kolkata in 1950. In the year 1957, the Department of Civil Aviation was formally established, and with this Royal Nepal Airlines Corporation (RNAC) started scheduled services domestically and externally as only one national flag carrier of the country until early 1992. In 1959, RNAC was fully owned by GON as a public

undertaking and Civil Aviation Act 2015 B.S. promulgated. At that time, there were no other air service provider for domestic service and other international airlines were operating for abroad only. In 1960, Nepal got the ICAO membership and in 1964 Tribhuvan Airport renamed as Tribhuvan International Airport. In the 1992, Nepal Government introduced adoption of Liberal Aviation Policy and emergence of private sector in domestic air transport.

The Secretariat of Ministry of Nepal Aviation had announced that Nepal is going to let permission to twenty five new international companies. Fly Dubai has also got permission too, so this company introduced flight from Kathmandu to Dubai from 15 December, 2009 Tuesday. Fly Dubai has introduced four times flights a week from Kathmandu to Dubai and Dubai to Kathmandu. In this way, the Yeti Airlines Company is going to launch additional Everest flights. Malaysian Airlines is also going to introduce new flight regarding to visit Nepal 2011. So, Malaysian Airlines used to flight only in India but after the government's open sky policy other international airlines too going to launch new destination regarding to Nepal. Focusing to Visit Nepal 2011, new domestic airlines Tara Airlines is going to begin Mountain flight from Pokhara to mountainous region. This Tara airline has begun its flight in the mountainous flight in Langtang, Jomsom, Dolpa, Baglung, Dhorpatan, Rara Morang and Bharatpur. Similarly, one of the Brand new internal airlines is Guna Airline. Guna Airline also has begun its flight from Kathmandu to various remote parts of country. In this way, one by one private airlines are going to include flying in the sky of Nepal. So, Nepal Airlines is government operated only one airline whereas private airlines are Buddha Airlines, Yeti Airlines, Sita Airlines, Agni Airlines, Gorkha Airlines, Tara Airlines, Guna Airlines, Cosmic Airline, Sngriila Airline and so on, similarly on to the other hand, from the rotor wine there are so many private airlines are operating their services, they are Air Dynasty Heli Services, Simrik Air, Fishtail Air, Shree Airlines, Manang Air, Impro Airways and Karnali Air (P) Ltd and so on.

### **1.1.2 Socio-Economic Aspects of Civil Aviation in Nepal**

In Nepal, there are so many populations live in the mountainous and hilly rural areas as well, and due to the poor accessibility of the transportation their social progress is very slow. So, development of these areas is almost impossible unless there will not make adequate infrastructure as road, hospital, education, sound economy, media development, and water and electricity facilities. But in this context, the role of air transportation in socio-economic development of the country is very essential.

Besides these, air transportation plays vital role in integrating people from different regions of the country with different religious and from the different cultures by bringing them together in the main stream of National Unity. One of the main national income of the country is tourism. So, unless there is not develop air transportation, there can not uplift the country's high prioritized tourism industry. So, to get maximum earning from tourism as adequately, air transportation should be reached in the all areas from east to far western area of country.

### **1.1.3 Open Sky Policies and Its Objectives**

In Nepal, Civil Aviation Authority is the regulatory body or only one authorized body for look after the entire Civil Aviation Activities, and responsible for construction, maintenance, upgrading of the airports, runways, helipads, communicational aids, navigational aids and any kinds of other related works for promotion and development of the civil aviation in Nepal.

After the restoration of multiparty democracy system in 1990, the democratic government of Nepal adopted the economic liberalization policy, which opened liberal sky policy in the Aviation. In 1993, National Civil Aviation Policy was promulgated introducing liberal sky policy formally.

In this policy, it was highly prioritized that the development of tourism industry (which is main backbone for the foreign earning and socio-economic development of the country) is not possible without development of competent, reasonable and at the affordable and regular air transportation system. The civil aviation has been prepared after review of prevailing domestic and international air transportation services and duly considering the privatization policy pursued by Nepal government as well as resources are constraint. The objectives of the open sky policies are as follows:

- a. To provide necessary contribution for the promotion of tourism in accordance with tourism policy of Nepal government, involvement of local body, or foreign joint venture investor for the international air transportation services.
- b. To develop healthy and competitive air transportation through the alliance and encouragement to the private sectors as well.
- c. To develop and expand air ports in remote areas, and prospected areas.
- d. To make the air transportation reliable and safe through the development of modern equipment and facilitated at airport.
- e. To duly encourage recreational, adventurous and research oriented air services activities.

## **1.2 Statement of the Problem**

In fact, the policy lures to the many internal and external investors to invest in the sectors of the private airlines business. As we see, up to date, there are two dozens of private airlines have been registered but due to ten years long internal political war, only few survival airlines are now in operations in the country, besides these, there are one and half dozens international airlines are also operating as per their scheduled and chartered flight services. With this scenario, the growth in the air traffic is very significant and opens the new horizon of opportunities and prosperities in this sector.

Even though, unfortunately there is the dramatic increased in the air accidents at this sectors have become serious threats to this future growth and sustainability. there can see a little bit hope for its future, even though, there are so many other problems as government poor- security, strike and political instability, violence, lack of the tourism promotion, lack of international standard facilities, lack of up to date air conditions, environmental visibility changes in hilly mountains, news from remote high hilly areas, lack of research and development of government from time to time, political instability are greater problem in Nepal's airlines.

As consequences, there is increased in air traffic especially in the domestic sectors, even though growth trend is not smooth and systematic. During this period some airlines are run away. Some airlines are still struggling for survive, where as few others are living in terms of growth and profitability which airlines has sound management.

As a result, Nepal Civil Aviation still is facing so many problems since its establishment. So, this on/off trends in private airlines indicates for the careful analysis of the trend to assure future of the existing organizations and the others which are being ready and on the pipeline to join in this industry for the long term sustainable and guaranteed future of Civil Aviation industry. In this scenario these study although event at limited by time frame, scope and available resources, will be helpful in some extent. The main area of study is to enquire into the performance of capital structure of Buddha Air, Gorkha Air and Agni Air. The present study will attempt to make assessment on the problems and will recommend solutions through out the study. Hence answer to the following research problems are tried to address in this study.

- a. What is the capital structure of Nepalese airlines?
- b. What leverage ratio is maintained by the airlines?
- c. What relationship exists between the capital structure and profitability of the airline business?

- d. Is the cost of capital of the airline business satisfactory?

### **1.3 Objectives of the Study**

The main objective of the study is to analyze the capital structure in Nepalese airlines, especially in Buddha Airline, Gorkha Airline and Agni Airline. The specific objectives of the study are;

- a. To examine the leverage ratios maintained by the selected airlines.
- b. To evaluate the ratio analysis concerned with the capital structure and profitability.
- c. To analyze the cost of capital of the airlines.
- d. To measure the statistical relationship between profit and debt capital, and profit and equity capital.

### **1.4 Significance of the Study**

The major significances of the study are enumerated below:

- a. The study is based on the capital structure of Buddha Airlines, Gorkha Airlines and Agni Airlines which helps the concerned companies to formulate strategies, to face the increasing competition and to achieve the target objectives.
- b. With the help of the report of this study the management may apply corrective measures for the company's performance.
- c. This study will provide information to those investors who are planning to invest in these airlines sectors.
- d. The study will help general public to know about the overall financial position in terms of capital structure management of Buddha Airlines, Gorkha Airlines and Agni Airlines.
- e. The Study will be helpful for further researcher.
- f. At last the researcher can say the study will be beneficial for all persons who directly or indirectly keep interest on Nepalese economic and financial position.

## **1.5 Limitations of the Study**

This study is concerned about the capital structure and its profitability of the selected private airlines. The major limitations of the study are as follows:

- a. This study is completely dependent in the limited secondary data and information provided by the concerned airlines as per their rule and regulation.
- b. The study focuses mainly on the capital structure and profitability of the airlines, and hence may not cover the other financial aspects.
- c. The study covers only five years data, i.e. from 2004/05 to 2008/09, for Buddha and Gorkha airlines, and four years data, i.e. from 2005/06 to 2008/09 for Agni airline, as the Agni airline has commenced its operation from the fiscal year 2005/06.
- d. Financial constraints and limited time are also the major limitations of the study.

## **1.6 Organization of the Study**

This study has been comprised into five chapters;

### **Chapter – I: Introduction**

The first chapter deals with introduction, which enhances with the background information of the study, socio- economics aspects of civil aviation in Nepal, liberal sky policy of the government and its objectives, statement of the problem, objectives of the study, significance of the study, and limitations of the study.

### **Chapter – II: Review of Literature**

The second chapter concerns with literature review that includes a discussion on the conceptual framework and review of journals and articles, review of previous thesis and research gap.



### **Chapter – III: Research Methodology**

The third chapter describes the research methodology adopted in carrying out the present research. It deals with the research design, population and sample, sources and nature of data, tools used for analysis.

### **Chapter – IV: Data Presentation and Analysis**

In this chapter, the data collected for the study are presented in tabular form and analyzed with the aid of both financial and statistical tools. At the end of the study, the major findings have been drawn.

### **Chapter – V: Summary, Conclusion and Recommendations**

At the end of study, the summary of the whole study, the conclusion derived and the recommendations for future enhancement have been presented.

Finally, the Bibliography and Appendix are incorporated at the end of the study.

## CHAPTER - II

### REVIEW OF LITERATURE

#### 2.1 Conceptual Framework

In this section various books written by different writers as well as journals and articles, and thesis, are reviewed. This makes clear about the conceptual foundation of this study. It provides the chance of examining views of different writers and scholars so that the new idea can be generated.

##### 2.1.1 Concept of 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, common stock, long-term debt and current liabilities. If the current liabilities are removed from it, we get capital structure." (*Mathur; 1979: 239*)

"Capital Structure is made up of debt and equity securities which comprise a firm's finance of its assets. It is the permanent financing of a firm, represented by long term debt plus preferred stock plus net worth. A distinction is usually made between financial structure and capital structure. Financial structure refers to all sources i.e. (both short term and long term) that are used to finance the entire assets of a firm where as capital structure is taken as the capitalization part of firm's total financing which include only the long term sources such as long term debt and equity. Thus the capital structure is a part of financial structure. The composition of capital structure could differ from company to company, which is directly guided and controlled by the management of the company. However a reasonable satisfactory capital structure can be determined considering relevant factors and analyzing the

impact of alternative financing proposals on the earning per share.” (*Bearly, Stewart and Myers; 1985: 397*)

One of the financial manager's principal goals is to maximize the value of firm. For this purpose the firm should select a financial mix (Financial Leverage), which will help in achieving the objectives of financial management with a view to maximize the value of share. In other to achieve this business goal, firm should select an appropriate capital structure. Given the objectives of the firm to maximize the value of equity share, the firm should select a financial mix, which helps in achieving the objectives of financial management.

“Capital structure is the permanent financing of the firm represented preliminary by long term debt, preferred stock and common stock but excluding all the short term credit.” (*Weston and Brigham; 1978: 555*)

### **2.1.2 Optimum Capital Structure**

Capital structure means the proportion of security issued by the firm. Optimal Capital structure consists of reasonable proportion of debt and equity, which can help to maximize the value of the firm and ultimately maximizes the shareholders wealth.

“An optimal capital structure would be obtained at the combination of debt and equity that maximizes the total value of the firm or minimizes the weighted average cost of capital.” (*Pandey; 1992: 47*)

“Optimal Capital Structure can be defined as that mix of debt and equity which will maximize the market value of a company. If such an optimum does exist, is two fold. If maximize the value of the company and hence the wealth of its

owners it minimizes the company's cost of capital which in turn increase its ability to new wealth creating investment.” (Soloman; 1993: 93)

“The Capital structure patterns can be simple or complex. A simple capital consists of equity and preference share but the complex structure consists of multi-securities as equity shares, preference share, bonds, debenture etc. It can be dealt with three different level of complexity i.e.

- Static View
- The Comparative Static View
- Dynamic view

The concept of static view reveals that according to the relevant information about the firm’s asset structure, the quality of expected earnings and capital market condition, management should obtain the mix of financial claims that maximize the cost of capital. Hence capital structure is viewed as the active policy variable.

The concept of comparative static view gives different values of cost of capital and capital structure, as some of the underlying parameter change. Thus changes in the existing assets structure, the quality of expected earnings and the capital market conditions generate new equilibrium solution between the financing mix and the cost of fund.

The Dynamic view gives the optimal value within the constraints at the time and place where the decisions were made.” (Keister; 2000: 72-75)

Thus, “the capital structure management means the appropriate mix of long-term capital and short-term capital, which gives the company sufficient profit.

Optimal capital structures have certain risk and appropriate return. This is done by good management. In this study, one gets certain question, which is, ‘How much debt is appropriate varies company to company as well as firm to firm? In this regard, the following suggestion in tanning the capital structure for establishing new company is crucial;

- The debt-equity ratio does not exceeds 2:1.
- For large capital intensive projects a higher debt-equity ratio of 4:1 or even 6:1 may be allowed. (Debt for this purpose is defined long term debt plus preference capital, which is redeemable after 12 years).
- The ratio of preference capital to equity does not exceed 1:3
- Promoters hold at least 25% of the equity capital.” (*Korajczyk and Levy; 2003: 297-298*)

### **2.1.3 Factors Affecting Capital Structure**

After the overview of the capital structure management, we can point out the following factors, which affect the capital structure of any organization. Following factors should be taken into consideration while designing the optimal capital structure.

#### **1. Stability of Sales and Growth Rate**

“Firms whose sales are relatively stable can use more debt and incur higher fixed charges than a company with unstable sales. As far as growth rate is concerned, other things remaining the same, faster-growing firms must rely more heavily on external capital. Thus, rapidly growing firms tend to use somewhat more debt than slower growing companies.” (*McKinnon; 1996: 46*)

#### **2. Cost of Capital**

“Optimal capital structure should be less costly. Therefore company should use the sources having lower cost. Component cost of capital comprises using costs and issuing costs (floatation costs). Hence, floatation cost of securities should also be considered while raising funds. The cost of floating a debt is generally less than the cost of floating equity and hence it may persuade the management to raise debt financing.” (*McKinnon; 1996: 47*)

### **3. Asset Structure**

“Firms whose assets are suitable as security for loans tend to use more debt. General-purpose assets, which can be used by many businesses, make good collateral, whereas special purpose assets do not. Thus, real estate companies are usually highly leveraged, whereas companies involved in technological research employ less debt.” (*McKinnon; 1996: 48*)

### **4. Management Attitudes**

“Some management tends to be more conservative than others, and thus use less debt than the average firm in their industry, whereas aggressive management uses more debt in the quest for higher profits.” (*Omet and Nobanee; 2001: 57*)

### **5. Lender Attitudes**

“Lender attitudes frequently influence capital structure decisions. Lenders emphasize that excessive debt reduces the credit standing of the borrower and the credit rating of the securities previously issued. The corporation discusses its financial structure with lenders and gives much weight to their advice. If management wants to use leverage beyond norms for the industry, lenders may be unwillingly to accept such debt increases.” (*Omet and Nobanee; 2001: 58*)

## **6. Operating Leverage**

“Other things remaining the same, a firm with less operating leverage is better able to employ financial leverage. In other words, firms having lower degree of operating leverage can take higher degree of financial risk and use more debt to increase profit. Interaction of operating and financial leverage determines the overall effect of a change in sales on operating income and net cash flows.”

*(Omet and Nobanee; 2001: 59)*

## **7. Taxes**

“Interests are deductible expenses, and deductions are most valuable to firms with high tax rates. Hence, the higher a firm’s corporate tax rate, the greater the advantage of debt.” *(Michaelas; 1998: 186)*

## **8. Profitability**

“Firms with high rate of return on investment use relatively little debt, because company's high rate of return to do most of their financing with retained earnings. For example, Intel, Microsoft and Coca-Cola simply do not sale of stock may become more appealing.” *(Michaelas; 1998: 187)*

## **9. Interest Rates**

“At certain point of time, when the general level of interest rates is low, the use of debt financing might be more attractive; when interest rates are high, the sale of stock may become more appealing.” *(Michaelas; 1998: 187)*

## **10. Control**

“The effect of debt versus stock on a management's control position can influence capital structure. If management currently has voting control, but is

not in a position to buy any more new stock, it may choose debt for new financing. On the other hand, management may decide to use equity if the firm's financial situation is so weak that the use of debt might subject 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 considerations could lead to the use of either debt or equity.” (Michaelas; 1998: 188)

### **11. Flexibility**

“Capital structure of a firm should be flexible i.e., it should be such that it is capable conditions. It should be possible to raise additional funds without much of difficulty and delay whenever it is needed. A firm should be arranged its capital structure in such a manner that it can substitute one form of financing by another.” (Myers; 1984: 281)

### **12. Nature and Size of the Firm**

“Nature and size of a firm also influences its capital structure. A public utility concern has a different capital structure as compared to other manufacturing concerns. Public utility concerns may employ more of debt because of stability and regularity of their earnings. On the other hand a concern which can not provide stable earnings due to the nature of the business will have to rely main upon owned capital as it is very difficulty for them to raise long term loans at a reasonable rate of interest.” (Myers; 1984: 282)

#### **2.1.4 The Capital Structure Decision**



“Capital is a scarce resources and much more essential to maintain smooth operation of any firm. The available capital and financial resources should be utilized so efficiently that it could generate maximum return.

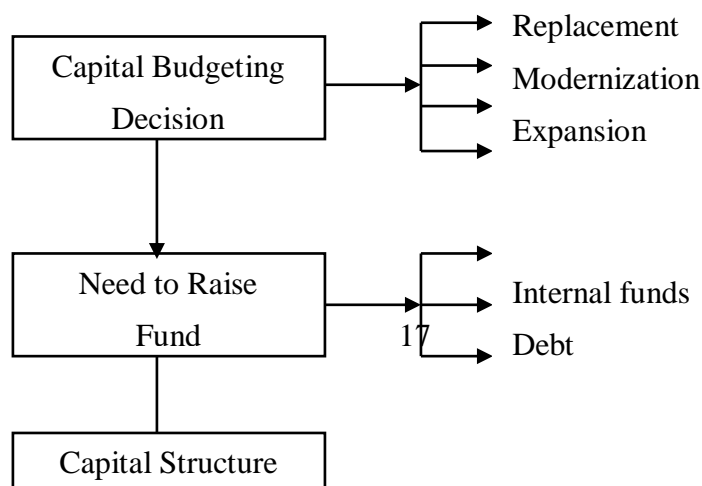
Capital structure is considered as that mix of debt and equity and to operate in long run prospect. A firm must concentrate in its proportion. A firm can raise required fund by issuing various types of financial instrument. Investors and creditors being the key suppliers of capital, they hold greater degree of risk and hence have claims over firm's assets and cash flow.

Capital structure decision can be identified into existing capital structure, desired debt equity mix and payout policy out of which existing capital structure and desired debt equity mix will directly effects on risk and return in the firm and also effects on cost of capital. Capital structure decision ultimately increases the value of the firm if the decision on the management of the capital is maintained properly and gives result to the optimum capital structure.”

*(Harris and Raviv; 1991: 67)*

**Figure 2.1**

**Capital Budgeting Decision**



*(Harris and Raviv; 1991: 68)*

In the above chart, the main objective of the firm is to maximize the value of the firm with limited optimum capital structure. For capital budgeting decision funds need for the replacement of the capital, modernization of the capital, expansion of the capital and diversification of the capital. Once the capital decision is made the firm needs to raise funds either from the internal funds, debts or from external equity from which capital structure decision is made.

Either fund is raised by 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 earning per share by minimizing cost of capital without effecting operating earning of the firm.

“An optimum capital structure would be obtained at the combination of debt and equity that maximizes the value of the firm or minimizes the weighted average cost of capital.” (*Pandey; 1992: 147*)

“There are four dimensional lists when thinking about the capital structure decision;” (*Hall, Hutchinson and Michaelas; 2004: 35-37*)

### **1) Taxes**

If the company is the tax paying and increase in leverage reduces the income tax paid by the company and increase the tax paid by the investor. If the company has large accumulated loss, as increase in leverage cannot reduce corporate tax but does increase personal taxes.

### **2) Bankruptcy Cost**

With presence of bankruptcy cost, financial distress is costly other things equal, distress is more likely for the firms generally issue less debt.

### **3) Assets Type**

The cost of distress is likely to be greater for firms whose value depends on growth opportunity of intangible assets. These firms are more likely to go for profitable opportunities and default occurs, their asset may erode rapidly. Hence, firms whose assets are weighted forward intangible assets should borrow significantly less on average their firms holding assets you can kick.

### **4) Financial Slack**

In the long operating decision than on financing therefore, you want to make sure your firm was in sufficient financial slacks, so that financing is quickly accessible when good investment opportunities arises. Financial slack is most valuable firm that has able positive NPV growth opportunity. That is another reason why growth companies usually aspire to conservative capital structure.

## **2.1.5 Capital Structure Theory**

The theory of capital structure is closely related to the firm's cost of capital. Many debates over whether an optimal capital structure exists are found in the financial literature. Argument between those who believe there is an optimal capital structure for each firm and among those who believe in the absence of such optimal capital structure began in late 1950's and there is yet no resolution of the conflict. Modigliani and Miller logically admitted that the value of the firm or the cost of capital is independent of capital structure decision of the firm. On the other hand, according to the traditionalist's view, the value of the firm or the cost of capital is affected by the capital structure change. So, in order to understand how firms should adhere the target capital structure

decision, it is important to have some idea of major elements of capital structure theory.

The history presents several theories on capital structure management. In order to analyze the capital structure of any company four theories are considered

These theories are:

- Net income (NI) approach.
- Net operating income (NOI) approach.
- Traditional approach; and
- Modigliani-Miller (M-M) theory
  - Without tax
  - With tax

Common Assumptions of Capital Structure Theory:

- a. There are only two sources of funds used by a firm: Perpetual risk less debt and ordinary shares.
- b. There are no corporate taxes or personal income taxes and no bankruptcy costs. This assumption is removed later.
- c. The dividend-payout ratio is 100% .That is, the total earning are paid out as dividend to the shareholders and there are no retained earnings.
- d. The firm's total assets are given and do not change. The investment decisions are, in other words, assumed to be constant.
- e. The firm's total financing remains constant. The firm can change its degree of leverage (capital structure either by selling shares and use the proceeds to retire debentures of by raising more debt and reduce the equity capital.
- f. The operating profits (EBIT) are not expected to grow.
- g. All investors are assumed to have the same subjective probability distribution of the future expected EBIT for a given firm.

- h. The firm's business risk is constant over time and is assumed to be independent of its capital structure and financial risk.
- i. Perpetual life of the firm.

In the theoretical analysis of capital structure one shall use the following symbol

B= Total market value of debt.

S= Total market value of stock.

V= Total market value of firm (B+S)

$K_e$ = Equity capitalization rate.

$K_d$ = Cost of debt/Yield on the debt.

$K_o$ =Overall capitalization rate.

I= Total amount of annual interest.

EBIT= Earning before interest & taxes.

- a.  $K_d = I/B$  (where  $K_d$  is the yield on the company's debt, assuming this debt to be perpetual, I=Interest & B=debt.

- b. Cost of equity=  $\frac{EBIT - I}{S}$  or  $\frac{NOI - I}{S}$

S                      S

The earning/price ration is the required rate of return for the investors in the firm whose earning are no expected to grow and whose divided payout ration is 100 percent.

c. Overall cost of capital i.e.  $K_o = \text{NOI}/V$  (Where  $V=B+S$ , overall capitalization rate is defined as the weighted average cost of capital)

Or,

$$K_o = K_d (B/V) + K_e (S/V)$$

d. Value of the firm i.e.  $V=B+S$

### 2.1.5.1 Net Income (NI) Approach

Net Income Approaches focuses the increase in total valuation of the firm through the reduction in the cost of capital leading to an increase in the cost of capital leading to an increase in the degree of leverage. It is also 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. "The approach is based on the crucial assumption that the use of debt does not change the risk perception of the investors. Consequently, the interest rate on debt ( $K_d$ ) and the equity capitalization rate ( $K_e$ ) remains constant to debt." (*Pandey; 1992: 173*)

The emphasis is on EBIT is measure how the degree of leverage brings change in valuation of the firm. Assuming a constant equity capitalization rate, the increase in cheaper debt funds lowers the weighted average cost of capital and there by rising the value of the firm and the increasing in debt may not increasingly risky.

The crucial assumptions of NI approach are:

- a. The use of debt does not change the perception of investors, as a result, the equity-capitalization rate,  $K_e$  and the debt-capitalization rate;  $K_d$  remains constant with change in leverages.

- b. The debt capitalization rate is less than the equity capitalization rate (i.e.  $K_d < K_e$ ).
- c. The corporate income taxes do not exist.
- d. As the firm increases its leverage by increasing its level of debt relative to equity, the overall cost of capital declines. The important point of this levered overall cost of capital is that it increases the value of the firm.

Overall cost of capital can be expressed by following formula.

$$\text{Overall cost of capital (K}_o\text{)} = \frac{\text{Net Operating Income}}{\text{Total value of the firm}}$$

Or, 
$$\frac{\text{EBIT}}{V}$$

Another formula for 'K<sub>o</sub>' is:  $K_o = K_e - (K_e - K_d)B/V$

As per assumptions of NI approach,  $K_e$  and  $K_d$  are constant and  $K_d$  is less than  $K_e$ . Therefore,  $K_o$  will decrease as  $B/V$  increases. Also, ' $K_e$ ' =  $K_o$  when  $B/V = 0$ .

Under the NI approach the cost of capital will decline and value of the firm will increase with leverage. The optimal structure would occur at the point where the value of the firm is maximized and overall cost of capital is minimum. That will have the maximum value at the lowest cost of capital since it is all debt financed or has as much as debt as possible. If the firm is unlevered the overall cost of capital will be just equal to the equity capitalization rate. (i.e.  $K_o = K_e$ ).

**Table 2.1**

**Overall Capitalization Rate by Net Income (NI) Approach**



'O'	Net Operating Income	.....
'F'	Total Interest ( $K_d.B$ )	.....
'E'	Earning Available to common shareholder(O-F)	.....
'Ke'	Equity capitalization rate	.....
'S'	Total market value of equity( $E/K_e$ )	.....
'B'	Total market value of debt	.....
'V'	Total value of firm(S+B)	.....
'K <sub>o</sub> '	Overall capitalization rate (O/V)	.....

### 2.1.5.2 Net Operating Income (NOI) Approach

The second behavioral approach to capital structure is the Net Operating Income Approach, which is slightly different from the NI approach. “It is an independent hypothesis of capital structure decision of the firm is irrelevant. Any change in leverage will not lead to any change in the total value of the firm and market price of share, as the overall cost of capital is independent of the degree of leverage.” (*Khan and Jain; 1990: 495*) The NOI approach assumes that the equity holders feel higher degree of financial risk and demand higher rate of return for higher debt to equity ratio. Further more, this approach says that the cost of equity increases with the level of debt, and the higher cost of equity offsets the benefit of cheaper debt financing consequently no effect at all on  $K_o$ , in other word overall capitalization rate ‘ $K_o$ ’ as well as the cost of debt ‘ $K_d$ ’ remain constant regardless of the degree of leverage.

The assumption here is that the overall capitalization rate of the firm is constant for all degrees of leverages. The critical assumptions of NOI Approach are: (*Pandey; 1992: 207*)

- a. The market capitalizes the value of the firm as a whole. Thus, the split between debt and equity is not important.
- b. 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,  $K_e$  is constant.
- c. The use of less costly debt fund increases the risk to the shareholders; this causes the equity capitalization rate to increase. Thus, the advantage of debt is offset exactly by the increase in the equity capitalization rate,  $K_e$ .
- d. The debt capitalization rate,  $K_d$ , is a constant.
- e. The corporate income taxes do not exist.

Under NOI approach the capital structure selected is a more details since the value of the firm is dependent of the firm's capital structure. If the firm increases its use of financial leverage by employing more debt this is directly offset by an increase in the cost of capital.

**Table 2.2**

**Market Value of Stock by Net Operating Income (NOI) Approach**

'O'	Net Operating Income	.....
'K <sub>o</sub> '	Overall capitalization rate	.....
'V'	Total Value of the firm (O/K <sub>o</sub> )	.....
'B'	Market value of debt	.....
'S'	Market value of stock (V-B)	.....

**2.1.5.3 Traditional Approach**

The Traditional approach is also known as an intermediate approach compromise between the NI approach and NOI approach. This approach says that the value of the firm can be increased or the judicious mix of debt and

equity capital can reduce the cost of capital. In additions the cost of capital, decrease within the reasonable limit of debt and then increase with leverage. Thus an optimal capital structure exists when the cost of capital is minimum, or the value of the firm is maximum.

“The more sophisticated version of the net income approach is contained in the traditional view. According to this approach, the value of the firm can be increased or the cost of capital can be reduced by a judicious mix of debt & equity capital.” (*Pandey; 1992: 217*)

In this approach the cost of capital decreases within the reasonable limit of debt and then increase with in the leverage.

The crucial assumptions of the traditional approach are:

- a. The cost of debt ( $K_d$ ) remains more or less constant up to a certain degree of leverage but rises thereafter at an increasing rate.
- b. The cost of equity ( $K_e$ ) remains more or less constant or less only gradually up to a certain degree of leverage and rises sharply there after.
- c. The average cost of capital ( $K_o$ ) as a consequence of above behaviour or ‘ $K_e$ ’ and ‘ $K_d$ ’ (i) decreases up to a certain point (ii) remains more or less unchanged for moderate increases in leverage thereafter and rise beyond a certain point.
- d. According to the traditional position, the manner in which the overall cost of capital reacts to change in capital structure can be divided into three-stages.

### **Stage-1:-Increasing Value**

In this first stage, the equity capitalization rate ( $K_e$ ) rises only a certain level of leverage and not before or rises slightly with debt. So that the use of debt does

not necessarily increase the  $K_e$ . And the slight increase in  $K_e$  may not be so high as to neutralize the benefit of using cheaper fund. In other words, the advantages arising out the use of debt is so large that even after allowing for higher  $K_e$ , the benefit of the use of the cheaper sources are still available. As a result, the value of the firm,  $V$ , increases while the overall cost of capital falls with the increasing leverage.

Under the assumption that ' $K_e$ ' remains constant with in the acceptable limit of debt, the value of the firms will be:

$$\begin{aligned}
 V &= S+B \\
 &= \frac{O-K_d \cdot B}{K_e} + \frac{K_d \cdot B}{K_d} \\
 &= \frac{O-K_d \cdot B}{K_e} + B \\
 &= \frac{O}{K_e} + \frac{(K_e - K_d)B}{K_e}
 \end{aligned}$$

Thus, so long as ' $K_e$ ' and ' $K_d$ ' are constant the value of the firm ' $V$ ' increases at a constant rate.

### **Stage-2:-Optimum Value**

In this stage, once the firm has reached a certain degree of leverage, increases in it have a negligible effect on the value of the firm. This is so because the increase in the cost of equity offsets the advantages of low cost of debt within

that range or specific points, the value of the firm will be maximized or the cost of capital will be minimum.

**Stage-3:-Declining Value**

In this stage, after the acceptable degree of leverage, the market value of the firm decreases with leverage or the overall cost of capital increases with leverage. This happens because the cost of debt and equity will tend to rise as a result of increasing the degree of financial risk that will make to increase in the overall cost of capital by more than to offset the advantage of low cost debt. Thus, in the third stage, the market value of the firm will show depressing tendency.

The overall effect of these three stages is to suggest that the cost of capital is a function of leverage. First it declines with leverage and after reaching a minimum point or range it status rising. This minimum point defines the optimum capital structure.

According to this approach, there exists a particular capital structure that is better than any other for the firm. In the above figures, the debt equity ratio at the point 'p' results the overall cost of capital, which consequently maximizes the value of the firm. Therefore, the debt equity ratio is relevant and optimal capital structure exists for the firm.

**Table 2.3**

**Overall Capitalization by Traditional Approach**

'O'	Net Operating Income	.....
'F'	Total Interest (KiB)	.....
'E'	Earning Available to common share-holder (O-F)	.....

'K <sub>e</sub> '	Equity Capitalization rate	.....
'S'	Total Market value of equity (E/K <sub>e</sub> )	.....
'B'	Total market value of debt	.....
'V'	Total Value of firm (S+B)	.....
'K <sub>o</sub> '	Overall capitalization rate (O/K <sub>o</sub> )	.....

#### 2.1.5.4 Modigliani-Miller (M-M) Theory

##### a) M-M theory (In the world without taxes)

Modigliani and Miller (M-M) support the relation between leverage and cost of capital that explained by NOI approach. They argue that in the absence of taxes, total market value and cost of capital of the firm remains invariant to the capital structure change. They make a formidable attack on the traditional position by offering behavioral justification for having the cost of the capital (k<sub>o</sub>) remains constant through out all degree of leverage. M-M contained that the cost of capital is equal to the capitalization rate of pure equity stream of income and the market value is ascertained by capitalizing its expected income at the appropriate discount rate for its risk class. The M-m cost of capital hypothesis can be best expressed in term of their propositions I and II. However the following assumptions regarding the behavior of the investors and capital market, the action of the firm and the tax environment are crucial for the validity of the M-M hypotheses.

The crucial assumptions of MM preposition are:

- a. Perfect Capital Market: Information is costless and readily available to all investors. There are no transaction costs, and all securities are infinitely divisible. Investors are assumed to be rational and to behave accordingly.

- b. The average expected future operating earnings of a firm are represented by subjective random variables. It is assumed that the expected values of the probability distribution of all investors are the same. The M-M illustration implies that the expected values of the probability distributions of expected operating earnings for all the future periods are the same as present operating earnings.
- c. Firms can be categorized into "equivalent return" classes. All firm within a class have the same degree of business risk. As we shall see later this assumption is not essential for their proof.
- d. The absence of corporate income taxes is assumed. M-M removes their assumption later.

### **Proposition I**

The M-M Proposition: I states that the market value of a firm is independent of its capital structure. It is because the value of the firm is determined by capitalizing the net operating income (NOI or EBIT) at a rate appropriate for the firms risk class. Accordingly, the value of the firm is obtained by:

$$V = \text{NOI} / K_o$$

Where,

V= Value of the firm

NOI= Net operating income

$K_o$ = Risk adjusted capitalization rate.

The M-M proposition-I also implies that the weighted average cost of the capital ( $K_o$ ) to any firm (i.e. levered or unlevered) is completely independent of its capital structure and equal cost of equity ( $K_e$ ) to an unlevered firm in the

same risk class. Thus there is no relationship between the value of a firm and the way its capital structure is made up, nor there is any relationship between the average cost of capital and the capital structure. It is identical to the NOI approach.

### **Proposition II**

This theory states that the cost of equity rises proportionately with the increase in the leverage in order to compensate in the form of premium for bearing additional risk arising from the increase in leverage. It assumes that only the equity holders adjust the capitalization rate for the degree of financial leverage risk. It means that  $K_e$  increases as debt-equity ratio increases. The  $K_d$  doesn't respond to changes in debt-equity ratio and it remains constant. It is expressed as follows:

$$K_e = K_o + (K_o - K_d)D/E$$

Where,

$K_e$  = Cost of equity

$K_o$  = Average cost of capital.

$K_d$  = Cost of debt or interest rate.

$D/E$  = Debt Equity ratio

The validity of proposition-II depends upon the assumptions that  $K_d$  will not increase for any degree of leverage but in practice  $K_d$  increases with leverage beyond a certain acceptable level. However, M-M mention that even if  $K_d$  is function of leverage,  $K_o$  will remain constant, as  $K_e$  will increase at a decreasing rate of compensate. Thus taking both the propositions I and II together, the M-M theory in the absence of taxes contents the overall cost of capital as well as the value of the firms are independent of capital structure. The theory in a tax free world is identical to the NOI approach. In other words,



the value of levered firm  $V_L$  is equal to the value of an unlevered firm  $V_U$  in the same risk class i.e.  $V_L = V_U$ .

**b) M-M Theory (In the World with Taxes)**

Under MM theory, the value of a firm is independent of its debt policy is based on the critical assumption that the corporate income tax does not exist. But in reality, the corporate income taxes exist, and interest paid to debt holders is treated as a deductible expense. This makes debt financing advantageous. "In their 1963 article, M-M shows that the value of the firm will increase with debt due to the deductibility of interest charges for tax computation and the value of the levered firm will be higher than of the unlevered firm'. Thus, the value of a levered firm is equal to the value of unlevered firm plus the present value of interest tax-shield as shown below.

Value of a levered firm = Value of an unlevered firm + PV of interest tax shield.

Symbolically,

$$V_L = V_U + \text{PV of interest tax shield}$$

The value of unlevered firm when corporate taxes exist is,

$$V_U = \frac{\text{NOI} (1-T)}{K_U} = \frac{\text{NOI}}{K_U}$$

Where,

NI = Net income after tax

$K_U$  = The Equity Capitalization rate of an unlevered firm.

$K_L$  = The Equity Capitalization rate of a levered firm.

$K_{ou}$  = The overall capitalization rate of unlevered firm.

$K_{ol}$  = The overall capitalization rate of levered firm.

$V_{ul}$  = Value of unlevered firm.

$V_l$  = Value of levered firm.

$T$  = Corporate Tax Rate

Also, when a firm is unlevered,  $K_{ou} = K_{ev}$ . Thus,

$$V_l = \frac{NI + Dt}{K_{ev}}$$

The above equation implies that, when corporate tax exists, the value of levered firm will increase continuously with debt. Thus, theoretically the value of the firm will be maximum, when it employs 100% debt.

Because of the tax deductibility of interest charges, a firm can increase its value or lower overall cost of capital by using cheaper debt funds. Thus, the optimal capital structure is attained when employs 100 percent debt. But in practice firm doesn't employ large amount of debt, nor are the lenders ready to lend beyond the certain limit. Why companies do not employ extreme level of debt or the lenders are ready to lend beyond the certain limit. Why companies do not employ extreme level of debt in practice? The reason behind it is that, the borrowing may involve extra costs (in addition to fixed interest cost) like cost of financial distress, which may offset the advantage of using debt. Another reason may be the personal taxes involved for lenders.

### **2.1.6 Cost of Capital**

“Cost of capital is rate of return on the investment to be earned in order to satisfy the investor. Cost of capital may be defined as cost to the firm of

obtaining funds or equivalently as the average rate of return that an investor or a firm would expect for supply capital. This would be the minimum rate of return that a project must yield to keep the value of the firm intact.” (*Srivastav; 1985: 288*) Cost of capital as the minimum acceptable rate or the required rate of return is a compensation for time and risk in the use of capital by the project.

The cost of each component of the capital structure also said to be cost of capital. “Capital components, which are shown in the left hand side of the balance sheet, include various types of debt, preferred stock, retained earnings, and common stock. Every firm has to repay its borrowed funds with interest after certain period of time. Interest which it has to pay is called cost of capital. Cost of preference share is calculated as cost of debt because it is debt natured capital. The cost of equity capital is defined as the minimum return of return that a firm must earn on the equity financed portion of its investment in order to leave unchanged the market price of its stock.” (*Van Horne; 1999: 335*) Cost of retained earning is the opportunity cost to the shareholders because when the firm decides to retained the current earnings in the firm than shareholders give up their cash dividends. Thus, in the absence of flotation cost, the cost of retained earning and the cost of common stock is same. The cost of new common equity is the rate of return which is required by the stockholder. Due to flotation cost, the cost of average or composite cost of capital is the weighted average of the cost of various sources of capital weight in the proportion of each of the sources in the capital structure.

#### **2.1.6.1 Factor Determining Cost of Capital**

“Different factor affect the cost of capital of an enterprise: General economic conditions, market conditions, enterprise’s operating and financing decisions and the amount of financing determine the cost of capital of enterprise. General and economic conditions are external environment factors that determine cost of capital. These external factors are out of the control of management.”

(Baral; 1996: 220) Enterprise's operating financing decisions and the amount of financing are internal environment factors. These factors depend upon the management decision of an enterprise.

## **2.2 Review of Journals and Articles**

**Nagano** (2008), in their study, "*Determinants of Corporate Capital Structure in East Asia: Are there differences from the Industrialized Countries?*" has stated that the determinants of firm capital structure in East Asian countries are different from that in industrialized countries. Cross-country investigation of the financing environment in each of the sample countries showed that firms in the region appear to have a pecking order in so far as their corporate finance decision-making is concerned. They have the highest preference for internal funds, with its characteristic smaller information cost, and secondarily for short-term bank loans. In general, banks exercise close monitoring of their debtor clients, which enable them to understand and anticipate credit risks. The generally close relationship between debtor firms and creditors appear to lower information asymmetry and may be one of the factors in the high dependency of firms on external bank loans.

On the other hand, the decision to use equity financing appears to be unrelated to the level of debt in firms in these countries. East Asian countries experienced explosive growth in their capital markets in the 1990s, which was however put to a halt after the 1997 financial crisis. Empirical results reveal that high share prices do not necessarily motivate firms to issue equity to raise funds. Although firms in the sample countries commonly have high dependency on internal and short-term external funding, there also appeared heterogeneity between the five countries. Better understanding of corporate capital structure in the region may be achieved by enhancing this study in the future. First, future research should focus on obtaining more and longer-period data during the post-crisis period, when many institutional reforms were implemented.

**Teker and Battal** (2009), in their study, “*Macroeconomic Determinants of Capital Structure for Turkish Firms*”, have stated that there are several factors that influence the leverage decision of firms. Within the highlight of various theories that define the relation of this decision with macroeconomic factors, the aim of this research is to figure out initially the capital structure of Turkish firms over the period from 2001-2008. The database covers the financial data of 42 firms that are traded at ISE 100 index. The companies operate in different sectors such as agricultural fertilizer, automotive, cement, energy, food, glass, iron and steel, petrochemicals, retail and service. The findings indicate that through 2004-2008, the average debt ratio varies at a range of 67% - 71%. During this period, agricultural fertilizer, automotive, food, iron and steel and retail sectors are the ones that use a high amount of leverage. Thereafter there is a decrease in the debt usage which is between 44% - 48%.

Furthermore, the study includes panel data analysis to gain information about the effects of macroeconomic determinants on leverage decision. The macroeconomic factors included in the analysis are tangibility, size, growth opportunities, profitability and non debt tax shields. The study suggests that return on assets (ROA) and tangibility of assets (Tan) affect firms’ leverage positively and significantly. On the other hand, ratio of total depreciation to total assets (DA) and profit margin on sales (PMS) affect firm’s leverage negatively and significantly.

**Leão and Cristino** (2009), in their study, “*Minimum capital requirements and Profitability*”, have stated that in many countries around the ghost of the crisis, there is the high indebtedness of banks (even in some notorious heavens of prosperity) and the need to rescue the financial institutions problems. This troubled credit cooperatives context, participants, with growing importance.

In the case of credit cooperatives Sicoob of Central Crediminas, requirements that deal minimum capital by risk weighted assets, appear to cause significant modifications in the results, and show they are not barriers to management and the management of belief, because the flexibility given to institutions to manage their assets to facilitate clearance of those aspects highlighted capital. In light of these issues highlighted, the minimum capital requirements cannot produce the expected impacts and possible to occur, such as reducing the profitability and risk of insolvency, according to results of empirical research conducted.

The financial system can make use of loopholes in the agreement on the funding, through the purchase of securities on the capital market, which in certain cases, such as the federal government securities would be exempt from any consideration of equity, as the weighting applied be zero. The cooperative system, object of this study, does not work in the capital market and therefore the results for the index of Basiléia are not affected by this strategy. Another possible alternative for use by the banking system to reduce the capital requirements without a commensurate reduction in exposure to risk would be the securitization of assets. In this case the banks are merely intermediaries, receiving only its provision of services.

**Eriotis, Frangouli and Ventoura-Neokosmides** (2010), in their article, *“Profit Margin And Capital Structure: An Empirical Relationship”*, have stated that financial structure is a very important element for firms’ profitability. Firms may use their debt-to-equity ratio to affect profitability. Some firms choose a high debt-to-equity ratio, whereas others prefer to choose a lower one. The successful selection and use of the debt-to-equity ratio is one of the key elements of the firms’ financial strategy. Most of the studies undertaken to examine the impact of financial indices on firms’ profitability have used industry level data. Studies, which have used various financial

indices to capture the financial structure, found either a positive or a negative impact on firms' profitability.

However this study has used firm level data from various industries and it has found a strong negative impact of the debt-to-equity ratio on firms' profitability. Generally, this means that either the cost of borrowed capital is higher than the benefit from investment or that firms which prefer to finance their investment activities through self-finance are more profitable than firms which finance investment by borrowed capital. The firms that finance their investment activities by retained profits are more profitable than those that finance their activities through borrowed capital. Further, a negative and statistically significant impact of concentration on firms' profitability has been found, which means that although firms take into consideration their interdependence they prefer to compete with each other than to cooperate.

### **2.3 Review of Thesis**

**Banjada** (2006), has made a study on, "*The Capital Structure of Nepal Bank Ltd.*" The basic objective of the study made by him was to analyze the interrelationship and trends among some of the component parts of capital and assets structure and to provide suggestions for the development of an appropriate capital structure.

The study reiterates that the bank is composition of loan and advances, cash investment and other assets. Between all these components, loan and advance are the major portions. During the study, total assets and capitals are in increasing trend. But increasing rate of component is different. So the interrelationship of the component is fluctuating. The average growth rate of total deposits and other liabilities is higher than the average growth rate of net profit, and higher than the growth rate of total expenses. The total income and

total expenses aren't under control of the bank, and the net profit is only 40.64% of the total income. The study suggested that the bank must control total deposit and the bank must also control investment. The bank needs to reduce its expenses and control fluctuations in the earnings per share to improve its market price per share.

**Dahal** (2007), has made a study on, "*Capital & Assets Structure of Nepal Bank Limited*". The basic objective of this study was to analyze interrelation between different ratio, analysis of component parts of capital structure; debt equity ratio, net worth, deposit/investment ratio etc.

The study remarked that the total deposit and total investment were not significantly related. Further, the study 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.

**Sigdel** (2007), has made a study on, "*A Comparative Analysis of Capital Structure Between Lumbini Sugar Factory Limited and Birjung Sugar Factory Limited.*" The purpose of this study was to analyze the various ratio of capital structure decision, net worth, earning before interest and tax and to suggest measures to improve the policy of the companies.

According to the study, both the companies were facing serious deterioration in earnings according to the net operating income approach. The study noted down 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 Mills had low debt equity ratio which indicates access power of equity holders. And both the companies were unable to pay interest because they were operating at loss. As Birgunj



sugar Factory was highly levered Lumbini Sugar Factory was unlevered both the companies had defective capital structure. The study suggested that it should change the debt equity ratio for sound capital structure management to maintain it in 1:1 ratio.

**Rana** (2008), has made a study on, “*A Study of the Capital Structure of Selected Manufacturing Companies*” with a purpose to access the debt serving capacity of the mentioned manufacturing companies, examine the relation between return on equity and total debt, return on equity and debt ratio, earning after tax and total debt and interest and earning before interest and tax.

The methodology used in the study included both financial as well as statistical tools. The financial tools used were ratio analysis and statistical tools used were correlation coefficient and regression analysis.

The study revealed that Nepal lever Ltd has not been using long term debt and it was fully equity based. The bottlers Nepal Ltd is free of long term debt because of improved cash flows and effective management. The Sriram spinning mills has 66.33% of assets financed with debt and hence there is less flexibility to the owners. The degree of financial leverage analysis of Jyoti spinning mills shows the failure of the company to gain expected profits. And the Arun Vanaspati Udhyog has a fluctuation Debt Equity ratio. Its long term debt is decreasing and only creditors make a small share of equity.

**Maharjan** (2009), has made a study on, “*Comparative Evaluation of Capital Structure Between Selected Manufacturing and Trading Companies of Nepal.*” The study aims on debt serving capacity of the companies and as well as return on equity, debt ratio, following the calculation earning before interest and tax , earning 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, debt and dividend for both types of companies although maintaining a high risk of debt. Finally, the study recommended for a regular check up the level of debt, earning before interest and tax (EBIT), earning before tax (EBT) and earning per share (EPS) by monitoring authority, so that the companies would not fall into a weaker position.

**Dangol** (2010), has made a study on, “*Study on Capital Structure Management of Gorakhkali Rubber Udyog Ltd.*” The basic objective was to analyze the debt equity ratio, interest coverage ratio with some of the measures to improve the policy. The study had analyzed all the variables in the form of ratio analysis.

The study has found that as compared to the shareholder’s equity and the trend of debt equity the ratio was increasing everyday, and company’s debt serving capacity was very poor due to the negative interest coverage ratio. In addition, the operational performance was not satisfactory due to negative earnings and low volume of sales revenue, and the company was not able to utilize its capacity more than 50% which result the huge losses. Eventually, the study has suggested lowering down the amount of debt and obtaining additional funds through issue of equity share, improving its working capital and reducing over staff, making strategic plans and developing the motivations management.

## **2.4 Research Gap**

All the above studies are concerned with the research title ‘Capital Structure.’ Some researchers have selected various companies for the research and some have concentrated in only one institution. However, the impact of capital

structure on profitability of the banks has been more or less ignored. The present study ascertains such loophole and tries to focus the impact of capital structure on profitability of the airlines. For this correlation and regression analysis between net profit and long term debt, net profit and shareholders equity have been analyzed. Along with these, the DU Pont analysis, cost of capital and other indicators of capital structure are also equally mentioned.

## **CHAPTER - III**

### **RESEARCH METHODOLOGY**

#### **3.1 Research Design**

In research, the success or failure of the study work depends to a very large extent on the research methodology employed. The objective of the study is to evaluate the capital structure of the organization under the study and its impact in the profitability of the organization. Information under the study period time is analyzed to suggest for the improvement of the financial efficiency and structure. To fulfill the objectives of the study certain research design is essential so the analysis of this study is based on the nature of data and tools for analysis. To fulfill the objectives of the study it emphasizes on analytical as well as descriptive research design.

#### **3.2 Population and Sample**

After the adoption of the open sky policy, the increment in domestic airlines has increased tremendously. Further, the international airlines are also serving their services. The study of all these airlines is almost impossible in this thesis. Thus only three airlines, namely Gorkha Airline, Buddha Airline and Agni Airline, have taken as sample for the study, to analyze the capital structure.

### **3.3 Nature and Sources of Data**

The study is based on historical or secondary data. This secondary data is extensively used in this. The raw secondary data is not modified to some extent for the study purpose. Mostly data is collected from the Balance Sheet, Income statement and from other supporting documents. Some other necessary data in this study have also been supplemented by visiting the official website of Ministry of Tourism and Civil Aviation and various related journal in capital structure.

### **3.4 Tools Used**

Different tools have been selected according to the nature of data as well as subject matter. Mainly financial and statistical tools have been extensively used;

#### **3.4.1 Financial Tools**

The financial tools that have been used for the analyzing the data are enumerated below;

##### **A) Leverage Ratios**

Leverage is result from the use of fixed cost assets or funds to magnify returns of the firm's owners. Change in leverage result in change leverage of return and associated risk, where as decreased in leverage result in decreased return and risk. So, the employment of an asset or source for which the firm has to pay a fixed cost or fixed return may be termed as leverage. Two types of leverage have been used for the study;

### **i) Degree of Operating Leverage**

Operating leverage is defined as the extent to which fixed costs arises from employing larger amount of capital , thus permitting the firm to operate with reduced labor and smaller variable costs. So, it is defined as the percentage change in operating income (EBIT) associated with a given percentage change in sales.

$$DOL = \frac{\% \text{ Change in EBIT}}{\% \text{ Change in Sales}} \times 100$$

### **ii) Degree of Financial Leverage**

The degree of financial leverage at a particular EBIT level is measured by the percentage change in earning per share relative to the percentage change in EBIT. The company needs a lot of funds to operate activities these funds are collected from different sources having different rates. On the way to profitability, the company can use equity capital. In the process of profit planning, it tries to increase the amount of profit, but different kinds of leverage considered. Degree of financial leverage (DFL) measures proportionate change in EPS as a result of given change in EBIT. The financial leverage measures the financial risk arises due to the interest.

$$DFL = \frac{\% \text{ Change in EPS}}{\% \text{ Change in Sales}} \times 100$$

## **B) Ratio Analysis**

Ratio Analysis is the powerful tool of financial analysis. Financial ratio presents the relationship between two accounting figure expressed mathematically. Ratio analysis is defined as the systematic use of ratio to interpret the financial statements so that the strengths and weakness of a firm as well as its historical performance and current financial condition can be determined. The required financial ratios for this study are as follows:

### **i) Long Term Debt to Total Debt Ratio**

The relationship between long term debt and total debt has a decisive impact on the financial structure of all two companies under study. Debt is considered as the total debt, which includes all secured and unsecured loan. Within these two types of loan there comes long term, short term debt, debenture, overdraft etc. It is externally borrowed from financial institute. Debt capital should be limited up to a level, which the earning capacity of the firm can support. Otherwise, the company has to sell its assets and be forced to go into liquidation. The ratio of long term debt to total debt indicates what percentage of company's total debts is included in the form of long term debt. It is calculated as;

$$\text{Long Term Debt to Total Debt Ratio} = \frac{\text{Long Term Debt}}{\text{Total Debt Capital}} \times 100$$

### **ii) Debt to Total Asset Ratio**

The total debt of the firm comprises long term debt plus current liabilities while total assets consist of permanent capital plus current liabilities. Assets may be described as valuable resources owned by a business which have been acquired at a measurable money cost. Assets as an economic resource satisfy three requirements. They are firstly, the resources must be valuable or it may provide future benefits to the operations of the firms; secondly, the resources must be owned, and thirdly the resources must be acquired at a measurable money cost. A comparison of debt ratio for a given company with those of similar firms gives us a general indication, of the credit worthiness and financial risk of the firm. The reason, that is a general indication, is that the assets and cash flows of the firm provide the wherewithal for payment of debt.

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

### **iii) Shareholders' Equity to Total Assets Ratio**

Equity capital is other part of the capital structure of the firm and it is considered as less pernicious to the financial performance. This ratio established a relationship between shareholders equity and total assets. Shareholders' equity to total asset ratio inform us about the proportion of total assets of the company financed by the ownership capital. This ratio can be calculated by dividing the shareholders equity by the total assets.

$$\text{Shareholders' Equity to Total Assets Ratio} = \frac{\text{Total Sharholders' Equity}}{\text{Total Assets}} \times 100$$

#### **iv) Interest Coverage Ratio**

It is also known as time interest earned ratio. This ratio measures the debt servicing capacity of a firm in so far as fixed interest on long term loan is earned. It is determined by dividing the operating profits or earnings before interest and taxes (EBIT) by the fixed interest charges on loans. The interest coverage ratio shows many firms the interest charges are covered by funds that are ordinarily available to pay the interest. This is calculated as,

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

#### **v) Net Profit Margin**

Profit is the ultimate goal of any business organization. The company can ascertain out its profitability with the help of profit margin ratio. The profitability is directly related to the sales revenue of the company; therefore, it is clearly known that the only way of increasing profit is the increase in sales volume and decrease in cost.

$$\text{Net Profit Margin} = \frac{\text{Net Profit After Tax}}{\text{Sales}} \times 100$$

#### **vi) Earning Per Share**

Earning per share refers the rupee amount earned per share of common stock outstanding. It measures the return of each equity shareholders. The higher earning indicates the better achievements of the profitability of the banks by mobilizing their funds and vice versa. This ratio can be computed by dividing the earning available to common shareholders by the total number of common stock outstanding of banks.

$$\text{EPS} = \frac{\text{Earning Available to Common Stockholders}}{\text{No. of Common Stock Outstanding}}$$

### **C) DU-Pont Analysis**

The Du- Point Analysis was named after the name of the American company “Du-pont” which introduced the idea of measuring the efficiency of the company. Under this, the efficiency of the firm in generating profit from effectively mobilizing total assets and equity capital will be measured.

#### **i) Return on Equity**

The ratio of net profit taxes to equity measures the state of return on the stockholder’s investment. This ratio tells us the earning power on shareholders equity and is frequently used in comparing two or more firms in an industry. It also indicates that the funds supplied by owners. The higher ratio indicates that the funds using have effective in the company. It reflects the extent to which the objective of profit maximization has been achieved.

$$\text{ROE} = \frac{\text{Net Profit after Tax}}{\text{Shareholders' Equity}}$$

#### **ii) Return on Total Assets**

Return on total assets ratio measures the profitability of bank that explains a firm to earn satisfactory return on all financial resources invested in the bank



assets. The ratio explains net income for each unit of assets. Higher ratio indicates efficiency in utilizing its overall resources and vice versa.

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

#### **D) Cost of Capital**

The cost of capital is the minimum rate of return which a firm must earn in order to maintain the market value of the firm. It is the minimum acceptable rate of return i.e. cut off point or hurdle rate for the investment and financing decision.

##### **i) Overall Cost of Capital**

The combined cost of all sources of capital is called overall, or average, cost of capital ( $K_0$ ). Cost of individual sources and their proportions determines the cost of capital of the firm. Thus the overall cost is also called the weighted average cost of capital. The weighted average cost of capital is computed by using two weights basis or it is computed by dividing the EBIT by the value of the firm.

$$K_0 = \frac{\text{EBIT}}{\text{Value of the Firm}} \times 100$$

##### **ii) Equity Capitalization Rate**

The equity capitalization rate measures the relationship between the earning before tax and the market value of share. High ratio indicates is favorable for the firm and vice-versa. It is calculated by dividing the EBT by market price per share.

$$K_e = \frac{\text{EBT}}{\text{Market Value of Share}} \times 100$$

### 3.4.2 Statistical Tools

Many statistical tools are often employed in the analysis and interpretation of data as an aid to management and managerial decision. Following statistical are used more systematically in this study.

#### i) Mean

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

Let  $x_1, x_2, x_3, \dots, x_n$  be the  $n$  values of the variable then their arithmetic mean be denoted by  $\bar{x}$  is defined by,

$$\bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{n}$$

Where,  $n$  is the number of observations.

#### ii) Standard Deviation

The standard deviation is the absolute measure 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 requisites of a good measure of dispersion.

$$\text{s.d.} = \sqrt{\frac{\sum (x - \bar{x})^2}{N}}$$

#### iii) Coefficient of Variation

The coefficient of dispersion based on standard deviation multiplied by 100 is known as the coefficient of variation (C.V.). Less the C.V., more will be the uniformity and more the C.V., less will be uniformity. If  $\bar{x}$  be the arithmetic mean and s.d the standard deviation of the distribution, then the C.V. is defined

by,

$$\text{C.V. \%} = \frac{\text{S.D.}}{\text{Mean}} \times 100$$

#### iv) Correlation Coefficient

Correlation coefficient measures the relationship between two variables, when they are so related that the change in value of one variable is accompanied by the change in the value of the other. It contributes to the understanding of economic behavior, aids in locating the critical important variables on which others depend, may reveal to the economist the connection by which disturbances spread stabilizing forces may become effective. The correlation co-efficient denoted by 'r' and shows the direction of relationship between coefficients.

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

Where,

r = Correlation coefficient

N = No. of Observation

X, Y = Variables.

#### v) 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 independent variable (X) is given by;

$$y = a + bx$$

We shall get the normal equation for estimating "a" and "b" as.

$$\sum X = Na + b \sum Y$$

$$\sum XY = a \sum Y + b \sum Y^2$$

Where,

X = the value of independent variable

Y = the value of dependent variable

a = Y-intercept

b = slope of the trend line/coefficient of regression

N = number of pairs of observations.

$a = Y - b X$

#### **vi) Probable Error**

The probable error of the coefficient of correlation helps in interpreting its value with the help of probable error it is possible to determine the reliability of the value of the coefficient is done for as it depends on the condition of random sampling. The P.E. of the coefficient of correlation is obtained as follows.

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

#### **Note:**

- If the value of r is less than the P.E. there is no evidence of correlation i.e. the value of r is not significant.
- If the value of r is more than 6 times of P.E. the coefficient of correlation is practically certain i.e. the value of r is significant.

## CHAPTER - IV

### DATA PRESENTATION AND ANALYSIS

#### 4.1 Analysis of Leverage

Leverage results from the use of fixed cost assets or funds to magnify returns of the firm's owners. First the operating leverage is defined as the extent to which fixed costs arise from employing larger amount of capital, thus permitting the firm to operate with reduced labor and smaller variable cost. Second the financial leverage refers to the firm's use of fixed-income securities such as debt and preferred stock and financial risk is the additional risk placed on the common stockholders as a result of using financial leverage.

##### 4.1.1 Degree of Operating Leverage

The degree of operating leverage (DOL) is defined as the percentage change in operating income (EBIT) associated with a given percentage change in sales. The operating leverage can be measured as the degree of operating leverage (DOL) in the following table.

**Table: 4.1**

#### **Degree of Operating Leverage (Unit in %)**

FY	Gorkha			Buddha			Agni		
	% Change in EBIT	% Change in Sales	DOL	% Change in EBIT	% Change in Sales	DOL	% Change in EBIT	% Change in Sales	DOL
2004/05	23.53	21.41	1.10	39.31	9.60	4.09	-----	-----	----
2005/06	-12.35	17.71	-0.70	8.11	6.58	1.23	-----	-----	----
2006/07	140.84	22.65	6.22	15.80	17.45	0.91	1,204.32	199.28	6.04
2007/08	15.57	12.98	1.20	-26.97	3.54	-7.61	27.19	26.64	1.02
2008/09	5.89	5.85	1.01	18.90	4.19	4.51	0.59	11.28	0.05
<b>Mean</b>			<b>1.77</b>			<b>0.63</b>			<b>2.37</b>
<b>S.D.</b>			<b>2.33</b>			<b>4.37</b>			<b>2.63</b>

C.V.%			132.23			697.81			110.7
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(Source: Appendix – I)

The table measures the effect of sales on EBIT of the selected airlines on the basis of degree of operating leverage. The table depicts that, if the sales increases by 1%, the EBIT of the Gorkha airlines increases by 1.10 times in the fiscal year 2004/05, as the DOL is 1.10 times in that year. Amazingly, the change in the sales has negative impact on the EBIT of such airline in the fiscal year 2005/06, as the DOL is negative, -0.70 times. This indicates that Gorkha airlines should concentrate on controlling the cost of goods sold to get positive impact of sales in EBIT. However, in the remaining years, the airline has positive DOL, indicating positive impact of sales on EBIT. The DOL of Gorkha airline has ranged from -0.70 times in the fiscal year 2005/06 to 6.22 times in the fiscal year 2006/07. In average, the DOL is 1.77 times, indicating that 1% increase in sales leads to 1.77 times increase in EBIT of such airline. However, the coefficient of variation, 132.23%, shows greater inconsistency in the impact rate.

Similarly, the DOL of Buddha airline has followed decreasing trend for the first four fiscal years, i.e. from 4.09 times in the fiscal year 2004/05 to -7.61 times in the fiscal year 2007/08, and finally the DOL has increased to 4.51 times in the fiscal year 2008/09. The higher the proportionate change in EBIT to sales has caused to highest DOL, 4.51 times, in the fiscal year 2008/09. In average, the DOL is 0.63 times, which indicates that 1% increase in sales of Buddha airline leads to 0.63 times increase in EBIT. Further, the coefficient of variation, 697.81%, indicates non uniformity in the DOL.

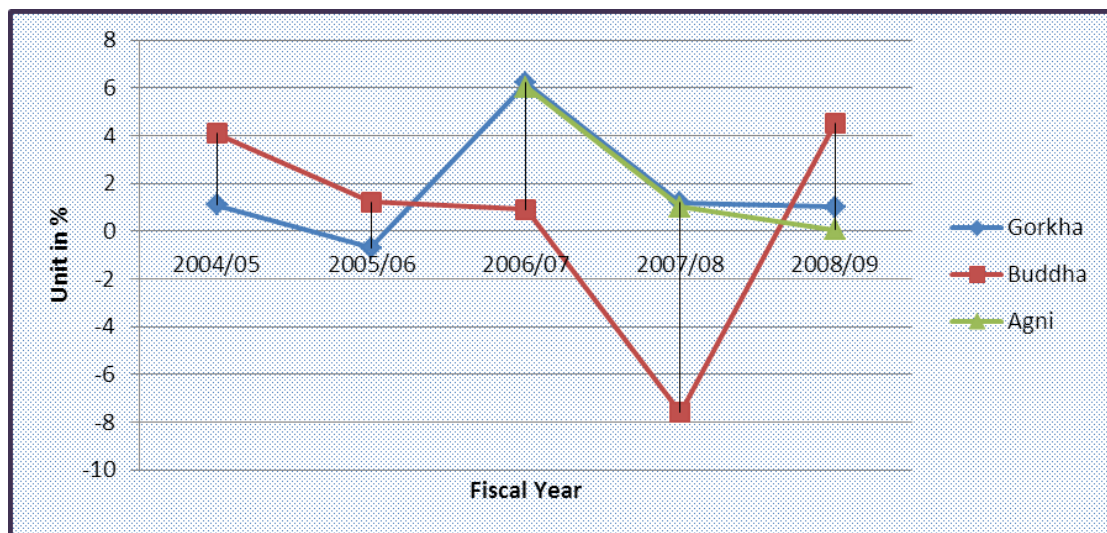
Since, the Agni airline has started its operation from the fiscal year 2005/06, the percentage change in EBIT and Sales in that year is impossible, as a result the study computes the DOL only for the three fiscal years. The percentage change in EBIT for the fiscal year 2006/07 is most high, as a result the DOL in

that fiscal year is highest, i.e. 6.04 times. However, the DOL has followed decreasing trend and thus has reached to 1.02 times in the fiscal year 2007/08 and 0.05 times in the fiscal year 2008/09. In average, the DOL of the airline is 2.37 times and the coefficient of variation is 110.70%. The decreasing trend in DOL implies that Agni airline has less control over the increasing cost of sales.

Comparing three airlines, it can be concluded that the positive impact of change in sales on change in EBIT is highest in Agni, since the average DOL is highest in Agni than in Gorkha and Buddha airlines. Also, the DOL is most uniform in Agni.

**Figure: 4.1**

**Degree of Operating Leverage**



#### 4.1.2 Degree of Financial Leverage

The degree of financial leverage is the percentage change in earning available to common shareholders (EPS) associated with a particular percentage change in EBIT. The degree of financial leverage is calculated and shown in the following table.

**Table: 4.2**

**Degree of Financial Leverage (Unit in %)**

FY	Gorkha			Buddha			Agni		
	% Change in EPS	% Change in EBIT	DFL	% Change in EPS	% Change in EBIT	DFL	% Change in EPS	% Change in EBIT	DFL
2004/05	-15.20	23.53	-0.65	243.66	39.31	6.20	-----	-----	----
2005/06	-246.16	-12.35	19.93	-17.53	8.11	-2.16	-----	-----	----
2006/07	-60.59	140.84	-0.43	117.09	15.80	7.41	-134.70	1,204.32	-0.11
2007/08	36.61	15.57	2.35	-55.80	-26.97	2.07	115.28	27.19	4.24
2008/09	71.98	5.89	12.22	-9.19	18.90	-0.49	16.98	0.59	28.78
<b>Mean</b>			<b>6.69</b>			<b>2.61</b>			<b>10.97</b>
<b>S.D.</b>			<b>8.12</b>			<b>3.70</b>			<b>12.72</b>
<b>C.V.%</b>			<b>121.38</b>			<b>142.10</b>			<b>115.95</b>

*(Source: Appendix – I)*

As mentioned in the above table, the calculation of DFL for Gorkha in the F.Y. 2004/05 is -0.65, which indicates a change in EBIT by 1% will affect the EPS by -0.65%. However, the DFL in the subsequent year is in fluctuating trend. Therefore, the company should try to streamline these things, otherwise, it can think about changing its capital structure to get reliable condition of the company. The DFL in the F.Y. 2005/06 is 19.93 times, in the F.Y. 2006/07 is -0.43 times and in the F.Y. 2007/08 is 2.35 times, and in the F.Y. 2008/09 is 12.22 times, which means 1% change in EBIT will cause the EPS by 19.93%, -0.43%, 2.35% and 12.22% respectively. In average, the DFL of Gorkha airline is 6.69 times, indicating 6.69% change in EPS due to 1% change in EBIT.

Similarly, the calculation of DFL for Buddha shows fluctuating trend in the observed periods. The DFL for the F.Y. 2004/05, 2005/06, 2006/07, 2007/08 and 2008/09 is 6.20 times, -2.16 times, 7.41 times, 2.07 times and -0.49 times. The negative DFL in the fiscal year 2005/06 and 2008/09 is due to the lower EPS in such fiscal years compared to that of previous year. In other word, the airline has made lower profit in such year compared to that of previous year,



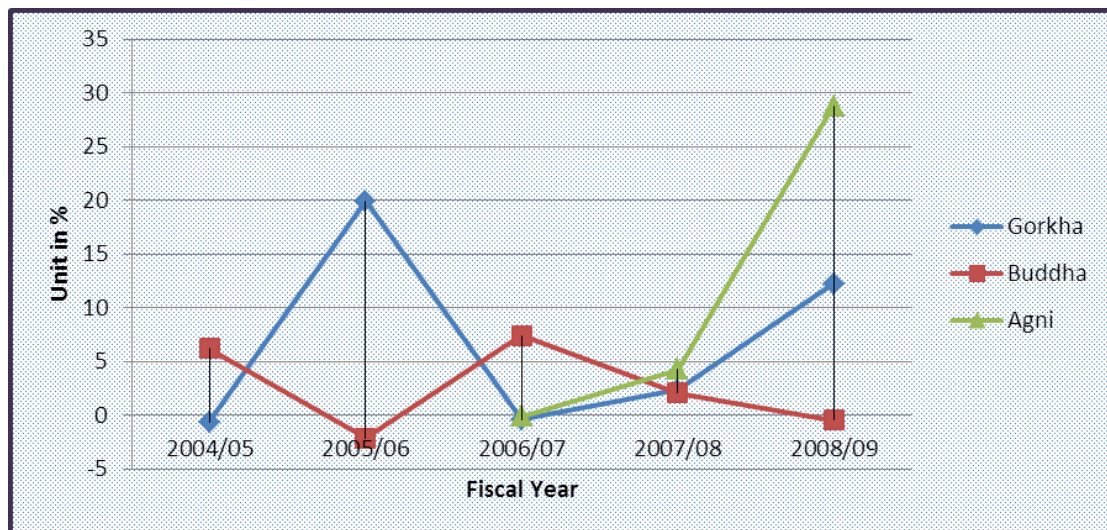
which has resulted negative DFL. In average, the DFL of Buddha airline is 2.61 times and the coefficient of variation in the ratio is 142.10%.

In contrast, the DFL of Agni airline is in increasing, although it is negative in the base year. The DFL of the airline is -0.11 times in the fiscal year 2006/07, and then it has increased to 4.24 times in the fiscal year 2007/08 and it has dramatically increased to 28.78 times in the fiscal year 2008/09. This increment in DFL indicates that even a small change in EBIT leads to greater change in EPS, tacitly depicting the control over non operating expenses. In average, the DFL of Agni airline is 10.97 times and the variation in the leverage ratio is 115.95%.

Comparing three airlines, it can be concluded that Agni airline has greater control over the non operating expenses, and thus even a small change in EBIT leads to greater increase in EPS in such airline. However, none of the companies' DFL has consistency, which is not a good sign; therefore companies should concentrate on restructuring their structure of capital.

**Figure: 4.2**

**Degree of Financial Leverage**



## 4.2 Ratio Analysis

The following ratios are computed in order to evaluate the leverage or capital structure of selected airlines.

### 4.2.1 Long Term Debt to Total Debt

It is measured by dividing the Long Term Debt (LTD) by Total Debt (TD).

Long Term Debt as a percentage of Total Debt shows the proportion of LTD on the TD of the company. The calculation of LTD as a percentage of TD is presented in the following table:

**Table: 4.3**

**Long Term Debt to Total Debt (Unit in %)**

FY	Gorkha		Buddha		Agni	
	Ratio	Change	Ratio	Change	Ratio	Change
2004/05	62.33	6.09	84.43	-2.83	-----	-----
2005/06	50.23	-12.10	88.89	4.46	0.00	-----
2006/07	50.80	0.56	77.71	-11.17	85.79	85.79
2007/08	62.73	11.93	73.33	-4.38	85.54	-0.25
2008/09	64.35	1.63	66.79	-6.54	84.61	-0.93
<b>Mean</b>	<b>58.09</b>		<b>78.23</b>		<b>63.99</b>	
<b>S.D.</b>	<b>6.22</b>		<b>7.84</b>		<b>36.95</b>	

<b>C.V.%</b>	<b>10.72</b>		<b>10.02</b>		<b>57.74</b>	
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(Source: Appendix – I)

The above table depicts the representation of long term debt in the total debt capital owed. Gorkha airline has focused to finance its debt requirement through long term debt, as a result the representation of LTD on total debt is just above the half of the total debt. Also, it is clear that the ratio of long term debt total debt capital has followed fluctuating trend, as a result the percentage change in the ratio is negative in the fiscal year 2005/06. The ratio has ranged from 50.23% in the fiscal year 2005/06 to 64.35% in the fiscal year 2008/09. In average, 58.09% of the debt requirement has been fulfilled by long term debt in Gorkha airline, and the variation in the ratio has fluctuated by 10.72% only.

Likewise, the ratio of long term debt total debt in Buddha airline has increased in the first two years, i.e. from 84.43% in the fiscal year 2004/05 to 88.89% in the fiscal year 2005/06, and then it has followed decreasing trend and eventually it has reached to 66.79% in the fiscal year 2008/09. In average, the ratio is 78.23%, and the coefficient of variation in the ratio is 10.02%.

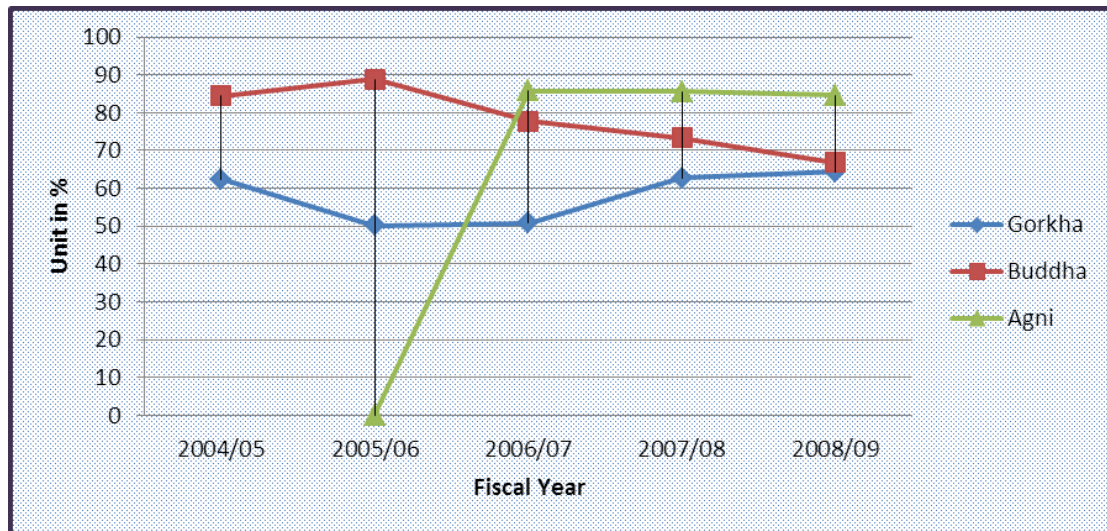
Similarly, Agni airline has used no long term debt to meet its capital requirement in the fiscal year 2005/06, establishment years, as a result the long term debt to total debt ratio is nil. While, the ratio is 85.79% in the fiscal year 2006/07, 85.54% in the fiscal year 2007/08, 84.61% in the fiscal year 2008/09. There is paltry decrement in the ratio within these years. In average, Agni airline meets 63.99% of the total debt capital through long term debt. And the variation in the long term borrowing to total debt capital is 57.74%, highly inconsistency in the ratio.

Comparing the airlines, it can be concluded that Buddha airline is foremost in borrowing the long term debt to meet the debt capital and thus is most

aggressive. Further, there is most consistency in the long term debt to total capital ratio in Buddha airline than in Gorkha airline and Agni airline.

**Figure: 4.3**

**Long Term Debt to Total Debt**



**4.2.2 Debt to Total Assets Ratio**

The amount of debt used for financing the assets of the company is measured by the Debt to Total Asset ratio. A higher debt to total assets ratio indicates that the creditors have the greater claim on total assets than the owners have. The higher the ratio, the greater than firm's financial risk and vice versa. The debt to total asset ratio for the selected airlines is calculated and presented in the following table:

**Table: 4.4**

**Debt to Total Assets Ratio**

**(Unit in %)**

<b>FY</b>	<b>Gorkha</b>	<b>Buddha</b>	<b>Agni</b>
-----------	---------------	---------------	-------------

	<b>Ratio</b>	<b>Change</b>	<b>Ratio</b>	<b>Change</b>	<b>Ratio</b>	<b>Change</b>
2004/05	85.63	8.35	83.70	-2.31	-----	-----
2005/06	93.85	8.22	80.78	-2.92	59.80	-----
2006/07	89.58	-4.27	71.37	-9.40	42.20	-17.61
2007/08	84.21	-5.37	66.83	-4.55	43.48	1.28
2008/09	74.91	-9.30	62.02	-4.81	46.99	3.51
<b>Mean</b>	<b>85.63</b>		<b>72.94</b>		<b>48.12</b>	
<b>S.D.</b>	<b>6.33</b>		<b>8.20</b>		<b>6.97</b>	
<b>C.V.%</b>	<b>7.39</b>		<b>11.24</b>		<b>14.49</b>	

(Source: Appendix – I)

The debt to total asset ratio of Gorkha airline for the fiscal year 2004/05, 2005/06, 2006/07, 2007/08 & 2008/09 is 685.63%, 93.85%, 89.58%, 84.21% and 74.91% respectively. The average debt to total ratio for the airline for the research period is 85.63%. This seems that the airline is following aggressive policy to finance the total assets and hence the claim of outsider on the total assets of the airline is higher than that of the investors. The company should try to maintain the ratio at the optimum level that will be suitable for the company. However, the coefficient of variation, 7.39%, on the ratio indicates sound uniformity in the financing policy of the airline.

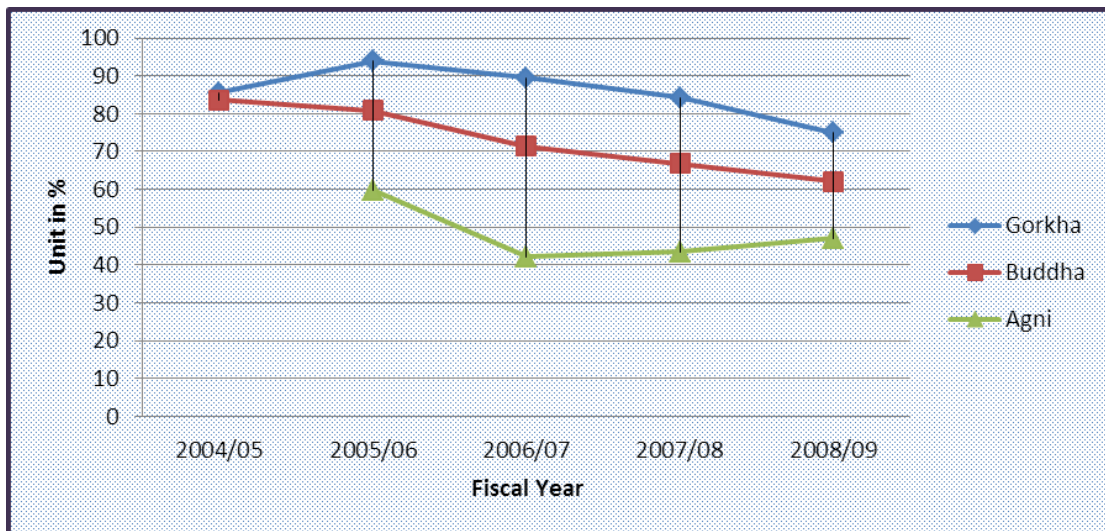
Similarly, the debt to total assets ratio of Buddha airline is also high in the observed periods. The ratio has followed decreasing trend in the five consecutive fiscal years. The ratio in Buddha has thus ranged from 83.70% in the fiscal year 2004/05 to 62.02% in the fiscal year 2008/09. The deduction in the ratio is greatest, 9.40%, in the fiscal year 2006/07. Nonetheless, Buddha airline has financed 72.94% of the total assets through debt capital, in average. The coefficient of variation in the ratio is also 11.24%, indicating quite consistency.

In contrast, Agni airlines relies almost equal preponderance of both debt capital and equity capital. The ratio of debt capital to total assets in Agni is 59.80% in the fiscal year 2005/06, 42.20% in the fiscal year 2006/07, 43.48% in the fiscal year 2007/08 and 46.99% in the fiscal year 2008/09. In average, 48.12% of the total assets of Agni has been financed through outside source, and there is highest decrement, -17.61%, in the ratio in the fiscal year 2006/07.

Comparing the airlines, it can be considered that Gorkha airline is the most risk taker airline, as it takes aggressive position to finance the total assets through debt capital, and Agni airline is the risk averter airline, as it follows moderate policy to finance the total assets. Hence, the total assets of Gorkha airline is most confronted to the risk than that of other airlines. Whatever may be the policy, the airline should think whether adopting a particular policy in financing total assets has positive impact in making profitability.

**Figure: 4.4**

**Debt to Total Assets Ratio**



**4.2.3 Shareholders Equity to Total Assets Ratio**

This ratio established a relationship between shareholders equity and total assets. Shareholders equity to total asset ratio inform us about the proportion of

total assets of the company financed by the ownership capital. This ratio can be calculated by dividing the shareholders equity by the total assets.

**Table: 4.5**

**Shareholders Equity to Total Assets Ratio (Unit in %)**

FY	Gorkha		Buddha		Agni	
	Ratio	% Change	Ratio	% Change	Ratio	% Change
2004/05	14.37	-36.77	16.30	16.48	-----	-----
2005/06	6.15	-57.18	19.22	17.90	40.20	-----
2006/07	10.42	69.37	28.63	48.93	57.80	43.80
2007/08	15.79	51.56	33.17	15.89	56.52	-2.22
2008/09	25.09	58.87	37.98	14.50	53.01	-6.21
<b>Mean</b>	<b>15.76</b>		<b>24.88</b>		<b>51.88</b>	
<b>S.D.</b>	<b>6.56</b>		<b>8.93</b>		<b>6.97</b>	
<b>C.V.%</b>	<b>41.64</b>		<b>35.89</b>		<b>13.44</b>	

*(Source: Appendix – I)*

The table delineates the contribution of shareholders in financing total assets of the airlines. Except in the fiscal year 2005/06 and 2004/05, it seems that the shareholders' equity to total assets in the Gorkha airline has followed increasing trend in the remaining years. Since, the core capital of the airline has not increased in the five consecutive years, the increment in the ratio is solely due to the increment in the reserve and surplus. The shareholder's equity to total assets ratio of Gorkha airline has ranged from 6.15% in the fiscal year 2005/06 to 25.09% in the fiscal year 2008/09. In average, the shareholder's equity has covered 15.76% of the total assets, which is quite low. And the coefficient of variation in such coverage is 41.64%, indicating inconsistency in the ratio.

Although the coverage of the shareholder's equity in total assets is also low in the Buddha airline, it has progressed in the five year periods, and thus it is in

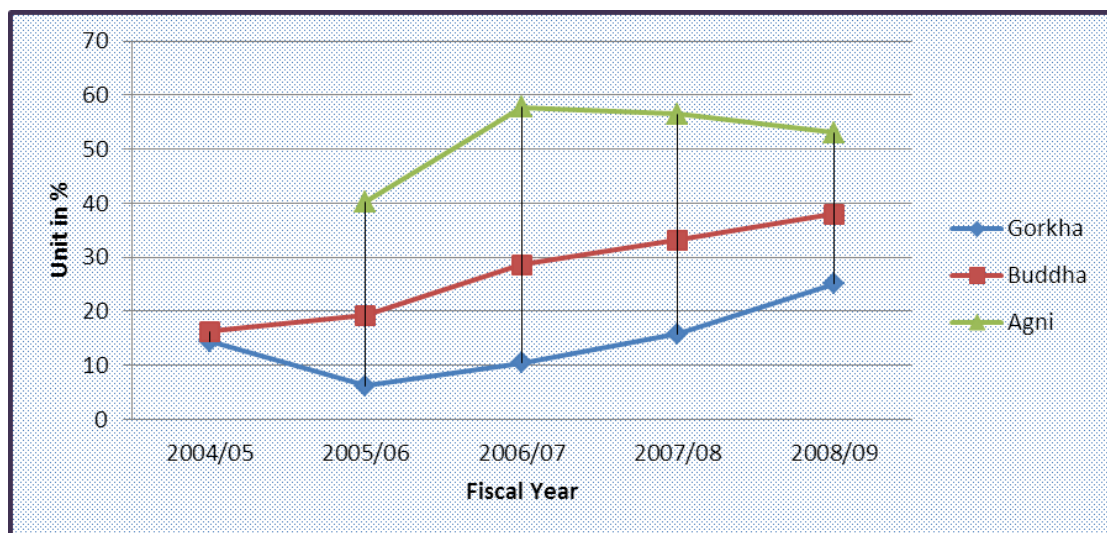
increasing trend. The ratio has increased from 16.30% in the fiscal year 2004/05 to 37.98% in the fiscal year 2008/09. Comparing to the ratio of previous year, there is most extensive increment in the fiscal year 2006/07, when the percentage change in the ratio is 48.93%. In average, Buddha has financed 24.88% of the total assets through internal capital and the variation in the ratio is 35.89%.

Likewise, the equity capital representation on total assets of Agni airline is in fluctuating trend. The ratio is 40.20% in the fiscal year 2005/06 and then it has increased to 57.80% in the fiscal year 2006/07, decreased to 56.52% in the fiscal year 2007/08 and finally decreased to 53.01% in the fiscal year 2008/09. In average, Agni airline has financed 51.88% of the total assets through equity finance. Also the percentage change in the ratio is highest, 43.80%, in the fiscal year 2006/07 compared to that of previous year.

Comparing the airlines, it can be considered that the total asset of Agni airline is least vulnerable to the risks than that in other airline, since the mobilization of internal financing bears less risk.

**Figure: 4.6**

**Shareholders Equity to Total Assets Ratio**





#### 4.2.4 Interest Coverage Ratio

The coverage ratio is calculated with the help of profit and loss account of the company, by which the company can analyze its own capability for the payment of fixed charges. Coverage ratio is one of the parts of capital structure and leverage ratio. It is concerned with the firm's capacity to pay fixed charges on fixed charge bearing sources of financing.

**Table: 4.6**

#### **Interest Coverage Ratio (Ratio in Times)**

FY	Gorkha		Buddha		Agni	
	Ratio	% Change	Ratio	% Change	Ratio	% Change
2004/05	1.56	45.70	4.17	19.46	-----	-----
2005/06	1.22	-21.65	3.43	-17.78	0.78	-----
2006/07	2.79	128.68	8.47	147.34	5.90	653.56
2007/08	2.31	-17.16	4.37	-48.48	5.51	-6.65
2008/09	3.31	42.98	2.99	-31.58	4.16	-24.59
<b>Mean</b>	<b>2.24</b>		<b>4.68</b>		<b>4.09</b>	
<b>S.D.</b>	<b>0.77</b>		<b>1.96</b>		<b>2.02</b>	
<b>C.V.%</b>	<b>34.33</b>		<b>41.83</b>		<b>49.29</b>	

*(Source: Appendix – I)*

For Gorkha airline, the EBIT is sufficient to repay its interest charges, since the EBIT is higher than interest in each fiscal year, as a result the interest coverage ratio is greater than 1 time in each fiscal year. The interest coverage ratio of Gorkha airline has ranged from 1.22 times in the fiscal year 2005/06 to 3.31 times in the fiscal year 2008/09. Further, the percentage change in the ratio is highest, 128.68%, in the fiscal year 2006/07. In average, the airline has maintained the EBIT that is 2.24 times the interest expenses, and the variation

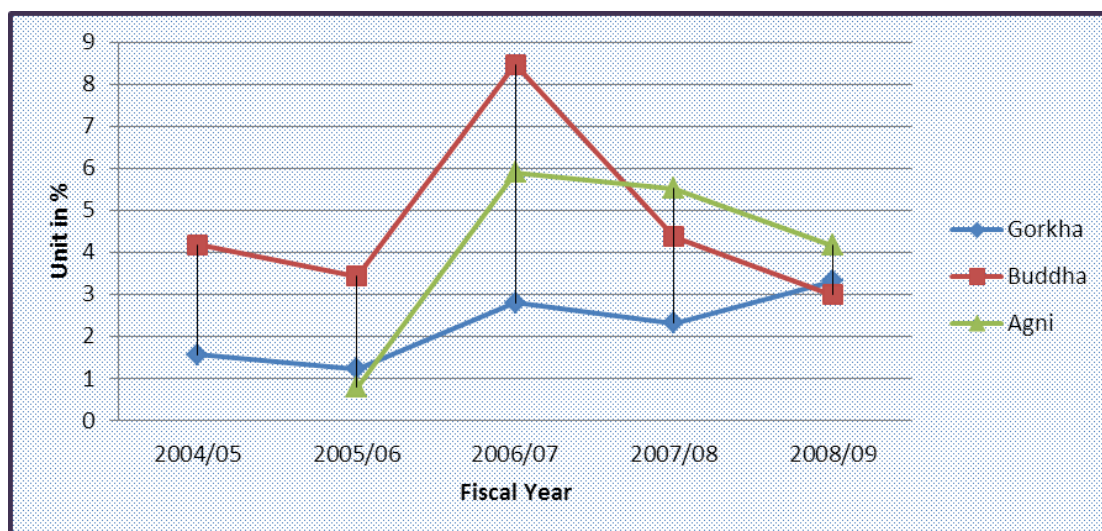
in the ratio is 34.33%, high inconsistency. The airline should decrease its debt in order to decrease interest and thus to increase profit and remain sustained. The airline should try to manage its debt in relationship with its profit.

Similarly, for Buddha airline the interest coverage ratio is 4.17 times in the fiscal year 2004/05, which has decreased to 3.43 times in the fiscal year 2005/06, then it has increased in greater extent to 8.47 times in the fiscal year 2006/07, again it has decreased to 4.37 times in the fiscal year 2007/08, and finally it has decreased to 2.99 times in the fiscal year 2008/09. In average the EBIT of Buddha airline is 4.68 times greater than the interest expenses, which indicates adequacy in the EBIT to cover the interest charge. However, the coefficient of variation, 41.83%, indicates inconsistency in the ratio.

The situation for Agni is not so pleasing regarding the interest coverage ratio. The ratio is 0.78 times in the fiscal year 2005/06, which means the EBIT is lower than the interest expenses, and eventually the airline has to borrow loan even to pay the interest. However, the interest coverage ratio of Agni has been enhanced and thus is high after the fiscal year 2005/06. The ratio is 5.90 times in the fiscal year 2006/07, 5.51 times in the fiscal year 2007/08 and 4.16 times in the fiscal year 2008/09. In average the EBIT of Agni airline is 4.09 times greater than the interest expenses. But the ratio has fluctuated by 49.29% in the five year periods.

Among the observed airlines, it can be said that the Buddha has most robust EBIT to cover the interest expenses. This indicates that Buddha airline has more effective control over the operating expenses and the debt capital may be less costly in terms of interest expenses.

**Figure: 4.6**  
**Interest Coverage Ratio**



#### 4.2.5 Profit Margin

Profit is the main target for any business organization. The company can find out its profitability with the help of profit margin ratio. The profitability is directly related to the sales revenue of the company; therefore, it is clearly known that the only way of increasing profit is the increase in sales volume and decrease in cost. The following table illustrates the profit margin ratios for the airline companies selected for the study.

**Table: 4.7**

**Profit Margin (Unit in %)**

FY	Gorkha		Buddha		Agni	
	NPM	% Change	NPM	% Change	NPM	% Change
2004/05	-7.78	-30.16	5.19	213.54	-----	-----
2005/06	9.66	-224.17	4.01	-22.62	-18.37	-----
2006/07	3.10	-67.87	7.42	84.84	2.13	-111.59
2007/08	3.75	20.92	3.17	-57.31	3.62	70.00
2008/09	6.10	62.47	2.76	-12.84	3.81	5.12
<b>Mean</b>	<b>2.97</b>		<b>4.51</b>		<b>-2.20</b>	
<b>S.D.</b>	<b>5.84</b>		<b>1.68</b>		<b>9.36</b>	
<b>C.V.%</b>	<b>196.94</b>		<b>37.15</b>		<b>-424.62</b>	

*(Source: Appendix – I)*

The profit margin ratio of Gorkha airline is fluctuating very much and reached negative at the base year, as the company suffers from loss. The ratio for the fiscal year 2004/05, 2005/06, 2006/07, 2007/08 & 2008/09 is -7.78%, 9.66%, 3.10%, 3.75% & 6.10% respectively. The average ratio of profit margin for the airline is 2.97%. The increase in sales has resulted in the increase in net profit. However, the coefficient of variation of 196.94% indicates greater inconsistency in the margin.

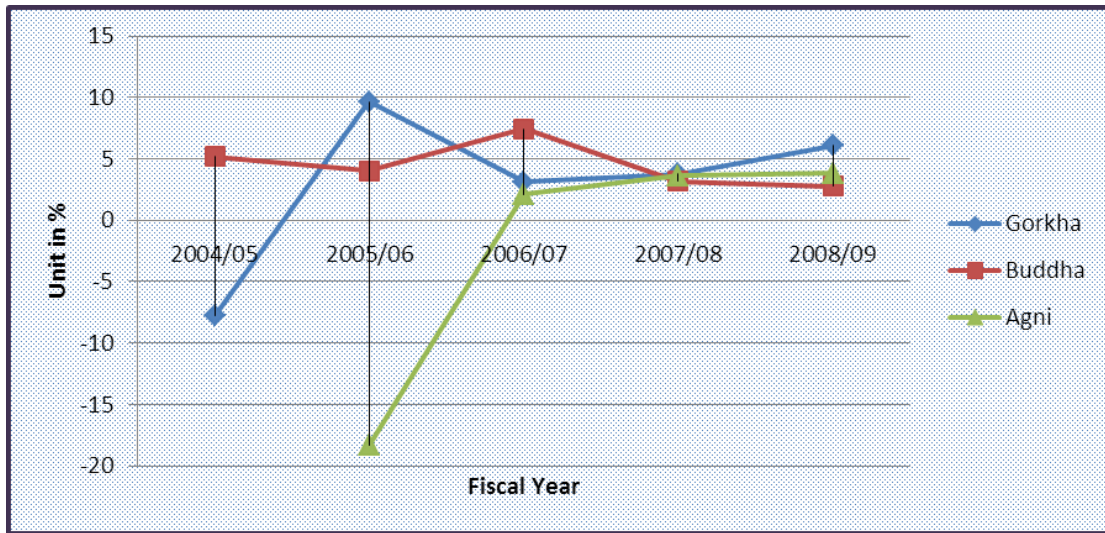
Similarly, the net profit margin in Buddha airline has also followed fluctuating trend, and thus has ranged from 7.42% in the fiscal year 2006/07 to 2.76% in the fiscal year 2008/09. In the remaining years, the ratio is 5.19% in the fiscal year 2004/05, 4.01% in the fiscal year 2005/06, and 3.17% in the fiscal year 2007/08. The average net profit margin is 4.51%, which means Buddha has generated Rs. 4.51 net profit from Rs. 100 sales. Further, the coefficient of variation in the margin is 37.15%

In contrast, except in the establishment year, the net profit margin ratio of Agni airline is in increasing trend. In the fiscal year 2005/06 the net profit margin is -18.37, which indicates loss in that year. In contrast the net profit margin in the fiscal year 2006/07 is 2.13%, in the fiscal year 2007/08 is 3.62% and in the fiscal year 2008/09 is 3.81%. In average, the net profit margin in Agni airline is negative, -2.20%, which is due to the negative profit margin in the operation year. However, the progressing net profit margin in the last three years is highly appreciable and thus the airline should continue this increasing net profit margin.

On the basis of net profit margin, it can be considered that the management of Buddha airline is quite effective than that of other observed airlines in controlling cost, increasing sales and eventually increasing net profit margin.

**Figure: 4.7**

**Profit Margin**



**4.2.6 Earning Per Share**

EPS is the ratio by which one can understand the return available for the shareholders from their investments, because EPS measures the earnings available to shareholders on per share basis. As a commonly used ratio for the study of capital structure, it is used in the calculations, which have been done for the four manufacturing companies selected for the research. The following table shows the EPS for the selected companies for the study.

**Table: 4.8**

**Earning Per Share**

**(Unit in Rs.)**

FY	Gorkha		Buddha		Agni	
	EPS	% Change	EPS	% Change	EPS	% Change
2004/05	-21.02	-15.20	72.86	243.66	----	----

2005/06	30.72	-246.16	60.09	-17.53	-11.16	-----
2006/07	12.11	-60.59	130.44	117.09	3.87	-134.70
2007/08	16.54	36.61	57.66	-55.80	8.34	115.28
2008/09	28.44	71.98	52.36	-9.19	9.76	16.98
<b>Mean</b>	<b>13.36</b>		<b>74.68</b>		<b>2.70</b>	
<b>S.D.</b>	<b>18.56</b>		<b>28.68</b>		<b>8.29</b>	
<b>C.V.%</b>	<b>138.94</b>		<b>38.41</b>		<b>307.07</b>	

(Source: Appendix – I)

Gorkha airline has faced loss in the base year 2004/05 as a result the earning per share is in negative. After then the EPS of the airline is positive, however it is in fluctuating trend. The EPS of Gorkha airline is Rs. 30.72 in the fiscal year 2005/06, Rs. 12.11 in the fiscal year 2006/07, Rs. 16.54 in the fiscal year 2007/08 and Rs. 28.44 in the fiscal year 2008/09. Gorkha airline has made greatest progress in EPS in the fiscal year 2005/06, when the EPS has increased by 246.16% in comparison to that in the fiscal year 2004/05. In average, the airline has made Rs. 13.36 EPS in the five year periods, while the coefficient of variation during the period is 138.94%. Further, the airline has issued 513,750 shares during the periods.

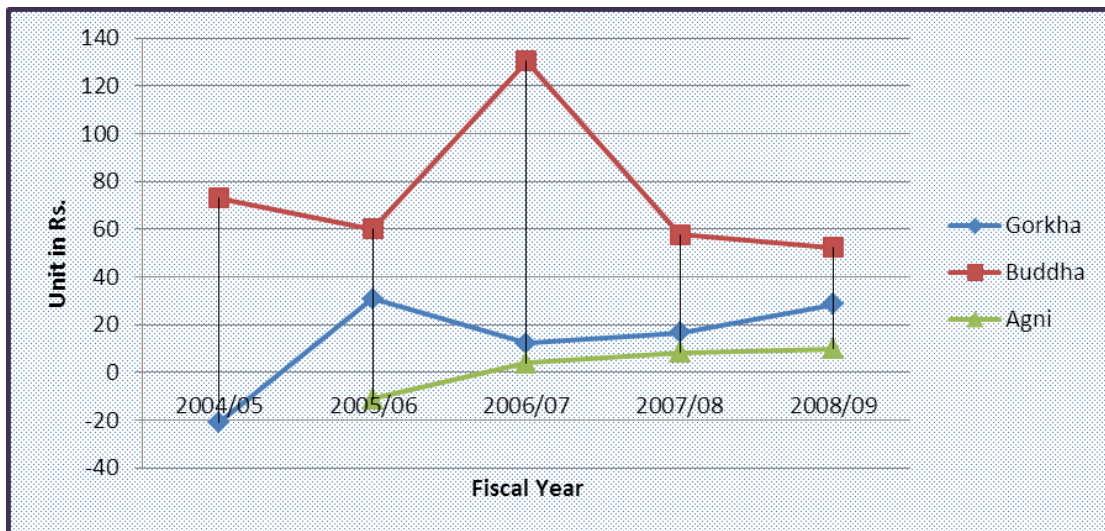
Similarly, the EPS of the Buddha airline is positive in each fiscal year, which indicates that the airline is running in profit, though the EPS is in fluctuating trend. The EPS of Buddha is Rs. 72.86 in the base year 2004/05, and thus has ranged from Rs. 52.36 in the fiscal year 2008/09 to Rs. 130.44 in the fiscal year 2006/07. In average, Buddha has made Rs. 74.68 EPS and has issued 700,000 shares during the periods. The airline has made extensive increment in EPS in the fiscal year 2004/05, when the EPS has increased by 243.66% compared to that in the previous year.

In contrast, the EPS of Agni airline has followed increasing trend during the four year periods. Though the EPS is negative in the base year 2004/05, Agni has made gradual improvement in raising profit and thus the EPS has reached to 9.76% by the end of the fiscal year 2008/09. In average, the EPS of the airline is Rs. 2.70 and the issuance of share during the periods is 500,000. The coefficient of variation, 307.07%, indicates greater inconsistency in EPS.

On the basis of EPS, it can be concluded that Buddha airline is the highest profit making airline in terms of per share. The EPS of Buddha airline is extensively greater than that of other airlines, and the consistency in EPS of Buddha airline is also most consistent than that of other airlines. The EPS is directly proportional to the net profit of the company, as the net profit increases the EPS also raises. Therefore, the companies should give a proper attention towards their operation to earn adequate amount of profit.

**Figure: 4.8**

**Earning Per Share**



**4.3 DU-Pont System of Analysis**

The DU-Pont system of ratio is widely used by the financial managers to make classified assessment of firm’s profit margin, total assets turnover ratio and

equity multiplier. It also shows various activities by which these ratios interact to determine profitability. For the first time, DU-Pont Corporation, U.S.A, used the DU-Pont system. DU-Pont system helps to find out the causes of changing ROE, ROA and profit margin.

#### 4.3.1 Return on Equity

Return on Equity measures the capability of firm in generating profit from effective utilization of equity capital. The following table shows the calculation of ROE for the selected companies for the study.

**Table: 4.9**

**Return on Equity**

**(Unit in %)**

FY	Gorkha		Buddha		Agni	
	ROE	% Change	ROE	% Change	ROE	% Change
2004/05	-29.87	30.77	20.48	173.27	-----	-----
2005/06	102.05	-441.68	14.20	-30.68	-11.45	-----
2006/07	26.18	-74.35	23.24	63.73	3.67	-132.06
2007/08	24.22	-7.50	9.32	-59.92	7.17	95.43
2008/09	26.78	10.58	7.80	-16.27	7.59	5.80
<b>Mean</b>	<b>29.87</b>		<b>15.01</b>		<b>1.75</b>	
<b>S.D.</b>	<b>42.03</b>		<b>6.05</b>		<b>7.77</b>	
<b>C.V.%</b>	<b>140.71</b>		<b>40.29</b>		<b>445.06</b>	

*(Source: Appendix – I)*

Ubiquitously the ROE of Gorkha airline is negative, -29.87%, in the base year 2004/05, since the airline has faced net loss during that period. However, the airline has made ROE of 102.05% in the fiscal year 2005/06, which indicates that from mobilizing Rs. 100 equity capital, the airline has generated Rs. 102.05 net profit. Such high ROE has promptly decreased in the fiscal year 2006/07 and thus it is 26.18% in that year, 24.22% in the fiscal year 2007/08 and 26.78% in the fiscal year 2008/09. In average, Gorkha airline has



maintained 29.87% ROE, which indicates the generation Rs. 29.87 net profit from Rs. 100 investment of equity capital.

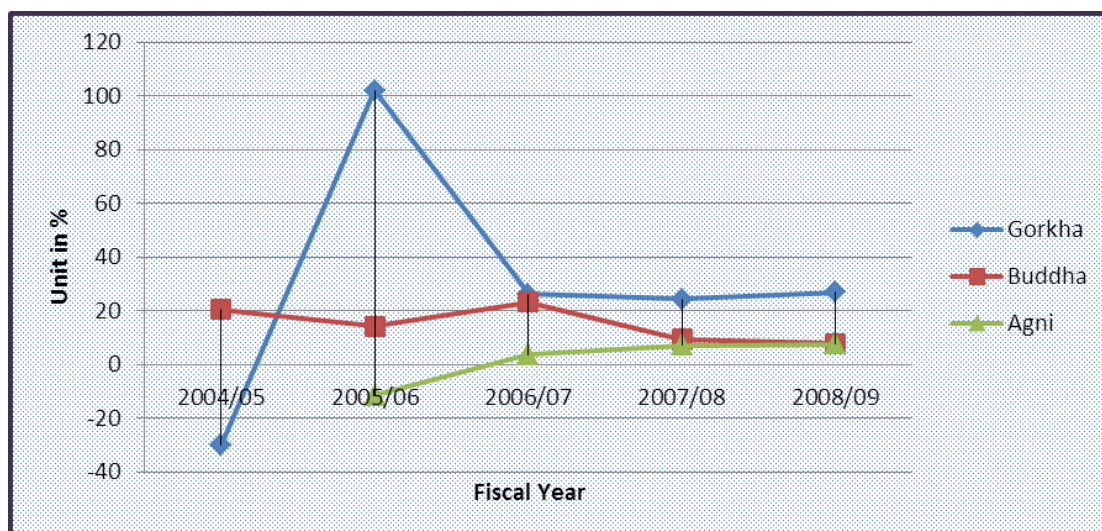
Likewise, except in the fiscal year 2006/07, the ROE of Buddha airline seems to be in decreasing trend, though the airline has been running in profit. The ROE of the airline is 20.48% in the fiscal year 2004/05, and it has ranged from 7.80% in the fiscal year 2008/09 to 23.24% in the fiscal year 2006/07. In average, the airline has maintained 15.01% ROE during the five year periods. Further, the coefficient of variation in ROE is 40.29%, indicating inconsistency, and the greatest amelioration in the ROE is in the fiscal year 2004/05, when the ROE has been raised by 173.27%.

Similarly, the ROE of Agni airline is in negative, -11.45%, in the fiscal year 2005/06, since the airline has faced net loss in such year. However, Agni has made improvement in profitability and thus the ROE has followed increasing trend in the four year periods. The ROE of Agni airline is 3.67% in the fiscal year 2006/07, 7.17% in the fiscal year 2007/08 and 7.59% in the fiscal year 2008/09. In average, the airline has generated Rs. 1.75 net profit from Rs. 100 investment in equity capital. Further, the coefficient of variation, 445.06, indicates absolute inconsistency in the ratio. The airline has made highest enhancement in ROE in the fiscal year 2006/07, when the ROE has increased by 132.06% as compared to that in the fiscal year 2005/06.

Comparing the ROE of three airlines, it can be considered that Gorkha airline has most effectively mobilized the equity capital than other airlines to earn profit, since the ROE of Gorkha is superior to that of other airlines.

#### **Figure: 4.9**

#### **Return on Equity**



### 4.3.2 Return on Asset

A firm needs to mobilize its assets in productive sector to generate high profit. To measure the efficiency of the firm in generating profit through mobilization of assets, return on assets is the crux weapon. The following table shows the ROA for the airline companies selected for the study.

**Table: 4.10**

#### Return on Assets

(Unit in %)

FY	GORKHA		BUDDHA		AGNI	
	ROA	% Change	ROA	% Change	ROA	% Change
2004/05	-4.29	-17.31	3.34	218.31	-----	-----
2005/06	6.28	-246.32	2.73	-18.28	-4.60	-----
2006/07	2.73	-56.55	6.65	143.83	2.12	-146.09
2007/08	3.82	40.20	3.09	-53.55	4.05	91.09
2008/09	6.72	75.67	2.96	-4.13	4.02	-0.77
<b>Mean</b>	<b>3.05</b>		<b>3.75</b>		<b>1.40</b>	
<b>S.D.</b>	<b>3.96</b>		<b>1.46</b>		<b>3.55</b>	
<b>C.V.%</b>	<b>129.82</b>		<b>38.95</b>		<b>253.92</b>	

(Source: Appendix – I)

The ratio clarifies that the return on assets of Gorkha airline is in fluctuating trend. The ratio is negative in the fiscal year 2004/05, and then it has increased

by 246.32%, and is 6.28% in the fiscal year 2005/06, again it has decreased to 2.73% in the fiscal year 2006/07, increased to 3.82% in the fiscal year 2007/08 and 6.72% in the fiscal year 2008/09. In average, the ROA of Gorkha airline is 3.05%, which indicates that the airline has generated Rs. 3.05 net profit from Rs. 100 investment in total assets. This seems that the airline needs to enhance its return by mobilizing the assets effectively to sustain in the market.

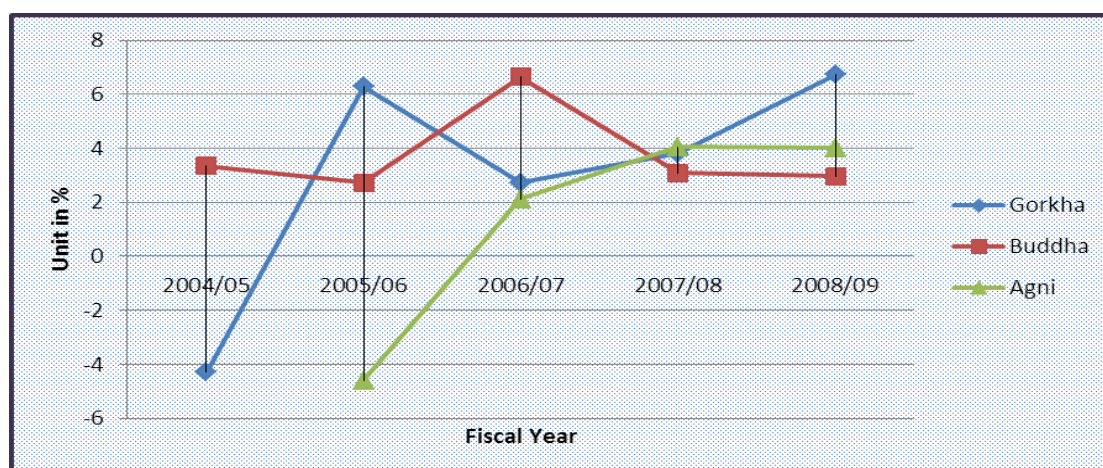
The statistics relating to the ROA of Buddha is also very low. The ROA has fluctuated during the periods. Though the asset of the airline is in increasing trend, the management has remained unsuccessful to convert its total assets in increasing profit. Only the maximum level of 6.65% ROA has been achieved in this study period. The data shows that the company's total assets have been misused in the matter of making profit. The average ROA in the period taken is just 3.75%. Similarly the S.D. and C.V. are 1.46 and 38.95%, which is high and indicate that the ROA of Buddha during the study period is inconsistent in nature.

The calculation of ROA for Agni is also not excellent, but it is positive within the last three fiscal years. The ROA for Agni has increased for the first three years and then decreased slightly in the last year. The ROA for the F.Y. 2005/06 is -4.60, which has increased by 146.09% in the fiscal year 2006/07 and thus reached to 2.12%. Again the ROA has increased to 4.05% in the fiscal year 2007/08 and finally decreased to 4.02% in the fiscal year 2008/09. In average, Agni has generated Rs. 1.40 net profit, which is extremely low, from Rs. 100 investment in assets.

Comparing the airlines on the basis of ROA, it can be considered that Buddha airline has most effectively mobilized its assets to generate higher percentage of profit than Gorkha and Agni do.

**Figure: 4.10**

**Return on Assets**



**4.4 Cost of Capital**

Cost of capital is one of the most important dimensions on analyzing the efficient use of capital. For this reason, overall costs of capital and equity capitalization rate of the selected airlines have been performed.

**4.4.1 Overall Cost of Capital ( $K_0$ )**

The following table shows the overall cost of capital for the three airlines companies selected for the study.

**Table: 4.11**

**Overall Cost of Capital ( $K_0$ ) (Unit in %)**

F.Y.	EBIT	Value of the Firm	Cost of Capital
<b>Gorkha</b>			
2004/05	17,960,813	170,457,778	10.54
2005/06	15,742,528	133,948,530	11.75
2006/07	37,914,713	127,495,591	29.74
2007/08	43,819,127	152,432,722	28.75
2008/09	46,397,973	159,417,258	29.10
<b>Overall Cost of Capital</b>			<b>21.98</b>
<b>S.D.</b>			<b>8.86</b>
<b>C.V.%</b>			<b>40.31</b>
<b>Buddha</b>			
2004/05	220,232,672	132,835,4143	16.58

2005/06	238,100,355	140,307,1558	16.97
2006/07	275,718,146	115,408,5872	23.89
2007/08	201,359,676	107,320,1419	18.76
2008/09	239410067	982,242,756	24.37
	<b>Overall Cost of Capital</b>		<b>20.12</b>
	<b>S.D.</b>		<b>3.36</b>
	<b>C.V.%</b>		<b>16.73</b>
<b>Agni</b>			
2004/05	-----	-----	----
2005/06	802,646	48,753,288	1.65
2006/07	10,469,096	85,820,671	12.20
2007/08	13,315,427	96,384,616	13.81
2008/09	13,393,784	112,480,641	11.91
	<b>Overall Cost of Capital</b>		<b>9.89</b>
	<b>S.D.</b>		<b>4.82</b>
	<b>C.V.%</b>		<b>48.68</b>

(Source: Appendix – II)

The above table measures the cost of capital and overall capitalization rates of the selected airlines. The data of Gorkha shows that cost of capital has increased in first three years and then it has fluctuated in remaining years. The cost of capital indicates that the EBIT does not increase/decrease in the same proportion as the value of the airline does. The cost of capital in the base year 2004/05 is 10.54%, 2005/06 is 11.75%, 2006/07 is 29.74%, 2007/08 is 28.75% and 2008/09 is 29.10%. The average rate of cost of capital or the overall cost of capital of Gorkha airline is 21.98%, and the fluctuation rate is 40.31%, indicating high inconsistency.

Similarly, the cost of capital in Buddha airline has followed in the first three years and then fluctuated in the remaining years. The cost of capital in the base year is 16.58%, which has increased to 23.89% in the fiscal year 2006/07 and then has reached to 24.37% by the end of the fiscal year 2008/09. In average, Buddha has maintained 20.12% cost of capital with 16.73% fluctuation.

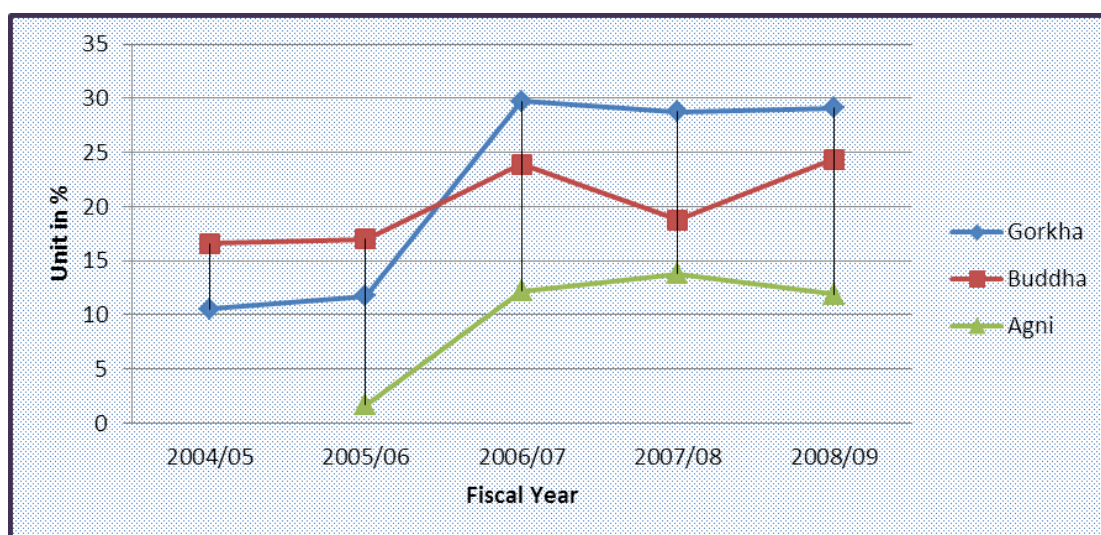
Likewise, the cost of capital of Agni airline has increased for the first three years, i.e. from 1.65% in the fiscal year 2005/06 to 13.81% in the fiscal year

2007/08, and then has slightly decrease to 11.91% in the fiscal year 2008/09. In average, the cost of capital of Agni airline is 9.89% with 48.68% fluctuation.

The table shows that the overall capitalization rate of Buddha is highest than rest of the other airline companies, which indicates that the company can gain less amount of profit compared to other companies. The company should make an effort to trim down the debt capital to secure high percentage of return for collected capital.

**Figure: 4.11**

**Overall Cost of Capital ( $K_o$ )**



#### 4.4.2 Equity Capitalization Rate ( $K_e$ )

The following table shows the calculation of equity capitalization rate for the selected companies.

**Table: 4.12**

**Equity Capitalization Rate ( $K_e$ ) Unit in %)**

F.Y.	EBT	Market Value of Share	Cost of Equity
<b>Gorkha</b>			
2004/05	6,429,565	51375000	12.51
2005/06	2,842,528	51375000	5.53
2006/07	24,328,466	51375000	47.35
2007/08	24,865,253	51375000	48.40
2008/09	32,361,048	51375000	62.99
	<b>Overall Cost of Equity Capital</b>		<b>35.36</b>

	<b>S.D.</b>		<b>22.31</b>
	<b>C.V.%</b>		<b>63.10</b>
<b>Buddha</b>			
2004/05	167,383,421	70000000	239.12
2005/06	168,605,311	70000000	240.86
2006/07	243,181,803	70000000	347.40
2007/08	155,235,324	70000000	221.76
2008/09	159,259,347	70000000	227.51
	<b>Overall Cost of Equity Capital</b>		<b>255.33</b>
	<b>S.D.</b>		<b>46.58</b>
	<b>C.V.%</b>		<b>18.24</b>
<b>Agni</b>			
2004/05	-----	-----	-----
2005/06	(221,686)	50000000	-0.44
2006/07	8,696,107	50000000	17.39
2007/08	10,899,804	50000000	21.80
2008/09	10,171,651	50000000	20.34
	<b>Overall Cost of Equity Capital</b>		<b>14.77</b>
	<b>S.D.</b>		<b>8.93</b>
	<b>C.V.%</b>		<b>60.43</b>

*(Source: Appendix – II)*

The above table shows us the equity capitalization rates for the selected airlines for various years. The equity capitalization rate tells us about the cost paid to the equity in spite of using the funds. The cost of equity for Gorkha is in increasing trend, except in the fiscal year 2005/06. The equity capitalization rates of Gorkha is 12.51%, 5.53%, 47.35%, 48.40% and 62.99% in the fiscal year 2004/05, 2005/06, 2006/07, 2007/08 and 2008/09 respectively. The average equity capitalization rate for Gorkha is 35.36%.

The equity capitalization rate of Buddha ranges from 221.76% in the fiscal year 2007/08 to 347.40% in the fiscal year 2006/07. The rate has remained very high and volatile during the period. However, the organization maintained an average 255.33% equity capitalization during the five fiscal year periods. The equity-based company should pay the higher amount towards the cost of equity

whereas a highly levered company has to pay comparatively lower amount towards the cost of equity.

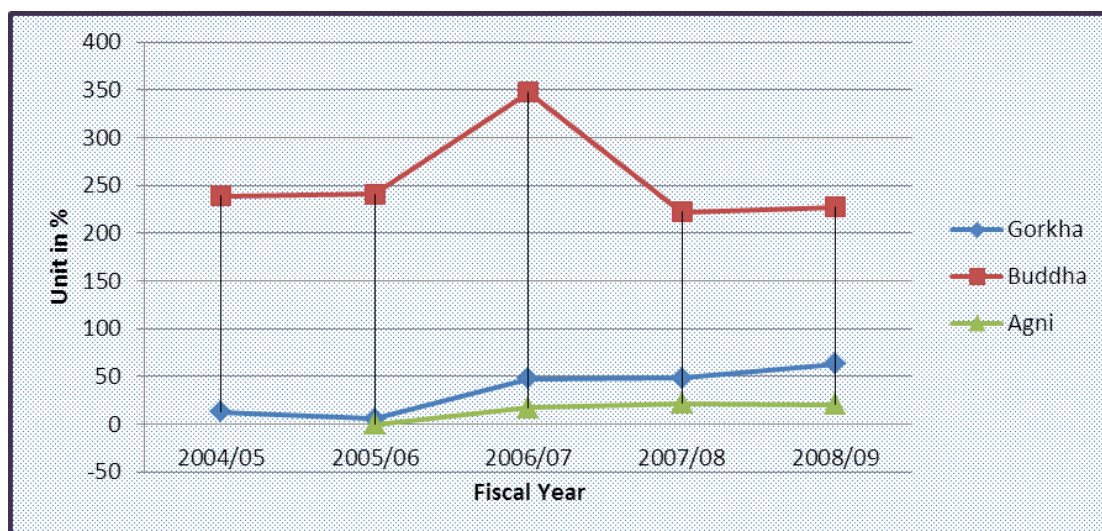
The equity capitalization of Agni is even negative in the fiscal year 2005/06. The cost of equity is -0.44%, 17.39%, 21.80% and 20.34% in the fiscal year 2005/06, 2006/07, 2007/08 and 2008/09 respectively. The above values show that there is increasing rate of equity capitalization rate except in the F.Y. 2008/09. The average rate of cost of capital of Agni is 14.17%.

Comparing the airlines, it can be concluded that Buddha is the most profit earning airline on the basis of the equity capital mobilized, since the cost of equity of Buddha is highest in comparison to that of other airlines.

**Figure: 4.12**

**Equity Capitalization Rate (Ke)**





#### 4.5 Statistical Analysis

To measure the relationship of net profit with the capital, debt capital and equity capital, the correlation coefficient and the regression line have been computed.

##### 4.5.1 Correlation Coefficient between Net Profit and Long Term Debt

In addition to the equity capital, each organization borrows long term debt to some extent to meet the capital requirement. Thus a positive relationship between net profit and the debt capital is necessary for the sustainability of the company in long run.

**Table: 4.13**

**Correlation Coefficient between Net Profit and Long Term Debt**

Airline	r	r <sup>2</sup>	P.E.	6 P.E.	Remarks
Gorkha	-0.7126	0.5079	0.1485	0.8907	Insignificant
Buddha	0.0588	0.0035	0.3006	1.8036	Insignificant
Agni	0.9907	0.9814	0.0063	0.0377	Significant

(Source: Appendix – III, IV & V)

The table depicts the relationship between net profit after tax (NPAT) and total long term borrowed of the observed airlines. The correlation coefficient (r) between NPAT and long term debt of Gorkha is 0.7126, which indicates the negative relationship between NPAT and LTD. It means that the net profit after tax decreases with the increase in of long term debt of Gorkha airline. In contrast, the relationship between NPAT and long term debt of Buddha airline is positive, 0.0588, and the degree of correlation coefficient is very low. Similarly, there exists perfect positive relationship between net profit and long term debt of Agni airline, as the correlation coefficient is 0.9907. The coefficient of determination indicates that 50.79% variation in net profit of Gorkha, 0.35% variation in net profit of Buddha, and 98.14% variation in net profit of Agni has been explained by change in long term debt. However, only the correlation coefficient between these two variables of Agni airline is greater than the 6 P.E., which suggests that only in Agni the relationship between these two variables is statistically significant. Thus, it would be better if Agni finances its assets by borrowing long term debt to some extent.

#### 4.5.2 Regression Analysis of Net Profit on Long Term Debt

To measure the degree of extent that the long term debt has effect on the net profit of the company, the regression analysis between these two variables has been computed.

**Table: 4.14**

#### **Regression Analysis of Net Profit on Long Term Debt**

<b>Airline</b>	<b>a-value</b>	<b>b-value</b>	<b>Equation</b>
Gorkha	77.64	0.61	$NP = 77.64 + 0.61 LTD$
Buddha	48.18	0.005	$NP = 48.18 + 0.005 LTD$
Agni	-5.43	0.23	$NP = -5.43 + 0.23 LTD$

*(Source: Appendix – III, IV & V)*

The table depicts the output of simple regression analysis of NPAT on long term debt of the observed airlines. In case of Gorkha, beta coefficient is 0.61, which indicates that one rupee increase in long term debt leads to an average Rs. 0.02 increase in dependent variable NPAT, holding the variable, 77.64, constant. In case of Buddha, the beta coefficient is 0.005, which indicates one-rupee increase in long term debt leads to an average Rs. 0.005 increase in NPAT, if the constant (a), 48.18, remains constant. Likewise, in Agni airline the beta coefficient is 0.23, which implies that per rupee increase in long term debt leads to Rs. 0.23 increase in net profit. Though there is high increment in net profit in Gorkha airline, the aforementioned probable error indicates that the relationship is insignificant in such airline.

#### 4.5.3 Correlation Coefficient between Net Profit and Shareholders' Equity

A positive relationship between net profit and equity capital is the desire of each company. The correlation coefficient helps to determine such relationship and measures the significance of relationship by comparing with the 6 times probable error. The correlation coefficient between net profit and equity capital of the airlines is presented below.

**Table: 4.15**

#### **Correlation Coefficient between Net Profit and Shareholders' Equity**

<b>Airline</b>	<b>r</b>	<b>r<sup>2</sup></b>	<b>P.E.</b>	<b>6 P.E.</b>	<b>Remarks</b>
Gorkha	-0.0565	0.0032	0.3007	1.8041	Insignificant
Buddha	-0.0616	0.0038	0.3005	1.8030	Insignificant
Agni	0.8639	0.7464	0.0855	0.5132	Significant

*(Source: Appendix – III, IV & V)*

The table delineates that the net profit of Gorkha & Buddha airlines has negative relationship and the net profit of Agni airline has positive relationship with the shareholder's equity. The correlation coefficient of Gorkha airline is -0.0565, Buddha airline is -0.0616 and Agni airline is 0.8639. The coefficient of

determination indicates that 0.32% change in net profit of Gorkha, 0.38% change in net profit of Buddha and 74.64% change in net profit of Agni airline has been explained by change in shareholder's equity. However, only the correlation coefficient of Agni airline is greater than the 6 P.E., which indicates that only in Agni airline the relationship between shareholder's equity and net profit is statistically significant.

#### 4.5.4 Regression Analysis of Net profit on Shareholder's Equity

Let net profit be the dependent variable on shareholder's equity. Then the relationship between these two variables, calculated in the Appendix, is presented in the table below.

**Table: 4.16**

#### **Regression Analysis of Net profit on Shareholder's Equity**

<b>Ariline</b>	<b>a-value</b>	<b>b-value</b>	<b>Equation</b>
Gorkha	8.21	0.04	$NP = 8.21 + 0.04 SE$
Buddha	57.76	0.01	$NP = 57.76 + 0.01 SE$
Agni	-33.05	0.61	$NP = -33.05 + 0.61 SE$

*(Source: Appendix – III, IV & V)*

The regression line of net profit on shareholder's equity indicates that per rupee increment in equity capital leads to Rs. 0.04 increase in net profit of Gorkha airline, while per rupee increment in equity capital leads to Rs. 0.01 increase in net profit of Buddha airline, whereas same per rupee increment in equity capital leads to Rs. 0.61 increase in net profit of Agni airline. The regression line indicates that equity capital has major impact in net profit of Agni airline.

#### 4.6 Major Findings of the Study

After analyzing the data collected, the following major findings have been drawn;

- The average DOL for Gorkha, Buddha & Agni is 1.77, 0.63 and 2.37 respectively. Average DOL for Buddha is too low, which shows the inefficient impact of change in sales in change in EBIT. However, Agni airline has the highest DOL among these three airlines.
- Agni airline has greater control over the non operating expenses, and thus even a small change in EBIT leads to greater increase in EPS in such airline. The average DFL of Gorkha airline is 6.69 times, Buddha airline is 2.61 times, and Agni airline is 10.97 times.
- The debt capital of Buddha airline has been highly covered by long term borrowing than in other airlines. The average long term debt to total debt of Gorkha is 58.09%, Buddha is 78.23% and Agni is 63.99%.
- The total assets of Gorkha airline is most risky than that of other airlines, since the debt to total assets of Gorkha is greatest. The total debt to total assets of Gorkha is 85.63%, Buddha is 72.94% and Agni is 48.12%. Likewise, the equity capital has covered 15.76% of total assets in Gorkha, 24.88% of total assets in Buddha & 51.88% of total assets in Agni.
- Buddha airline has most strong EBIT to cover the interest expenses. The interest coverage ratio of Gorkha is 2.24%, Buddha is 4.68% and Agni is 4.09%.
- The management of Buddha airline is quite effective than that of other observed airlines in controlling cost, increasing sales and eventually increasing net profit margin. The net profit margin of Buddha is 4.51%, Gorkha is 2.97% and Agni is -2.20%.
- Similarly, the earning per share of Gorkha is Rs. 13.36, Buddha is Rs. 74.68 and Agni is Rs. 2.70. Likewise, ROE of Gorkha, Buddha and Agni is 29.87%, 15.01% and 1.75% respectively. And ROA of Gorkha is 3.05%, Buddha is 3.75% and Agni is 1.40%.

- The aggregate cost of capital of Gorkha airline is 21.98%, Buddha airline is 20.12% and Agni airline is 9.89%. And the aggregate cost of equity is 35.36% in Gorkha, 255.33% in Buddha and 14.77% in Agni.
- The relationship between net profit and long term debt is statistically significant only in Agni airline. The coefficient of correlation between these two variables is -0.7126 in Gorkha, 0.0588 in Buddha and 0.9907 in Agni.
- Similarly, the relationship between net profit and shareholder's equity is statistically significant only in Agni airline. The coefficient of correlation between these two variables is -0.0565 in Gorkha, -0.0616 in Buddha and 0.8639 in Agni.

## CHAPTER - V

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 5.1 Summary

Capital structure in business is defined as a firm's ratio of debt to equity in its financing activities. This ratio defines the relationship between borrowed dollars versus dollars invested in the business. The more money that business owners have invested in the firm, the easier it will be to attract financing, as it displays a great deal of confidence in the business and a lower risk to potential investors. Abnormally high ratios of equity to debt are generally unsafe and lack fiscal stability in the long run. Conversely, abnormally high debt to equity ratios can also prove harmful if the firm is excessively leveraged.

Equity financing typically takes the form of personal stake in the firm by friends, relatives, customers, employees, and even other firms in the industry. Companies that are publicly traded issue equity in the form of different classes of stock. In addition to individual stakes in the firm, equity can also be contributed to a business in the form of an investment by a venture capital group. These firms specialize in seeking out new business opportunities that are potentially lucrative but also bear with it a great degree of risk. Many of the major technology firms today began as startups that were funded by venture capital and private equity groups. Once these firms went public, equity investors cashed in. However, for every startup that finds success and becomes publicly traded, there are many more that fail and leave investors disappointed. An investment of equity by an individual or capital group entitles the investor to a certain degree of decision-making ability which is generally proportional to the investor's stake in the business. This embodies the caveat of excessive equity funding, as when more equity ownership is issued, there can be a difference of opinion between the business' management and stakeholders looking for the most return on their investment. This is why it is important that a certain degree of debt financing exist in a business' capital structure.

It is important to examine the needs of the business and the timeline for reaching certain financial goals in order to determine the appropriate capital structure for a business. For instance, if a long-term loan is needed to construct a new facility and returns on the investment may not be realized for several years, equity funding might be a more viable option, as many equity investors who have confidence in the business are willing to issue longer-term debt in exchange for the possibility of a much higher return. Conversely, if funding is needed to upgrade technology in order to increase productivity, short-term debt funding such as a line of credit might be a better choice. This timing and management of cash flows is critical to selecting the right type of funding and maintaining the long-term stability of the business.

An appropriate capital structure is a critical decision for any business organization including the airlines. 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 on an organization's ability to deal with its competitive environment. Once established, this capital structure should provide greater returns to stockholders than they would receive from an all-equity firm. Thus considering the importance of the capital structure decision, the present study has been conducted to review the capital structure management in Airlines business of Nepal. For the study, only three airlines, Gorkha Airline, Buddha Airline and Agni Airline, have been chosen.

## **5.2 Conclusion**

Analyzing the leverage ratios, it can be concluded that the positive impact of change in sales on change in EBIT is highest in Agni, since the average DOL is highest in Agni than in Gorkha and Buddha airlines. Moreover, it can be avowed that Agni airline has greater control over the non operating expenses, and thus even a small change in EBIT leads to greater increase in EPS in such airline. While analyzing the ratio analysis related to capital structure, it has been ascertained that Buddha airline is foremost in borrowing the long term



debt to meet the debt capital and thus is most aggressive. Further, there is most consistency in the long term debt to total capital ratio in Buddha airline than in Gorkha airline and Agni airline.

Moreover, it can be considered that Gorkha airline is the most risk taker airline, as it takes aggressive position to finance the total assets through debt capital, and Agni airline is the risk averter airline, as it follows moderate policy to finance the total assets. Likewise, the total assets of Gorkha airline is most confronted to the risk than that of other airlines. Whatever may be the policy, the airline should think whether adopting a particular policy in financing total assets has positive impact in making profitability. Further, it can be considered that the total asset of Agni airline is least vulnerable to the risks than that in other airline, since the mobilization of internal financing bears less risk. Among the observed airlines, it can be said that the Buddha has most robust EBIT to cover the interest expenses. This indicates that Buddha airline has more effective control over the operating expenses and the debt capital may be less costly in terms of interest expenses.

While scrutinizing the profitability ratios, it can be considered that the management of Buddha airline is quite effective than that of other observed airlines in controlling cost, increasing sales and eventually increasing net profit margin. On the basis of EPS, it can be concluded that Buddha airline is the highest profit making airline in terms of per share. The EPS of Buddha airline is extensively greater than that of other airlines. The Du-Pont analysis aid to conclude that that Gorkha airline has most effectively mobilized the equity capital than other airlines to earn profit, since the ROE of Gorkha is superior to that of other airlines. However, Buddha airline has most effectively mobilized its assets to generate higher percentage of profit, i.e ROA, than Gorkha and Agni do. Analyzing the cost of capital, it has been ascertained that the overall capitalization rate of Buddha is highest than rest of the other airline companies. The company should make an effort to trim down the debt capital to secure

high percentage of return for collected capital. Eventually, it can be considered that Buddha is the most profit earning airline on the basis of the equity capital mobilized, since the cost of equity of Buddha is highest in comparison to that of other airlines.

Finally, the statistical analysis aids to conclude that the net profit has significant relationship with the debt capital and shareholder's equity in Agni airline only, from which it can be inferred that Agni will be more profitable if the it augments its capital either through debt financing or equity financing or both. However, the net profit of other two observed airlines does not solely depends upon the capital structure, but also other variables, either internal or external will have role to fluctuate net profit.

### **5.3 Recommendations**

On the basis of the major findings and conclusion drawn, the following recommendations have been provided for the enhancement of the performance of airlines;

- The degree of operating leverage of Buddha airline is less, which implies the airline to deduct its cost of goods sold, or increase the sales either by promoting or by discounting policy or in other ways to have sound DOL. Similarly, Buddha airline should control the operating expenses more efficiently to have greater impact of EBIT on earning per share.
- The debt capital of Buddha airline is highly dominated by the long term debt. To decrease the interest expenses the airline needs to restructure its debt capital by borrowing short term debt instead of long term debt. Also, it would be better if Gorkha and Agni airline also balances the long term and short term debt capital.
- Gorkha and Buddha airline need to robust its capital structure by adding equity capital, and Agni airline need to borrow additional debt capital to have sound capital structure.

- The earning before interest and tax of Buddha and Agni airline is quite adequate to cover the interest expenses. However, the EBIT of Gorkha airlines may not be sufficient to pay the interest along with other expenses. Thus Gorkha airline immediately need to increase its share and deduct the cost.
- The average net profit margin of Agni airline is negative, which indicates the inefficiency of the airline to recover the huge loss faced at the beginning of the operation. The airline should adopt suitable sales and profitability policy to heal up such loss and to sustain in the market.
- Both the lowest return on equity and return on total assets verify that the equity capital and assets of Agni airline have not been mobilized efficiently. The management of the Agni airline needs to review its financial performance and devise better way to mobilize the available capital.
- The overall cost of capital and cost of equity also suggests Agni airline to restructure its capital structure to generate more profit from the available capital and ultimately to compete strongly in the market.
- Capital structure is not something that you create and then become passive about or that you forget about and deal with only when issues come up that may be affecting any portion of the debt portfolio. Thus, to maintain maximum flexibility, lowest possible interest costs, and acceptable levels of risk, all the observed airlines must proactively and regularly adjust their portfolios as changes occur in the market and in the portfolios themselves.

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