## CHAPTER - ONE

## INTRODUCTION

### 1.1 Background

Development of a country means improved economic situation of the country as well as its people. Strong economy of any country will be achieved when the proper utilization of the available resources of the country is made whereas the under develop country means the economically worst country even when they have the maximum level of resources.

Nepal is a small land-locked South Asian country which is economically poor but has a lot of potentiality in terms of natural resources. This is a known and universally accepted fact that such virgin resources contribute to the highest degree of potentiality in terms of investment and economic growth. If small scattered fund is collected and invested to big project over the utilization of such resources which bears the small cost of fund; it shall get the maximum level of economic benefit from its own resources. Here comes the concept of "Corporate Culture". However, Nepalese business emporium sees only a few public companies mostly financial sector leaping ahead than other manufacturing and service companies. Nepalese business is still dominated by the private companies.
"When big company is formed, it obviously must be financed. Often the seed money comes from the founders and their families and friends for some companies, this is sufficient to get things launched and with retained earnings, no more equity is fleeted. In other situation, equity infusions are necessary." (Van Home, 2002: 392). This quotation defines that when big companies are formed, their requirement of funds is fulfilled by the issue of the equity share, preference share and bond and debenture. When company is fast growing it requires fund to meet target and competition and it is fulfilled by the issue of financial instrument (shares, debentures, preference shares etc).

When a going concern issues the equity shares they may go for public offer or to its existing share holder which is called rights offer and if they have the reserve fund they might issue bonus shares free of cost to its existing share holders. This study mainly focuses on the rights and the bonus share issue and its impact on the market price of the share.

The rights i.e. pre-emptive right can be described as the right of existing shareholders to buy specified number of shares of the company's before the equity shares are offered to public. Similarly bonus shares means the issue of the new shares to its existing shareholders free of cost from its reserve fund which does not increases the cash inflow but is only the means of change in nature of equity fund i.e. transfer from reserve fund to paid up capital. In some cases it might be necessary for the company to issue the rights shares and bonus shares due to provision in company charter or bye laws that gives the existing shareholder right to purchase new share at prescribed price on prorata basis for the right shares and free of cost for the bonus shares. Right offering and bonus share is generally made with the purpose of (1) maintaining the management control by existing shareholders, (2) Minimizing the floatation cost for new issue, (3) Protecting the existing shareholders from dilution of their wealth position, and (4) To increase the share capital.

Theoretically rights and bonus shares offering will affect the market price of equity shares because increasing number of shares decreases the earnings per share assuming the same level of Net Profit after Tax (NPAT). Right share is usually issued at the lower value than the market price so it has intrinsic financial value and similarly bonus shares are issued at free of cost, due to this advantage market price of share increases when the management announces distribution of right shares and bonus shares since the investors are willing to bus' the share with attachment of the rights shares and bonus share from secondary market before book closure date. But after the distribution of right share and bonus shares the market price of shares started to decrease. Bonus Shares mean shares issued in the form of additional shares to shareholders by capitalizing the surplus from the profits or the reserve fund of a company; the term also denotes an increase in the paid-up values of the shares effected by capitalizing the surplus or reserve fund according to Section 2 q of the Companies Act2063.

### 1.2 Statement of the Problem

Rights share is a way of raising fund from existing shareholders. An existing shareholder is entitled to have a prescribed number of shares on pro-rata basis at stated price, which is lower than the market price of shares. Bonus share is a way of reward to the investors and this is also known as a return of their investment which is recovered from reserve fund (reserve out of profit) of the company. To get the rights offer and
bonus shares, the shareholders should have his name enlisted in company book before the closure date. This is why before closure date market price of share will increases in secondary market because the investors want to enlist into company's book before the date.

Rights offering announcement by company serves good news to its existing shareholders. There will be high demand of shares attached with rights; demand increases because large number of people rushes to the secondary market in order to enlist their name in company's book before the book closure date so that they can enjoy the benefit of rights offering. On the other hand for the existing shareholders there will be a temptation to sell their stock at a price much higher than currently prevailing price and still others do not want to sell their shares rights on. Obviously, the supply of shares with rights attached will decrease. Such a phenomenon drives the price of the share to the upward direction. If the company's current market price is far more than its par value and the prospectus has shown a profitable balance sheet for a few years to come, the rise in price after announcement should be conspicuous. Same as right share Nepalese company issue the bonus share to increase the share capital from its reserve fund so it is the common practice in Nepal for the capitalization of the retained profit by issuing the bonus share after government's announcement of economic liberalization policy in mid 80 's. There is no any such systematic mechanism to issue them which ignores the impact of bonus shares on earning per share (BPS), DPS and MPS. It may finally affect the small shareholders and the value maximization objective seems never to be achieved. The behavior of Nepalese investors is quite optimistic towards bonus share, whatever the cause behind the bonus share. Thus a question arise where do these types of behavior of the investor lead the capital market of Nepal?

Theoretically price of shares increases due to the right offering announcement and decreases after the allotment of right share and for bonus share its price should decrease after the issue of bonus share. But the primary observation has shown the mixed results. So this research focuses to the impact on the market price of shares of financial institutions after the issue of right shares and bonus share.

* What is the impact of rights and bonus issue on share price?
* What is the relationship of right issue ratio and drop of price after the issue?
* Are there any problem regarding rights issue practice in Nepal?
* Is there any inadequacy in the content of the company Act, 2063 regarding matters to be disclosed in the issue of prospectus (if any required)?


### 1.3 Objective of the study

The study focuses on the impact of right shares and bonus shares to its market price after the issue of right share and bonus share and its price movement on Nepal stock exchange on sample basis.

The specific objectives are as follows:
(1) To evaluate the changes in market price per share after the allotment of right shares.
(2) To evaluate the changes in market price per share after the allotment of bonus shares
(3) To make a comparative study of the movement in price after issue of right share and bonus share with the theoretical value.

### 1.4 Statement of Hypothesis

Hypothesis is the statement about the relationship between two or more variable, which needs to be investigated for its truth (Wolff \& Pant, 2002: 20). In order to ca this study, t -statistics has been used to test the significance of the difference between the share prices before and after the issue of rights \& bonus share under the following hypothesis.

1. Null Hypothesis (Ho): There is no significant difference between the share prices before and after the issue of the rights.
.Alternative Hypothesis $\left(\mathrm{H}_{1}\right)$ : There is a significant difference between the share prices before and after the issue of the rights (i.e. share price decreases significantly).
2. Null Hypothesis (Ho): There is no significant difference between the share prices before and after the issue of the bonus shares. Alternative Hypothesis $\left(\mathrm{H}_{1}\right)$ : There is a significant difference between the share prices before and after the issue of the bonus shares (i.e. share price decreases significantly).

### 1.5 Significance of Study

This study specially highlighted the right share and bonus share issued by financial institutions and its effect to market price of the shares. Our share market is still immature and investor has no/little analytical view for price of market: what makes the price high and what brings the price fall. This study helps to the new investors who want to invest on secondary markets and to new researchers who want to know the Nepalese share markets.

Fact that comes out from research in any topic is important in itself. Effort to study on right and bonus share issue practices in Nepal can be beneficial for other new researchers and many companies. This study will analyze the impact of rights offering and bonus share announcement on shares price that will be quite important information for the shareholders and companies practicing rights offering and bonus share distributions, and also for those which are not practicing but are planning to do it.

The right share and bonus share issue is an important decision of a corporate firm for different point of view. It is hoped that the study will contribute some output on the field of nascent capital market, especially to the general investors and policy makers. The Nepalese corporate firms intend to announce right and bonus share will also be benefited. As the bonus share and right share announcement affects EPS, DPS, MPS, it is very significant decision of financial management. The prevailing misconception about bonus share and right share, if any, will also be tried to waive out. It is also believed that the study will provide some valuable inputs for the further research scholars in this area.

### 1.6 Limitations of the study:

This study is related to the study of share price movement due to rights share and bonus share issued by Nepalese banks. Therefore the scope is limited within the listed companies i.e. Banks having right and bonus share issue. This study fulfils the partial requirement of MBS degree. Being a thesis for academic requirements this study has following limitations.

* This study has analyzed and evaluated the data from the last five years as far as possible.
* This study is mostly based on secondary data.
* Only the four rights and four bonus shares issuing commercial banks are considered for the study.
* For analyzing the data simply market price stated on the Nepal stock exchange within few months before and after the issue of rights share and bonus share were taken.
* Time factor is major limitation of this study.


### 1.7 Organization of the study

Title of this study will be "Share price movements of financial institutions after the issue of the right shares and bonus shares". This study has to be completed within the format provided by the research department of T.U. so, the research is divided into following chapters as follows:

* Chapter One: It includes general background of the study, statement of problem, objectives of the study and statement of hypothesis.
* Chapter Two: This chapter includes review of literature. It is further divided into two parts - theoretical frame and review of previous studies.
* Chapter Three: Research methodology consists of research design and research tools. Secondary data is used for this study, however primary data is also considered for study as far as possible.
* Chapter Four: Fourth chapter of this study includes data presentation and analysis. This is main part of the study. Obtained data are presented in the tabular \& other forms and the same has been analyzed by using various statistical tools.
* Chapter Five: This is last chapter of the study \& it includes: conclusion, findings and recommendations.


## CHAPER- TWO

## REVIEW OF LITERATURE

### 2.1 Background

This chapter deals with the literature of previous studies on Rights and Bonus issue practice and its impact on share price. It covers those studies that are conducted within and outside the country. This chapter provides some conceptual theory of equity rights and bonus shares and reviews from the related books, studies, thesis and articles from various journals.

### 2.2 Conceptual Framework

Rights issue is relatively a new practice for Nepalese organizations. Rights issue is related to the primary issue or initial financing to raise the equity fund for the growth of the company without loosing the ownership control by the existing shareholders. Bonus share is a popular form of dividend in the form of additional shares of stock rather than in cash. Sometimes when there is good investment opportunity for the company and whole portion of the profit is needed for reinvestment, the company decides to pay the dividend in the form of stock, such dividend is called stock dividend.

### 2.2.1 Price

To begin, we must first understand what price is and what causes movement in it. Financial theorists define stock price as the present value of all future earnings expectations for the company, divided by its number of shares outstanding. What this means is that the earning capacity of the company is what defines price. Often, companies can get significant value out of a relatively small investment in as because the ability for those assets to make money is significant. Even companies that lose money today can have a high share price because price is based on the future earnings of the company.

There are four factors that cause movements in stock price:

* New information.
* Uncertainty
* Psychological Factors (Fear and Greed)
* Supply and Demand

In a nutshell "Price" reflects all the information that is known about a company and their ability to make money in the future. As information about a company's prospects is made public, prices will change. Uncertainty of 'the future can bring added volatility while psychological factors can amplify the effect of new information. Finally, supply and demand considerations can cause fluctuations not motivated by new information. . Understanding why prices change is essential to success in the stock market.

### 2.2.2 Pre-emptive Right

A publicly held corporate can raise equity capital either by selling equity directly to investors or by issuing rights to its shareholders. When a corporate offers its shares to existing shareholders prior to general public it is termed as rights offering. Pre-emptive rights are the privilege of existing shareholders to participate in a rights offering. Weston and Brigham states that the pre-emptive right gives holders of common stock the first option to purchase additional issues of common stock. Sometimes corporate charter requires that a new issue of common stock be offered first to existing shareholders because of their pre emptive right (Van Home, 1992: 570).

The purpose of the pre-emptive right is of two fold. First, it protects the power of control of present stockholders. If it were not for this safeguard, the management of corporation under criticism from stockholders could prevent stockholders from removing it from office by issuing a large number of additional shares at a very low price and purchasing these shares themselves. Management would thereby secure control of the corporation to frustrate the will of the current shareholders. The second and more important is protection that the pre-emptive right affords stockholders concerns over dilution of value.

The legal provision requiring the companies to offer new issues to the holders of ordinary share is referred to as the 'pre-emptive right'. The pre-emptive rights give shareholders the first right to purchase additional issue of the company's securities under section 56(8) of the Companies Act 2063.

### 2.2.3 Rights Offering

If the pre-emptive right is contained in a firm's charter, then the firm must offer any new common stock to its stockholders first. If the charter does not prescribe a preemptive right, the firm has a choice of making the sale to its existing stockholders or to an entirely new set of investors. If it sells to the existing stockholders, the stock flotation is called a rights offering. Each stockholder is offered an option to buy a certain number of the new shares, and the terms of option are contained on a piece of paper called a right. Each stockholder receives one right for each share of stock owned (Weston and Copeland, 1992: 906).

A right is an option to buy a security at a specified price during a designated period. A company gives its existing shareholders the first opportunity to purchase new security issued on a privileged-subscription basis.

The concept of rights has grown out of the common law doctrine that a shareholder should have the opportunity to preserve his/her share in the earnings, ownership and surplus of a company.

When a company makes a rights issue, it sends a "letter of offer" to its existing shareholders indicating the amount of new shares or coupons to which they are entitled in proportion to their old shareholding This "letter of offer" is like a share purchase warrant in nature generally referred to as rights. These rights must be exercised within a given period, which is relatively short, usually more than thirty days, unless the date is extended by the company.

Rights issues play an important role in the financing of the companies. Despite the widespread use of rights, their significance is often misinterpreted by both the issuing companies and the shareholders.

The 'privileged subscription' is fairly simple in the sense that after the issue has been approved by the company and the controller of capital issues, notices are sent to shareholders indicating that all those who are shareholders as on a certain book closure date may get additional shares in a given proportion.

An existing shareholder has following options on a right issue:
» If the shareholder has sufficient cash to buy the new shares, and if he/she feels that the company will use the money productively to earn at a higher rate than other available opportunity, then he/she can take up the rights.
» The new shares are cheaper than the current market price and both the new and old shares will rank on equal footing when the formalities have been completed. Thus the "right to purchase" new low priced shares have values which a third party would be willing to pay. The shareholders who are not happy with the rights issues or unable to invest cash can sell the "rights". Usually the rights are sold through the broker who will charge commission.
» Investors can also neither sell nor exercise the rights in which case it reduces the total investment value of such investors.

### 2.2.4 Procedure for the Issue of Rights in Nepal

The mechanism and the sequence of events in the case of rights issues are somewhat complicated and it will therefore be useful to outline briefly the actual procedures by which a rights issue is typically made.
» The board of director should decide and determine the quantum of further capital requirement and the proportions in which the rights issues might be offered to its existing shareholders.
» AGM should pass the proposal of BOD.
» The Bank should inform NRB, Nepal stock exchange, Office of the Company Registrar and SEBO/N with the prospectus, in advance of the date of board meeting on which rights issue is likely to be considered and should get prior permission therefrom.
» Make an announcement with prospectus, which gives a general indication of the reasons, purpose of the issue, which will make the issue desirable.
» Letter of provisional allotment or rights offering to the shareholders with the prospectus. This will define the term of the rights offering, the number of new shares allocated to each given number of old shares, the price at which the issue
is to be made i.e. subscription price and the condition of which shareholders will qualify for the rights issue.
» Sale of right shares must remain open for not less than 35 days and not more than 60 days (Securities Registration and Issue Approval Guidelines 2057: 10).
» After the book closure of the letter of the provisional allotment, the allotment must be accepted or renounced, and payment in full or partial must be made for those shares, which are accepted.
» Certificates are distributed to the shareholders who have participated in the rights offering announcement. Shareholders who had accepted and fully paid-up their allotment can renounce the actual shares certificate in-favour of third party.
» List the shares in the stock exchange again for the increased number, which must be approved by the stock exchange, after which an application for listed new shares could be made.

### 2.2.5 Valuations of Rights

The market value of right is the function of the present market price of the stock, the subscription price and the number of the rights required purchasing additional shares of the stock.

When company announces rights offering, the shareholder and investors generally rush to buy the stock of the company because the rights have some value. The theoretical value of rights can be calculated by using following formula:

$$
\begin{aligned}
& \text { Value of a Right }(\text { Ro })=\frac{P o-S}{N+1} \\
& \text { OR }(\operatorname{Re})=\frac{P e-S}{N}
\end{aligned}
$$

Where
Ro $=$ Theoretical value of a right when stock is selling rights on
$P o=$ Market price of a share selling rights on
$R e=$ Theoretical value of a right when stock is selling ex-right
$P e=$ Market price of a share selling ex-right
$S=$ Subscription price of new share in right offering
$N=$ No of rights required to purchase one share

### 2.2.6 Bonus Share

Bonus share announcement is one of the important decisions of the financial management. Bonus share should not be on ad-hoc basis because it adversely affects the earning per share, dividend per share and market per share. Before determining the issue of bonus shares, company must study its impact on earnings per share and stock price. A bonus share (stock dividend) simply is the payment of additional stock to stockholders. It represents nothing more than a capitalization of profit; a stockholders' proportional ownership remain unchanged. The bonus share allows the firm to declare a dividend without using up cash that may be needed for operations or expansion. Bonus share are issued by conversion of the reserves and surplus of the company in to share. Obviously, bonus shares can be issued only by companies which have accumulated large free reserves i.e. reserves not set apart for any specific purpose and which can be distributed as dividend as stated in section 56(10) of the Companies Act 2063. However, bonus shares can be issued out of balance in the share premium account as per section 29(3a). A bonus shares simply splits the 'ownership pie' into more pieces but does not affect the size of pie. Normally a bonus share is an indication of higher future profits, but its effect to increase in the number of outstanding shares and to decrease in share price than distribution of bonus shares.

### 2.2.7 Procedure/Conditions for the Issue of Bonus Shares in Nepal

In Nepalese context Company Act 2063 and Bonus Shares related Guidelines 2058 issued by SEBO/N provides for the procedural requirement of declaring bonus share by the company. Generally for procedural aspect, following rules should be considered before announcement of bonus share:
» Provision related to bonus share should be mentioned in articles of association.
» Section 83 of the Companies Act states that the board of directors is required to bring a special resolution for consent and approval by three fourth of its shareholders present in annual general meeting of the company. The Bank should obtain a prior approval of NRB before the AGM.
» As per section 179 of the Act, Company should inform the office prior to issue of bonus share.
» Face value of existing shares must be fully paid up.
» The company must be in profit for the past three years as per the audited financial statements.
» The bonus share is payable to shareholders whose names appear in the register of members as on the book closure date. If a shareholder sells share before the book closure date, the buyer of shares will receive bonus shares. If a shareholder sells shares after the book closure date, the seller of the shares will receive bonus shares, because his/ her name is included in the register of members instead of buyer.
» Bonus shares can be issued only out of profits and free reserves created from profit but prohibited by revaluation of company's assets The company can also utilize the Share premium amount received in cash for issue of fully paid bonus shares provided the it is after one year of issuance of right shares by the company.
» A company cannot declare bonus shares unless partly paid-up shares have been fully paid-up. But the company can capitalize the company's surplus and reserve in order to increase the paid up capital as dividend capitalization.
» Free Reserves should not be less than $50 \%$ of the paid up capital of the company after issue of bonus share. This provision is not applicable incase such issuance is as per the guidelines of the Regulatory Body.
» Once a bonus share declaration has been made along with book closure date for share transaction, company has to distribute bonus share within 6 months to the shareholders and make it listed in stock exchange. As we know that the Nepalese capital market is in still infancy, the lack of awareness of the investors and inadequate practice and expertise may be to blame for the situations.

### 2.2.8 Causes for Bonus Share Issue

A large number of corporate firms announce bonus shares to increase the capital base if the corporate management feels such need or to comply with the policy/directive given by concerned authority to increase the capital base from time to time. In our country, NRB issue the directives to the commercial banks to control and for the supervision of the establishment and operation of commercial banks in Nepal. NRB had already issued the directives regarding the requirement of increasing minimum paid up capital in existing commercial banks to Rs 200 Crores within Ashad end 2070, (NRB circular\# 25/063/064) which significantly affected the bonus issuing practice of commercial
banks in Nepal. Corporate firms, other than in banking sector can issue the bonus share to their shareholders by the corporate management as per the rules and provisions in Companies Act 2063.

Some of the corporate firms issue bonus share to their existing shareholders in order to compensate for the decrease in dividend yield. Dividend yield decreases because of rapid increase in the market price of the shares compared to increase in nominal rate of dividend. Cash dividend is the return of the investment on share. Cash dividend drains out the cash from the corporation. Consequently, both total assets and net worth of the company decreases. The market price of shares drops in most cases by the amount of the cash dividend distributed. Thus to compensate to the existing shareholders for their increased value of investment and also to correct the effect of under capitalization, bonus shares are issued to them by the corporate management which help to raise the dividend yield in future because of the effect of decrease in market price of shares. The special causes why corporate firms issue bonus share may be as follows:
» To bring the market price of the stock in most popular range.
» To increase the number of shares and to promote active trading in the stock market.
» To minimize the adverse effect of high nominal dividend rate and to minimize the effect of profiteering in the market
» To increase the share capital base
» To improve the prospects of raising additional fund
. » To gain the confidence of stockholders in the prospects of the corporate firm and in increasing the total dividends.

### 2.2.9 Effect of Bonus Share Issue

Theoretically, bonus share issue is not a thing of value to the investor. It does not affect the wealth of the shareholders. In efficient market, bonus share issue ratio and decrease in market price after issue is same, and hence shareholders' wealth would not be affected. However, if market is inefficient, corporate management's decision to issue bonus share in any ratio as expected by the shareholders may have psychological effects on existing shareholders that may have favorable impact in the share price. Share price is expected to increase normally because shareholders interpret the issue of
bonus shares as indication of corporate firm's prospect of higher profitability and expectation of increase in total cash dividends.

Bonus share issue increases the outstanding number of shares but doesn't change the shareholders' proportional ownership pattern. Shareholders retain the proportional ownership in the corporate firm and total net worth remains the same. There is only adjustment of the paid up share capital. Bonus share issue has a defined advantage to the corporate firm also. Generally, bonus share may be accompanied by an increase cash dividend, which may have positive effect in shareholders wealth in future period of time. Issue of bonus share does not make a cash drain from the bank balance of the corporate firm whereas payment of cash dividend does. It conserves cash as it is a popular means to pay dividend under financial difficulty and at the same time helps in bringing the market price of share in most popular range. Thus, in order to avoid the borrowing iii case of 'cash shortage for payment of cash dividend, corporate firms switch to bonus issue mechanism The market price of the share, in most of the cases in efficient market, decreases by the amount of cash dividend distributed.

It is believed that neither the firm nor its shareholders are better or worse off after an issue of bonus share unless there is an increase in the dividend payout ratio (DPR) and or stock price earning ratio. Shareholders also generally except increase in DPR in the future years as a result of bonus share issue. In another words, if increase in total amount of cash dividend and increase in earnings do not accompany bonus share issue, such issue does not benefit shareholders in term of value of stocks.

Bonus share is expected to project an image of growth hopefully and create a favorable impression on existing and prospective shareholders and also more protection for shareholders in the event of financial difficulty by capitalization of retained earnings into common stock and additional paid in capital. Issue of bonus share may have favorable impact on market price of stock in subsequent years.

### 2.3 Review of Related Issues

There are some related issues regarding rights and bonus issues of share and its practice Summary of the study is presented below.

There are many articles published on various journals and articles about rights and bonus shares issues.

Smith (1977) examined a sample of 853 rights issue made on the NYSE between 1926 and 1975. Smith found abnormal returns of $8-9 \%$ in the one year pre-issue period, and virtually no abnormal returns thereafter. Although he carried out no specific tests for price pressure, his results show a small price decline of $14 \%$ in the two months preceding the issue date, followed by a 'recovery' of the same magnitude in the two months after the issue, possibly indicating the existence of a small amount of price pressure.

Scholes (1972) used the market mode to examine a sample of696 issues made on the NYSE between 1926 and 1966. He found abnormal gains in the period leading up to the issue; a small price fall of, on average, some $0.3 \%$ in the month of the issue; and thereafter, no abnormal gains or losses. The price behavior in the issue month was independent of the size of the issue and thus Scholes was able to reject the price pressure hypothesis.

Shrestha and Manandhar (1998) conducted empirical study on bonus share issue practice in Nepalese corporate firms. The study is concentrated on factual analysis of the prevailing practices among Nepalese corporate firms regarding the issue of bonus shares. Besides issue of bonus share is characterized by ad-hoc and imperfect and under- developed capital market, the study fulfils the research gap and inputs to financial literature relating to this topics.

The period of study expends from 1988/89-1997/98. They used simple statistical tools to analyze and interpret the data. Used statistical tools are percentage, frequency distribution and average. The main objectives of the study are as follows;
» To study and analyze the frequency on bonus share issue.
» To identify the most popular bonus share ratio.
» To study and analyze the relation of bonus share issue to the size and age of the corporate firms.

The study's selected samples are related to commercial banking, insurance, finance and trading \& service sectors. On the basis of analysis of 12 bonus issuing corporate firms, following findings were observed on the bonus share issue practices in Nepal.
» The most popular bonus ratios prevalent in Nepalese corporate practices are 1:2, $1: 1 \& 1: 5$. But $1: 2$ ratios overwhelmingly dominated.
» The number of bonus issue tended to raise from 1992/93 and enthusiastic increase in number of bonus share in the fiscal year 1994/95.
» The amount of bonus issue showed increasing trend during the period of study.
» There is a trend to raise the additional equity capital by capitalization the reserves and net profit by issuing bonus share and stock dividend.
» In the later years the importance of 1:2 bonus decreased and importance of other ratios less than $1: 2$ increased which are $1: 5 \& 1: 4$. The ratio of bonus share is considered high as compared to widely prevalent practice in American corporate.
» The overall average of three bonus issues is noticed among Nepalese corporate practice during the study period.
» Nepalese corporate firms are found depended in internal equity rather than external equity for additional capital.
» There is no consistency in bonus issue ratio observed among Nepalese corporate firms.
» Though capitalizing the retained profit by issuing the bonus shares is the prevalent practice, the average growth rate in increase in equity capital between the commercial banking group and non banking group differed widely.
» The large corporate firms are found to issue bonus share more times than the small size corporate firms
» Corporate firms over than 20 years are found to have issued bonus share more times compared to other corporate firms with lesser age.

Shrestha (1992), states that though the size of the shareholders population in Nepal has been growing constantly the government seems to have not taken any initiative in formulating the separate act which protects the shareholders rights.

In Nepal, the concerned officials seem to be not relevant as they interfere in the shareholder's rights. That is why, the collective rights of the shareholders get ignored.

In the annual general meeting, shareholders can amend the internal by-laws, elect directors, authorize the sale of assets, enter into mergers, change amount of the authorized capital and so on.

But in reality, many annual general meeting have undermined the collective rights of the shareholders. For instance, National life and General Insurance Company had suppressed the collective rights of shareholders by not adhering to the consent of shareholders members in the board though the proposal was put forward by the management before the shareholders; the same is true in the case of Butwal Dhago Udhyog as the management wanted to have a control over the collective rights of shareholders.

Shareholders have right to vote as prescribed by the charter, they have right to sell and transfer share certificate and also rights to inspect accounts as well as right to claim on assets and income regarding their voting rights, the contents through collecting proxies can perform a very useful representation in the board of directors. By gaining board representation through proxies, the winning candidate may stimulate the shareholders expectations. But in practice, the trend of collective proxies has found to be misused. Because in most of the cases, the candidate who have made representation in the board through proxies seem to have considered only the few vested interested shareholder's interest at the cost of many others. These can be taken as the tangible evidence. One of the basic rights of shareholders is the power to use their votes while they elect their representatives for the board of directors. By exercising this power, shareholders choose a representative who can guide the board to formulate strategic plans and policies beneficial to the shareholders at large.

Hence, the voting rights of shareholders are very crucial while its misuse may cause a great loss to shareholders themselves. Shareholders subscribe to the shares floated by the public limited companies through the Security Exchange Centre (SEC) with the firm belief that there will be proper response to their rights which consists of both the collective and specific rights. The collective rights of shareholders include the amendment of charter with approval of appropriate officials.

Weston and Brigham (1981), state that Rights offering can be used effectively by financial managers. If the new financing, associated with the rights offering represents
sound decision, improved earnings for the firm, a rise in stock values will probably be the outcome. The use of rights will permit shareholders to preserve their position or improve that. However, investors feel that the new financing is not well advised, the rights offering may cause the price of the stock to decline by more than the value of the rights. Because rights offering are directed to existing shareholders, its use can reduce the cost of flotation that is associated with the new issue.

A major decision for financial managers in rights offering is where to set the subscription price, or the amount of the concession from the existing market price of the stock. Formulae reflecting the static affects of a rights offering indicate that neither the company nor the stockholders gain or loss from the price changes. The rights offering has the effect of a stock split; that is the level set for the subscription price reflects, to a general degree, the objective and effects of a stock split.

The subsequent price behavior of the rights and the common stock associated with new offering reflects the earnings and dividends prospects of the company as well as underlying developments in the securities market. The new financing associated with the rights offering can be an indicator of prospective growth in the company's sales and earnings. The stock-split effects of the rights offering can be used to alter the company's dividend payments. The effects of these developments on the market behavior of the rights offering and the securities before, during, and after the rights share trading period, reflect the expectations of investor toward the earnings of the firm.

Pandey (1999), states that a rights issue involves selling of ordinary shares to the existing shareholders of the company. The law in India states that the new ordinary shares must be first issued to the existing shareholders on a pro rata basis. This preemptive right can be forfeited by shareholders through a special resolution obviously, this will dilute their ownership.

A company can make rights offering to its existing shareholders after meeting the requirements specified by the Securities and Exchange Board of India (SEBI) in India. Those shareholders who renounce their rights are not entitled for additional shares. Shares becoming available on account of non-exercise of rights are allotted to
shareholders who have applied for additional shares on pro rata basis. Any balance of shares left after issuing the additional shares can be sold in the open market.

When the rights are offered for raising funds, three major issues are involved.
i. The number of rights needed to buy a new share.
ii. The theoretical value of a right, and
iii. The effect of rights offering on the value of the ordinary shares outstanding.

Pandey, further states that the existing shareholder does not benefit or lose from rights issue, whether he is selling ex-rights, or cum-rights. What he receives in the form of the value of a right, he loses in the form of decline in share price. His wealth remains unaffected when he exercises his rights. Of course, he will lose if he does not exercise his rights or sells them. Thus, the shareholders have three options:

1. Exercise the rights,
2. Sell the rights, and
3. Do nothing.

He loses under the third option.
Subscription price is irrelevant in terms of the impact on the shareholders wealth. It can be fixed at any level below the current market price. What the shareholders gain in terms of the value of rights, he will lose in terms of decline in the share price. The primary objective in fixing the subscription price below the current market price is that after the rights offering the market price should not fall below it.

The theoretical value of rights is not always equal to market value because of three reasons. First, the high transaction cost can limit the investor arbitrage that would otherwise push the market price of the right to its theoretical value. Second, specialization over the subscription period can push the market price above or below the theoretical value. Third, large flotation costs can also affect these two values.

### 2.4 Review of Thesis

Till the date, many studies have been done related to the impact on market price by various variables such as EPS, DPS and signaling effects. But out of them only few
thesis directly consider the rights and bonus shares issue to study the impact on share price. Some of them have been reviewed below:

Bamshidhar Gautam (2001) has made study on, 'Analysis of Share Price Movement Attributed to Rights 0 ffering Announcement'.

The main objectives of his study were:
» To find the effect of rights offering on the share price movement.
» To find out, if there is any problem in the primary issue of securities.
» To analyze the adequacy of the contents of the company act 2063 B.S. in regard to section 21, that emphasis about that matter to be disclosed in the issue prospectus.

The major findings of his study are:
» Change in share price due to rights offering cannot be generalized.
» There is lack of legal provision in company act regarding the issue of rights share.
» There is lack of investors protection act.
» Nepalese security market has failed to use various capital market instruments such as warrants, convertible option etc.
» Security board has failed to establish one window policy to support the primary issue of shares.

To conduct his study, he had used correlation analysis between share price movement and NEPSE index i.e. general market movement and $t$-statistics between share price before and after right issue announcement. T-statistics was used to test if there was significant change in share price before and after the issue of right. But he did not consider the value of right, which is very important in share price determination after the issue of rights share. Further, his analysis only covers from 2052 to 2056 B.S. That result may not represent the present economic scenario. He had taken only three companies as sample to complete his study but here the researcher has taken ten companies as sample to accomplish the study.

Nirmal Aryal (2003) had made study on "Equity Rights Issue, its Practice and Impact in Nepal".

Major objective of his study were:
» To examine the relationship between stock price reaction and announcement of rights issues.
» To analyse the relationship between rights share and equity share and rights share and NEPSE Index.

To conduct his study he had used cross-sectional analysis by estimating the regressions. The major findings of his study were:
» Announcement of equity rights issue are associated with a positive effect on share prices.
» Theoretical value of right differs from company to company.
» Firstly company issues rights share for increasing equity capital and to invest it in company's diversification and expansion. Secondly they issue rights share to increase capital to meet the level prescribed by Nepal Rastra Bank.
» The rights share and equity share has low degree of positive correlation. The correlation coefficient between right share and NEPSE has also positive correlation.

Padam Gharti (2001), conducted his master thesis "Bonus share announcement and its impact on stockprice of Nepalese corporate firms" by using secondary data of ten firms.

Major objectives of his study are as follows;
» To examine the relationship of dividend quantum change and stock price.
» To examine the relation between share price and bonus ratio.
» To evaluate the relation of bonus share announcement and stock price.

Major findings of the study are as follows;
» The immediate share price rise after bonus announcement is significant. Bonus share announcement of banking sector is considering positively by the investor but show reluctant for the non banking sectors. None of the case has been
observed under banking sector that the price decreases immediately after bonus announcement.
» The intention of issue bonus share of board of directors leaks out before officially announcement. Therefore, the share price rises one month before the actual announcement due to the activities of the insider.
» The share price, in most of the case, does not decrease after distribution of bonus share outstanding to bonus ratio as theory' says. The reason behind the situation may be that the investors cannot interpret the information and data. There is a great misconception about bonus share that the general investors think that they receive extra/additional share with same value.
» The share price of the non-banking sectors shows inconsistency as companies to the banking sector Therefore investing on non-banking sector is more risky than the banking sector.

Long-term effect of bonus share issue, as well as immediate, is significantly positive In most of the cases the aggregate market value of the corporate firm's equity capital increased as the result of bonus issue $81.2 \%$ of the bonus issue cases are received different level gain over the base data price, after the adjustment of the general market movement in share price.

Kavita Lamichhane (2007), on her master thesis "Right share \& its impact on market price of the stock" tries to explore existing practices of right issues, find out impact on changes in market price of stock before and after the announcement and analyse the inadequacy of existing laws on the matter through percentage change, Run tests and ttest analysis. Major findings of her study were as follows:
» Right share contribute the second largest among various others to raise capital.
» The practice of right share issue is in increasing trend every year.
» The result of run test is positive which shows that Market price before and after one month of right share issue are found to foll6w randomness in price fluctuation.
» In majority of the cases MPS after right share issue decreases.
» Company Act has not mentioned about necessity of legally transferable rights instruments called right.

Sagar Mani Ghimire (2005), conducted his master thesis "Determinants of Pricing of Securities in Nepal" which focuses on whether the successive price changes of the securities are dependent of independent. His prime objective was to study and analyse the stock price trend with volume of trade and to analyze market trends of MPS with various other financial indicators. With the use of trend analysis, Simple correlation and regression and multiple regression tools he concludes that Nepalese stock market is not efficient enough to determine MPS in accordance with the respective financial performance. The market price of shares is not indicative of a company's financial performance in Stock Market.

This study explores that Nepalese Secondary Market is not guided by the investment analysis on financial performance of the respective companies listed in the stock exchange.

### 2.5 Research Gap

This study shows the current issue, latest information on financial indicators, data and real picture of share price of financial institutions. To show latest picture of financial indicators researcher covered the data of periods from 2059 B.S. to 20642059 B.S. and collect the latest information or changes that occur in this periods. Hence, this study fulfils the prevailing research gap about the in depth analysis of the movement or fluctuation of stock price after the issue of rights and bonus share which is the major concern of the stakeholders. This study focuses on being informative to prospective investors of Secondary market to analyze the different scenario of right issue by showing a comparative analysis of theoretical ex-right price and actual decline in market price corresponding to the ratio of right offer. This study also tries to reveal the major developments and changes in the legal aspects and provisions regarding rights and bonus issue after the enactment of Companies Act 2063.

## CHAPTER - THREE

## RESEARCH METHODOLOGY

### 3.1 Background

Research methodology is a technique of analyzing the obtained data to solve the research problem. The major objective of this study was to find out if there is any significant change in share price after the issue of rights shares and bonus share. To achieve this objective the researcher has used descriptive approach and statistical tools. Descriptive approach is used to analyze the research problem, setting hypothesis and other theoretical problems. Statistical tools are used to analyze the numerical data.

### 3.2 Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Kothari, 1997: 22). For the analytical purpose, share prices of the sample banks from NEPSE, the annual reports published by SEBO/N, NEPSE and other concerned companies were collected for the fiscal year 2002/03 to 2006/07.

### 3.3 Population and Sample

Out of 135 listed companies in NEPSE, there are 15 Commercial Banks, 22 Development Banks and 55 Finance Companies listed as of 30 November 2007 (Source Annual Report 2006/07, SEBO/N). The population comprises the commercial banks which have already issued right shares and bonus shares. Total of four each for right and bonus share issuing financial institution is taken for research purpose. Researcher has chosen as a sample from banking sector because this research focuses on the impact on share market pride of banks and also movement in Banks' Index is major indicator of Nepse Index movement as well. And this provides sufficient reason to argue that the sampling procedure is not methodologically biased and it is representative of the population as well. The sample sizes are:

For rights shares
a. Machhapuchhre Bank Ltd.
b. Kumari Bank Ltd.
c. Nepal SBI Bank Ltd
d. Nepal Investment Bank Ltd.

For bonus shares
a. Bank of Kathmandu Ltd.
b. NIC Bank Ltd.
c. Himalayan Bank Ltd.
d. Everest Bank Ltd.

### 3.4 Source of Data

Secondary sources of data includes annual report of Security Board of Nepal, various publication of Nepal Stock Exchange, Statistical year book of Nepal Rastra Bank, Balance Sheet, Income Statement, profit and loss account of concerned companies, Previous Studies, Dissertation, Articles and Daily Newspapers etc. Primary sources include the responses of the questionnaires, personal interviews with managers of issuing companies, listed stockholders, and resourceful persons in the regulatory offices. The announcement day is the day of the first public announcement in the NEPSE. To ensure that, this was the first day that the information was became public, the announcement date was confirmed or corrected by reviewing each firm's official book closures in the SEBO/N. The share prices were collected from the official quotation, lists of NEPSE published in the National Daily Newspapers as well as trading report of SEBO/N. Sample companies are as follows:

For rights shares
a. Machhapuchhre Bank Ltd.
b. Kumari Bank Ltd .
c. Nepal SBI Bank Ltd
d. Nepal Investment Bank Ltd.

For bonus shares
a. Bank of Kathmandu Ltd.
b. NIC Bank Ltd.
c. Himalayan Bank Ltd.
d. Everest Bank Ltd.

### 3.5 Coverage of the Data

This study covers the rights and bonus issue made by company,' whose name was listed in the SEBO/N. The analysis covers the period within five years (2059-2064 B. S.). The study throws light on the several aspects of the corporate financial policies and practices regarding rights and bonus offering, such as, subscription price, rights offering ratio, theoretical vs ex-right price and the popularity of rights and bonus offering by an individual company and also the legal provisions regarding the rights and bonus offering.

### 3.6 Data Analysis Tools

To achieve the research objectives, data is analyzed by using various financial as well as statistical tools. This study is mostly based on share price before and after the rights \& bonus share announcement. The share price moves up or down due to various market information. So, the researcher has used some assumption to remove the effect of information.

### 3.7 Other Statistical Tools

Brief explanations of statistical tools used in this study are as follows.

### 3.7.1 Co-efficient of Correlation (r)

Correlation analysis is the statistical tool that can be used to describe the degree to which one variable is linearly related to another. The coefficient of correlation measures the direction of relationship between two sets of figures. It is the square root of the coefficient of determination. Correlation can either be negative or positive. If both variables are changing in the same direction, then correlation is said to be positive but when the variations in the two variables take place in opposite direction the
correlation is termed as negative. In the study, coefficient of correlation is calculated between rights and bonus share with NEPSE Index.

The strength of correlation between the variables can be quantified. This is achieved by calculating the correlation coefficient. The correlation coefficient varies between +1 and -1 ; with +1 representing perfect positive correlation and -1 representing perfect negative correlation. Following figure shows how the correlation coefficient scale works.

Figure no: 3.1

## The correlation coefficient scale



### 3.7.2 T-test

' $t$-statistics' is also used to test the significance of the difference between the share price before and after the issue of the rights and bonus by the companies. Since the share prices of few transacted commercial banks (i.e. less than 30 samples) are taken. T-test is a suitable tool for analyzing the significance of difference between the share price before and after the issue of the rights offering. Hence the researcher has used ttest model as follows:

$$
t_{c a l}=\frac{\overline{d i}}{s / \sqrt{n}}
$$

Where,

$$
\begin{aligned}
& \overline{d i}=\frac{\sum d_{i}}{n} \\
& d_{i}=X_{i}-Y_{i} \\
& s=\sqrt{\frac{1}{(n-1)}} \sum\left(d_{i}-\overline{d i}\right)^{2}
\end{aligned}
$$

Here,
$\mathrm{X}=$ Market price of share before issue
$\mathrm{Y}=$ Market price of the share after issue and
$\mathrm{n}=$ Number of observation
In this analysis the researchers have used $5 \%$ level of significance to test the Hypothesis.

## CHAPTER - FOUR

## DATA PRESENTATION AND ANALYSIS

### 4.1 Background

This chapter deals with the presentation, analysis and interpretation of data collected primarily through secondary sources in order to fulfill the objective of the study. The researcher has already mentioned that this study is heavily based on secondary data. Secondary sources include official quotation of share prices, publication of SEBO/N and NEPSE, issue prospectus and annual reports of respective companies. To obtain the best result, the data have been analyzed according to the research methodology as mentioned in the third chapter.

### 4.2 Characteristics of Rights and bonus shares offering in Nepal

Till the end of fiscal year 2063/64, there are 135 companies listed in the SEBO/N and NEPSE. Out of them, more than 30 companies have is the rights and bonus shares. However, this study has covered only eight companies.

All the companies had issued their rights share at par value i.e. Rs. 100 per share. Because according to company act 2063, company cannot issue their rights share on discount (section 64). The premium can be added but due to fear of under subscription no company had added any premium on issue. As a result, there is wide difference between subscription price and market price per share. And similarly almost all the companies distributed the bonus shares that has adequate reserve fund since The Company Act states that bonus share can be issued only from accumulated free reserve, i.e. reserve not set apart for any specific purpose (section 179).

### 4.3 Contribution of Rights Issues in the Total Public Flotation

The following table shows the contribution of Rights issue in the total public flotation in each of the last ten fiscal years in which the right offering has taken place.

Table no: 4.1
Contribution of Rights Issues in the Total Public Flotation

| 1 <br> Fiscal Year | Total Public Floatation <br> (In Million) | 3 <br> No. of rights <br> offering | Total amount raised <br> through right offering | 5 <br> (Percentage) <br> 4 as \% of 2 |
| :---: | ---: | :---: | ---: | :---: |
| $2054 / 55$ | 462.36 | 3 | 249.96 | 54.06 |
| $2055 / 56$ | 258.00 | 1 | 30.00 | 11.63 |
| $2056 / 57$ | 537.06 | 3 | 124.60 | 23.20 |
| $2057 / 58$ | 634.29 | 3 | 365.79 | 57.67 |
| $2058 / 59$ | $1,441.33$ | 5 | 621.87 | 43.15 |
| $2059 / 60$ | 656.54 | 4 | 162.24 | 24.71 |
| $2060 / 61$ | $1,027.50$ | 3 | 70.00 | 6.81 |
| $2061 / 62$ | $1,626.80$ | 6 | 949.30 | 58.35 |
| $2062 / 63$ | $2,443.30$ | 11 | $1,013.50$ | 41.48 |
| $2063 / 64$ | $2,295.50$ | 16 | $1,265.30$ | 55.12 |

Sources: Published Records of SEBO/N

## Chart no: 4.1

Contribution of Rights Issues in the Total Public Floatation


Table no. 4.1 clearly depicts that contribution of rights offering on total public flotation is in increasing trend down the years. Also the number of companies offering rights issue is explicitly increasing which shows increasing popularity of rights offering in public companies. No of rights offering has increased from around 3 in 2054/55 to 16 during 2063/64 contributing upto $55.12 \%$ of total public flotation. Above chart also clearly presents the high popularity of right issue as a means to raise capital in recent years.

### 4.4 Analysis of Share Price Movement of Companies before and after Rights Offering

Five different points of time were selected for observing the price movement with the issue date as the point of reference. The selected points are:
i. Three months before issue date, which will be our base date for the price comparison.
ii. Eight days before issue date.
iii.Day of the issue.
iv. Seven days after the issue date and
$v$. Three months after issue date.

Though there were more number of companies in the market with right offerings; researcher has analyzed the rights offering of only four commercial banks because of the infrequent share transactions occurring in the stock exchange and unavailability of relevant data. Following companies are examined below.
a. Machhapuchhre Bank Ltd (MBL)
b. Kumari Bank Ltd (KBL)
c. Nepal SBI Bank Ltd (NSBI)
d. Nepal Investment Bank Ltd. (NIBL)

### 4.4.1 Analysis of Share Price Movement of the Commercial Banks in sample

Table no. 4.2

## Analysis of Share Price movement for five different points of time around right issue

|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { Name } \\ \text { of } \\ \text { Bank } \end{gathered}$ | Selected <br> Points of Time | Share <br> Price <br> (Rs.) | Price <br> Relatives | Total Price Index (NEPSE) | Price Index converted to new base | $\%$ change from base | $\begin{array}{\|c} \hline \text { Adjusted Price } \\ \text { relatives } \\ 2 \text { as } \% \text { of } 4 \\ \hline \end{array}$ | $\%$ change from base |
| MBL | I | 345 | 100.00 | 341.05 | 100.00 | - | 100.00 | - |
|  | II | 348 | 100.87 | 384.11 | 112.63 | 12.63 | 89.56 | -10.44 |
|  | III | 340 | 98.55 | 379.89 | 108.75 | 8.75 | 90.62 | -9.38 |
|  | IV | 345 | 100.00 | 371.74 | 109.00 | 9.00 | 91.74 | -8.26 |
|  | V | 335 | 97.10 | 379.93 | 111.40 | 11.40 | 87.16 | -12.84 |
|  |  |  |  |  |  |  |  |  |
| KBL | I | 376 | 100.00 | 294.12 | 100.00 | - | 100.00 | - |
|  | II | 378 | 100.53 | 301.97 | 102.67 | 2.67 | 97.92 | -2.08 |
|  | III | 340 | 90.43 | 308.13 | 104.76 | 4.76 | 86.32 | -13.68 |
|  | IV | 330 | 87.77 | 301.60 | 102.54 | 2.54 | 85.60 | -14.40 |
|  | V | 348 | 92.55 | 339.03 | 115.27 | 15.27 | 80.29 | -19.71 |
|  |  |  |  |  |  |  |  |  |
| NSBI | I | 339 | 100.00 | 250.76 | 100.00 | - | 100.00 | - |
|  | II | 370 | 109.14 | 292.59 | 116.68 | 16.68 | 93.54 | -6.46 |
|  | III | 346 | 102.06 | 297.81 | 118.76 | 18.76 | 85.94 | -14.06 |
|  | IV | 373 | 110.03 | 285.42 | 113.82 | 13.82 | 96.67 | -3.33 |
|  | V | 335 | 98.82 | 286.67 | 114.32 | 14.32 | 86.44 | -13.56 |
|  |  |  |  |  |  |  |  |  |
| NIBL | I | 765 | 100.00 | 229.18 | 100.00 | - | 100.00 | - |
|  | II | 800 | 104.58 | 223.14 | 97.36 | -2.64 | 107.42 | 7.42 |
|  | III | 790 | 103.27 | 217.53 | 94.92 | -5.08 | 108.80 | 8.80 |
|  | IV | 785 | 102.61 | 218.76 | 95.45 | -4.55 | 107.50 | 7.50 |
|  | V | 660 | 86.27 | 199.28 | 86.95 | -13.05 | 99.22 | -0.78 |

Sources: Records of SEBO/N

The main objective of this method of analysis is to eliminate the effect of the general market movement from our analysis. Otherwise stated, our procedure for eliminating the effect of the general market movement focuses on to adjust the actual share price on any date downwards in proportion to an upward general movement from the base date (Row I) and adjusting it upwards in proportion to a downward general market movement. Thus finally we get a series of five percentages (Column 6) for each of the shares in researcher sample representing relative change in a share price at different points of time (Column 7), after eliminating the effect of the general market movement.

For Machhapuchre Bank Ltd (MBL), it is noticed that no such huge fluctuation occurred in the share price of the bank because of the right issue. Share price three months before the issue date was Rs 345 which slightly increased to Rs 348 just before the issue date. The after effects of right issue have brought down the share price to Rs 345 and again to Rs 335 after three months of issue. During the same time frame, total price index has gone up to 384 from 341 and slightly dropped to 371 after the right issue period.

Column 4 in table no. 4.2 shows the price index converted to new base and column 5 shows the percentage increase (or decrease) in the adjusted price indices from the base index. This column 5 shows that price index is increased by $12.63 \%$ eight days before the issue date and by $8.75 \%$ till the day of issue. After seven days of issue date, it is more than the base index by $9 \%$ and by $11.40 \%$ after three months of the issue date. Similarly, column 6 and 7 shows the adjusted share price and its percentage increase (or decrease) from the base date respectively. In column 7, adjusted share price decreased by $10.44 \%$ eight days before the issue date and start to increase slightly at the day of the issue. The adjusted share price decreased by $8.26 \%$ at the date after seven days of issue from the base price index and after three months of issue date, there is a clear drop of adjusted share price by $12.84 \%$ although the price index converted to new base has increased by $11.40 \%$. This huge drop in the adjusted share price against the bullish market provides sufficient evidence that this price decrease must have been attributed by the announcement of rights offering to the existing shareholder.

Kumari Bank Ltd (KBL) also shows similar trend during the period of right issue. Its price was high at Rs 378 eight days before the issue from Rs 376 at three months before issue, which drops to Rs 340 at issue date and further to Rs 330 after seven days of issue indicating the effect of end of rights on period. It normalizes at Rs 348 three months after the issue. During the same period the total price index moves from 294 to 301 and reached 308 corresponding to issue date. The index drops to 301 seven days after issue but further reached 339 after three months of issue.

On analysis of column 4 and 5, it can be exclaimed that the index has continuously gone up during the period from 102 to 115 . Looking at the share price in column 6 and variance in 7 , the right issue theory can further be supported. The prices have slightly
reached $97.92 \%$ before the issue date while it significantly dropped to $80 \%$ after three months of issue signifying the effect of ex-right period.

Share price of Nepal SBJ Bank Ltd (NSBI) has also gone up to Rs 370 rights-on price eight days before issue from Rs 339 three months ago. The price has dropped to Rs 346 on issue date and a little volatility is noted in its price afterwards (refer point \# 4.6 for PVI). It remains at Rs 335 three months after the issue which shows the normal price of the share ex-right. The price index has gone up to 292 from 250 and to 297 till issue date. It drops to 285 seven days afterwards and reached 286 three months after the issue date.

Analysis of percentage change of price index and that of adjusted price relatives for NSBI clarifies the effect of right issue in its share prices. In comparison with the percentage movement of price index the adjusted share price shows sharp drop of upto $13.56 \%$ three months after the right issue while the price index has gone up by $14.32 \%$. This phenomenon can very well be attributed to the right issue of the bank. The share price of the bank was not being affected by the general market movement and drops during ex-right period.

Nepal Investment Bank Ltd's (NIBL) share prices also shows a similar ups and downs due to rights issue. The share prices has gone up to Rs 800 before the issue date from that of Rs 765 three months before and drops from Rs 790 on the date of issue to Rs 785 and then to Rs 660 three months after the issue date. Column 2 clearly shows that the share price after issue was $6.27 \%$ of the base price which is the effect of not having right to purchase the right shares on those dates. The price indexes on the other hand moves down from 229 to 223 and to 217 till the corresponding issue date. It further drops to 199 points.

To make a more comparative analysis lets look at the columns 4 to 7 . Column 5 shows the percentage drops of the price index in the respective points of time; whereas the adjusted share prices (i.e. after removing the effect of market movement) moves up at the beginning till the date of issue and drops afterwards due to the effect of rights issue. This further evidenced the theory of rights issue that the market price of shares drops after right issue.

### 4.4.2 Presentation of Theoretical Value of Rights and Comparison of Theoretical Ex-right value with Actual Ex-right Price of the Shares

The computed theoretical value of rights for each bank in sample is presented below along with the theoretical ex-right value and actual ex-right price.

## Table no. 4.3

## Computation of Theoretical value of rights and Comparison of Theoretical value with Actual Ex-right price

| S.No. | Name of the Banks | MBL | KBL | NSBI | NIBL |
| :---: | :--- | :---: | :---: | :---: | :---: |
| I | Market price of a share selling rights on (Average) | 380.60 | 371.20 | 425.00 | 798.40 |
|  | No. of shares required to purchase one share | 3.33 | 4.00 | 2.00 | 3.00 |
|  | Theoretical value of a right | $\mathbf{6 4 . 7 5}$ | $\mathbf{5 4 . 2 4}$ | $\mathbf{1 0 8 . 3 3}$ | $\mathbf{1 7 4 . 6 0}$ |
| II | Theoretical Ex-right value of share | 315.85 | 316.96 | 316.67 | 623.80 |
|  | Actual Ex-right price after right offering (Average) | 333.00 | 342.80 | 352.80 | 660.00 |
| III | Drop of price (decrease to Ex-right price as <br> percentage of Rights-on price) | -12.51 | -7.38 | -16.99 | -17.33 |
|  | Right issue ratio $\%$ | 30.00 | 25.00 | 50.00 | 33.33 |

Refer Annexure 3

Table no. 4.3 presents the average market price of shares immediately before the issue date (i.e. rights on price) for all the commercial banks in sample. Then number of shares required to obtain one right or one share is listed. Thereafter there is the calculated theoretical value for a right for each bank. It is obvious that the rights does have value and it varies for different banks due to the variation in Market price of shares and the number of rights required to purchase one share. Value of a right of NIBL is the highest (174.60) due to the high share price and that of NSBL due to higher ratio of right issue (1:2). The theoretical value gives an indication as to the price at which the right to purchase the shares are saleable which is also legally permissible at current scenario after amendment in The Companies Act 2063 -section 56(11).

According to the theory of rights offering the price of share will increase after the announcement till issue or ex-right date and decrease after the allotment of share to the extent of value of rights. The decrease is usually due to dilution in the net worth per share thanks to increased number of shares after right offerings. To examine whether the purchase of shares at ex-right date is justifiable, we examined the theoretical ex-
right value with actual ex-right price in the above table for all the commercial banks in sample. It is apparent that in all the cases cited above the theoretical ex-right value of shares (i.e. Rs $315,316,316$ and 623) is less than actual price after the issue (i.e. Rs 333, 343, 352 and 660). This means an investor does not lose in the period after-issue by way of loss of share price as expected by the theory of right issue. She/he can still get the benefit of high market value of their holdings if one chooses to sell the shares in market immediately after the right issue is listed. Profit or loss to the investor depends on the drop of price after the right issue.

Thus in the course of further examining the effect we attempt to present the drop of price vis-à-vis the right issue ratio. It is evident in the III portion of the table that there is higher drop of price corresponding to higher right issue ratio. This can be presented in the chart as follows:

## Chart no. 4.2

## Drop of Ex-right Price Vs Right Issue Ratio



It is clearly indicative from above table and chart that NSBI and NIBL with high right issue ratios ( $50 \%$ and $33.33 \%$ ) have high falls in price after right issue ( $16.99 \%$ and $17.33 \%$ ) than the other two counterparts.

### 4.5 Analysis of Share Price Movement of Companies before and after bonus share announcement

Five different points of time were selected for observing the price movement with the start of record date as the point of reference as investor holding the shares till record date will be eligible for bonus share which affects price movement. The selected points are:
i. Three months before record date, which will be our base date for the price comparison.
ii. Eight days before record date
iii. Record Date.
iv. Seven days after the record date and
v. Three months after record date.

Researcher has considered the bonus share issuing four companies for the analysis of the share price movement, due to short period of time and infrequent share transactions occurred in the stock exchange. Data that are required for the analysis were not available for most of the other companies. Following companies are examined below:
a. Bank of Kathmandu Ltd.
b. NIC Bank Ltd.
c. Himalayan Bank Ltd.
d. Everest Bank Ltd.

### 4.5.1 Analysis of Share Price Movement of the Commercial Banks in sample

Share prices, corresponding price indexes, percentage changes and adjusted price relatives for five different points of time as described above is presented below in tabular form for all four companies in consideration.

Table no. 4.4
Analysis of Share Price movement for five different points of time around bonus issue

| Name of <br> Bank | Selected Points of Time | Share Price (Rs.) | Price <br> Relatives | Total Price Index (NEPSE) | Price Index converted to new base | $\%$ <br> change <br> from base | $\begin{array}{\|c\|} \hline \text { Adjusted Price } \\ \text { relatives } \\ 2 \text { as } \% \text { of } 4 \\ \hline \end{array}$ | $\%$ change from base |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| BOK | I | 1028 | 100.00 | 408.00 | 100.00 | - | 100.00 | - |
|  | II | 1025 | 99.71 | 473.00 | 115.93 | 15.93 | 86.01 | -13.99 |
|  | III | 1113 | 108.27 | 508.00 | 124.51 | 24.51 | 86.96 | -13.04 |
|  | IV | 1088 | 105.84 | 511.00 | 125.25 | 25.25 | 84.50 | -15.50 |
|  | V | 920 | 89.49 | 494.00 | 121.08 | 21.08 | 73.91 | -26.09 |
|  |  |  |  |  |  |  |  |  |
| NIC | I | 400 | 100.00 | 296.76 | 100.00 | - | 100.00 | - |
|  | II | 465 | 116.25 | 300.57 | 101.28 | 1.28 | 114.78 | 14.78 |
|  | III | 467 | 116.75 | 300.78 | 101.35 | 1.35 | 115.19 | 15.19 |
|  | IV | 385 | 96.25 | 298.00 | 100.42 | 0.42 | 95.85 | -4.15 |
|  | V | 426 | 106.50 | 332.28 | 111.97 | 11.97 | 95.11 | -4.89 |
|  |  |  |  |  |  |  |  |  |
| HBL | I | 1000 | 100.00 | 297.34 | 100.00 | - | 100.00 | - |
|  | II | 1125 | 112.50 | 299.71 | 100.80 | 0.80 | 111.61 | 11.61 |
|  | III | 900 | 90.00 | 300.49 | 101.06 | 1.06 | 89.06 | -10.94 |
|  | IV | 950 | 95.00 | 304.16 | 102.29 | 2.29 | 92.87 | -7.13 |
|  | V | 1002 | 100.20 | 332.28 | 111.75 | 11.75 | 89.66 | -10.34 |
|  |  |  |  |  |  |  |  |  |
| EBL | I | 985 | 100.00 | 296.20 | 100.00 | - | 100.00 | - |
|  | II | 981 | 99.59 | 307.98 | 103.98 | 3.98 | 95.78 | -4.22 |
|  | III | 805 | 81.73 | 301.67 | 101.85 | 1.85 | 80.25 | -19.75 |
|  | IV | 800 | 81.22 | 301.76 | 101.88 | 1.88 | 79.72 | -20.28 |
|  | V | 876 | 88.93 | 305.51 | 103.14 | 3.14 | 86.22 | -13.78 |

Sources: Records of SEBO/N
The main objective of this method of analysis is to eliminate the effect of the general market movement from our analysis. Otherwise stated, our procedure for eliminating the effect of the general market movement focuses on to adjust the actual share price on any date downwards in proportion to an upward general movement from the base date (Row I) and adjusting it upwards in proportion to a downward general market movement. Thus finally we get a series of five percentages (Column 6) for each of the shares in researcher sample representing relative in a share price at different points of time (Column 7), after eliminating the effect of the general market movement.
Investor had shown positive response to the announcement of bonus issue of Bank of Kathmandu (BOK) and its price moves up from Rs 1028 three months ago to Rs 1113 till the record date for being eligible for bonus shares. It drops after the record date to Rs 1088 seven days after and to Rs 920 three months afterwards as presented in Column 1. Column 2 presents the percentage movement of the price of the shares. The
information of bonus issue has drawn up the price to $108.27 \%$ till record date which comes down to $89.49 \%$ after record date. During the same period Index has moved up from 408 three months ago to 473 and to 508 till record date and drops to 494 three months after the record date with slightly upward movement during IV point of time in between. Column 6 presents the price relatives to remove the effect of market on share prices. Column 7 presents the percentage changes of the price relatives. It is noted that the prices have gone down by $13.99 \%$ till record date and further by $26.09 \%$ in total after three months of the record date which could be attributed solely to bonus issuance.

Nepal Industrial and Commercial Bank Ltd's (NIC) share prices has also obtained similar response from the investors in the beginning as its share prices moved up from Rs 400 three months before to Rs 465 eight days ahead of record date and to Rs 467 in the record date. It falls to Rs 385 seven days after, and moves up to Rs 426 three months after the record date against the theory. During the same time points the price index has moved from 296 to 300, then slightly drops to 298 after record date and moves up to 332 three months after the record date. It calls for the need to examine whether the movement of prices is solely due to the market trend. By analyzing column 6 and 7 we can see that the share price relatives has gone up by upto $15.19 \%$ in the beginning till record date and then drops by $4.88 \%$ of base price three months after the record date. These columns present the relative data after removing the effect of market trend. Thus it can be proclaimed that in the absence of market effect the share prices of NIC follows the theory i.e. it moves after the announcement and drops after the issue of bonus shares.

When Himalayan Bank Ltd (HBL) announces the bonus shares, similar responses could be seen from the investors' side. In the above table, share prices at different points of time are presented in column 1 against HBL. Three months before the record date its share price was Rs 1000 and it came up to Rs 1125 eight days before the record date. The share price decreased to Rs 900 in the record day. It reached Rs 950 seven days afterwards and to Rs 1002 three months after the record date Looking to the general market movement in column 3 it shows a continuous increasing trend from 297 to 300 till record date and further moving upward to 332 three months after the record date. Further enquiry upon the share price trends with the help of column 6 and 7 reveals that the increase in the share price after three months is definitely due to the market trend. A
bullish market has drawn up the prices even after bonus issue of HBL against the theory. It shows a positive expectation of investor and a trust in the name of HBL. In other words at that date of market movements HBL was considered underpriced by the investors which pushes its price up. However, removing the market trend/effect, its price relatives (column 6) has gone down by $10.34 \%$ which can be assigned to the effect of bonus issue.

Everest Bank Ltd's (EBL) bonus issue decision attracts the investors to its shares and its price remains high at Rs 985 three months ahead to Rs 981 till eight days ahead of record date. This shows that the information has been utilized by the market players long before the actual announcement. The price has dropped to Rs 805 on record date and to Rs 800 seven days afterwards. But the same has gone up to Rs 876 three months after the record date. This is primarily due to the effect of market. The index has gone up from 296 to 307 during I and II time points and then remained at 301 before reaching 305 high again after three months of record date. Analysis of column 6 and 7 further evidenced the fact that infact the share prices of EBL has gone down by $20.28 \%$ after the bonus issue. The increase in price three months after record date is merely due to the market influenza. The normal impact of bonus issue is indeed seen in the price movement.

### 4.5.2 Comparison of theoretical price with Actual price of shares after bonus

To understand the phenomenon of price movement vis-à-vis the theory of bonus issue we examined the theoretical value of share after bonus issue for all the sample banks. Comparison of the theoretical value with that of actual price after bonus issue is presented in table 4.5 below.

Table no. 4.5
Comparison of theoretical value of share and actual price after bonus

| Name of the Bank | BOK | NIC | HBL | EBL |
| :--- | :---: | :---: | :---: | :---: |
| Theoretical value of a share after bonus issue | 868 | 375 | 900 | 823 |
| Actual price after bonus issue (Average) | 1076 | 403 | 935 | 806 |

Average price of share after bonus issue is more than the theoretical value of share in all the cases except for EBL. This shows that although the prices do follow the theory that the share prices fall down after bonus issue the quantum of decrease is not as much as anticipated by the theory. This gives room for investor to gain from the trade in secondary market for bonus shares if one has adequate information of the management decision. This is further explained with the help of chart as follow:

Chart no. 4.3
Comparison of theoretical value of share and actual price after bonus


It is clear from the above chart that the actual prices after bonus issue is more than the theoretical value in all cases except that of EBL which is more driven by the market.

### 4.6 Correlation between share Price Movement and General Market

### 4.6.1 Correlation between share Price Movement and General Market during Five different Points of Time for the Rights share issue

Researcher has calculated the correlation between the movement of share prices during the five points of time for right issue and movement of general market price corresponding to the timelines. Calculated value and results were tabulated below:
(Refer Annex 4)

Table No. 4.6
Correlation between Share Price Movement and General Market-Right issue

| Name of Commercial <br> Banks | Test for | Calculated <br> Values | Interpretation |
| :--- | :---: | :---: | :--- |
| MBL | r | -0.1933 | There is a weak negative correlation |
|  | $\mathrm{r}<\mathrm{PE}$ | $(-0.1933<0.2938)$ | Correlation is insignificant |
| KBL | r | -0.3212 | There is a weak negative correlation |
|  | $\mathrm{PE}<\mathrm{r}<6 \mathrm{PE}$ | $0.27052<0.3212<1.62314$ | Nothing can be concluded |
| NSBI | r | 0.3752 | There is a weak positive correlation |
|  | $\mathrm{PE}<\mathrm{r}<6 \mathrm{PE}$ | $0.25917<0.3752<1.5503$ | Nothing can be concluded |
| NIBL | r | 0.8325 | Strong positive correlation |
|  | $\mathrm{r}>6 \mathrm{PE}$ | $0.8325>0.55556$ | Correlation is significant |

In table no. 4.6 it can see that there is no consistent result of all sample commercial banks In case of MBL, there is a weak negative relation of share price movement and general market movement but using probable error to test the reliability of correlation coefficient we found that the correlation coefficient is insignificant ( $\mathrm{r}<\mathrm{PE}$ ).

In case of KBL, it has also a weak negative relation of share price movement and general market movement and using probable error nothing can be concluded about the relationship ( $\mathrm{PE}<\mathrm{r}<6 \mathrm{PE}$ ).

In case of NSBI Bank, there is low degree of positive relation of share price movement and general market movement and in this case also nothing can be concluded ( $\mathrm{PE}<\mathrm{r}<$ 6PE).

In case of NIBL there is a high degree of positive relation of share price movement and general market movement and its correlation coefficient is significant(r>PE).

### 4.6.2 Correlation between share Price Movement and General Market during

 Five different points of Time for Bonus share issueResearcher has calculated the correlation between the movement of share prices during the five points of time for bonus issue and movement of general market price corresponding to the timelines. Calculated value and results were tabulated below (Refer Annex 9)

Table No. 4.7
Correlation between Share Price Movement and General Market-Bonus issue

| Name of Commercial <br> Banks | Test for | Calculated <br> Values | Interpretation |
| :--- | :---: | :---: | :--- |
| BOK | r | 0.2208 | There is a weak positive correlation |
|  | $\mathrm{r}<\mathrm{PE}$ | $0.2208<0.28693$ | Correlation is insignificant |
| NIC | r | 0.0659 | There is a low positive correlation |
|  | $\mathrm{r}<\mathrm{PE}$ | $0.0659<0.30034$ | Correlation is insignificant |
| HBL | r | -0.0150 | There is a low negative correlation |
|  | $\mathrm{r}<\mathrm{PE}$ | $(-0.0150<0.30158)$ | Correlation is insignificant |
| EBL | r | -0.0027 | There is a low negative correlation |
|  | $\mathrm{r}<\mathrm{PE}$ | $0.0027<0.30164$ | Correlation is insignificant |

Table no. 4.7 shows that there is no consistent result of all sample organization In case of BOK and NIC, there is low positive relation of share price movement and general market movement but using probable error to test the reliability of correlation coefficient we found that correlation coefficient is insignificant ( $\mathrm{r}<\mathrm{PE}$ ). In case of HBL and EBL, we noticed low negative correlation of share price movement and general market movement and the reliability of correlation coefficient is found insignificant $(\mathrm{r}<\mathrm{PE})$.

The fallacious conclusions drawn in above two analyses with PE could be attributed to small number of pairs of observations. However a rigorous test for testing the significance of an observed sample correlation coefficient is provided by $t$ - test which is analyzed subsequently in this thesis.

### 4.7 Price Volatility Index

Here we try to understand the concept of PVI and its importance on the judgment of normal investor for investment in secondary market. This will add value and guidance in understanding the movement in share prices of different banks in particular against the general market movement that we have found in above analyses.

Firstly, Price Volatility in the capital market can be defined as the amount of variation in the price of shares in a given period of time. The most volatile shares are those with the largest variation in the value of their share price. Due to this fact investment in such shares are considered the most risky. Compared to the dividend, market price is the most crucial factor, which contributes to the success of investment and is one of the major target/ expectation of the investors as well.

Volatile market is not always risky for the investors. In the financial market, return can be maximized only at the cost of incurring higher degree of risk. It is, therefore, understood that many investors respond positively to market volatility since increased volatility provides opportunity to move into the market. Short-term fluctuation in the price of shares also affects the investors who intend to invest in the shares and earn returns in the short span of time in a similar manner. The prospective investors need to find out the degree of price fluctuations in order to know the degree of risk involved in the investment. The degree of fluctuations in the price of shares can be found by computing price volatility index of shares.

Volatility measures the dispersion about a central tendency. For the purpose of our study it is computed as follows:

Price Volatility Index $(P V I)=\frac{(P \max -P \min )}{P a v g}$
Where,
Pmax $=$ Maximum price of a share during the fiscal year
Pmin $=$ Minimum price of the share during the fiscal year
Pavg $=$ Average price of the share during the fiscal year

In an attempt to understand the price behavior more clearly the PVI of different banks under consideration for the last five years have been considered which is presented as follows:

Table No. 4.8
Price Volatility Index of Selected Banks in sample

| Name of Bank | $2002-03$ | $2003-04$ | $2004-05$ | $2005-06$ | $2006-07$ | Average |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| MBL | 0.09 | 0.37 | 0.82 | 0.47 | 0.74 | 0.50 |
| KBL | NA | NA | 0.59 | 0.46 | 0.73 | 0.59 |
| NSBI | 0.45 | 0.35 | 0.41 | 0.68 | 0.87 | 0.69 |
| NIBL | 0.28 | 0.29 | 0.65 | 0.63 | 0.58 | 0.44 |
| BOK | 0.40 | 0.63 | 0.49 | 0.66 | 0.69 | 0.67 |
| NIC | 0.16 | 0.47 | 0.68 | 0.40 | 0.84 | 0.52 |
| HBL | 0.18 | 0.45 | 0.34 | 0.26 | 0.68 | 0.46 |
| EBL | 0.31 | 0.62 | 0.43 | 0.55 | 0.80 | 0.58 |

Source: Record of NEPSE

Higher the PVI riskier will be the security. Generally, a PVI value greater than 1 is considered as aggressive security. On the other hand, a PVI less than one is considered defensive security. Average PVI for the last five years is an indication of the overall price volatility of the shares over the period of last five years. Comparative analysis of the above table shows that almost all the shares were showing higher volatility during the year 2006-07 than the earlier years. The trend could be the result of right issues and bonus issues offered by the banks due to regulative requirement to increase the capital and many IPOs coming to the market in recent years. Among the banks in sample NSBI, NIC and EBL has shown higher volatility with corresponding index of 0.87 , 0.84 and 0.80 during the year 2006 .

Price volatility explains the unusual movement of prices of sample shares for different time period. NSBI being the most volatile (highest average PVI of 0.69) shows the volatility in period IV-refer point \# 4.4.1.

Chart no. 4.4
Price Volatility Index of the shares of Banks for the last five years


Graphical presentation on PVI of different banks' shares is given in the chart above. This clearly depicts that the price volatility has reached the highest peak during the year 2006-07 as compared to other years. Among the banks NSBJ, NIC and EBL are the top ones in the highly volatile position.

### 4.8 Use of $\mathbf{t}$-statistics

### 4.8.1 Use of $t$-statistics to measure the immediate impact of rights offering on the share price of the banks

Theoretically after the rights issue, share price of concerned company move upwards till the date of issue closed and then falls down due to the reason of being in the exright period i.e. the shares bought after the closure period won't get the right to purchase the right shares. To analyze whether there came any significant change in share price before and after the issue, researcher have used $t$-statistics. For this we have taken the average share prices for the period before and after issue date. Since we are evaluating the effect of right issue on share prices of respective companies, our data before and after the issue are not completely independent. Thus we have to use the paired $t$-test. Following hypotheses are tested by the use of paired $t$-test:

Ho: Null Hypothesis that there is no significant difference between the share price before and after the issue of rights.
$\mathrm{H}_{1}$ : Alternative hypothesis that there is a significant difference between the share prices before and after the issue of the rights (i.e. share price decreases significantly). (One tail test)

With the sample of four banks considered in our study the calculated value of ' $t$ ' is 2.96 which is more than the tabulated value of ' $t$ ' at $5 \%$ level of significance i.e. 2.35. Thus we reject the null hypothesis and accept the alternative hypothesis i.e. there is significant difference between the prices before and after the right issue. It is observed that the share prices have gone down in general after the issue of right shares (Please refer to Annex-5).

### 4.8.2 Use of $t$-statistics to measure the immediate impact of bonus issue on the share prices

Theoretically after the bonus share issue, share price of the concerned Company goes downwards. To analyze whether there is any significant change in share price, we have used t-statistics. For this we have taken the share price before and after record date as the decrease is generally seen after the record date. Following hypotheses are tested by the use of paired t -test:

Ho: Null Hypothesis that there is no significant difference between the share price before and after the issue of bonus share.
$\mathrm{H}_{1}$ : Alternative hypothesis that there is a significant difference between the share prices before and after the issue of the bonus shares (i.e. share price decreases significantly). (One tail test)

Average prices before and after the record date for all the four banks in sample are taken for the purpose of calculation of $\mathrm{t}^{\prime} \mathrm{t}$ value. The significance of change in share prices is measured by the paired t -test as the data are dependent. The calculated value of $t$-test is 3.14 which is more than the tabulated value of ' $t$ ' at $5 \%$ level of significance (i.e. 2.35). Thus the null hypothesis is rejected. There is significant difference between the share prices. The share prices decreases after bonus issue. (Please refer to Annex10).

### 4.9 Major Findings

The major findings of this study are presented in following headings, correspondence to the study objectives.

### 4.9.1 The significance of Changes in the Share Price after the Issue of Rights Share

a) The share prices of all the banks in sample (MBL, KBL, NSBI and NIBL) had decreased after the rights issue (refer point \# 4.4.1 and 4.4.2). The drop in price is also significant (refer point 4.8.1).
b) However, it does not follow the theory completely as the share prices had not moved downward upto the theoretical ex-right value. This gives the investor a room for gain from investment in shares of such banks for right issue (refer point \# 4.4.2).
c) Higher the right issue ratio higher will be the drop in price in general. So while investing in shares the ratio of right issue does have significance in drop of price in subsequent days (refer chart \# 4.3).

### 4.9.2 The Significance of Changes in the Share Price after the Issue of Bonus Share

a) The share prices of all the banks in sample (BOK, NIC, HBL and EBL) had decreased after the bonus issue (refer point \# 4.5.1 and 4.5.2). The drop in price is also significant (refer point \# 4.8.2).
b) However, this also does not follow the theory completely as the share prices had not moved downward upto the theoretical ex-right value except for EBL. This gives the investor a room for gain from investment in shares of such banks for right issue (refer point \# 4.5.2). EBL's share price dropped more than its theoretical value which is a result of its high prices before the issue of bonus share. In fact market players were seemed to have utilized the information of bonus issue far before the actual decision driving the market up before the
actual time. This is also due to higher volatile nature of the EBL's share than others (refer point \# 4.7).

### 4.9.3 Rights and bonus Share Practice in Nepal

a) Rights offering practice is getting popular in Nepal. Number of rights offering has gone up from 3 ten years ago to 16 in FY 2006-07 contributing a heavy portion of $55.12 \%$ of total equity capital raised during the year (refer \# 4.3).
b) From investors point of view also right offering and bonus share is quite rewarding as quick return is guaranteed. Generally the market prices of shares were always higher than the subscription price of right shares (Rs. 100).
c) Most of companies were announcing the bonus share to show the positive impact in investors.
d) Most banks are issuing rights share and bonus share in order to fulfill the capital requirement as per the NRB directives.
e) There is no uniformity in the impact of rights offering and bonus share announcement in market price (refer 4.4.2 and 4.5.2).

### 4.9.4 Regarding Some Policies

a) Amendment in Companies Act 2063 -section 56(11) has removed the legal barrier on legal transfer of rights but it is still not in practice as the procedures are yet to be framed.
b) The SEBON has not issued guidelines regarding the issue of rights share in premium or in discount yet.
c) There is no clear and easy provision regarding the sales of unsubscribed rights share. Some distribute the same to their employees.
d) The regulation is not clear and the process of approval is lengthy regarding the rights share and bonus share.

## CHAPTER-FIVE

## SUMMARY, CONCULSION AND RECOMMENDATION

### 5.1 Summary

Nepalese security market is in developing stage in comparison to other countries such as India, China, United States and United Kingdom. Nepalese security market has practiced limited investment instrument such as equity share, debenture, preference share, mutual fund and rights share. Thus, such limited number of investment instrument cannot attract the saving held by the potential investors. And, this is one of the causes for low market capitalization in stock market of Nepal.

Although, since ten year, Nepalese security market is practicing the rights offering but its every essence is not seemed to be practiced here. Out of 135 listed companies in Nepal, there are more 30 cases of rights offering but only few cases of rights offering in Nepal meets the theory. Theoretically, after the rights share announcement, the share price move upward till the closing date. And after the closing date it will be traded at ex-right price. It means the share price move downward to extent of value of right. But while observing the share price behavior of sample companies mixed results have been obtained. Share price of MBL, before rights share issue was Rs. 348 but its price was down to Rs. 345 and has gone down to Rs. 335 after rights share issue. Very minor fluctuations were noted in share prices of MBL during its right issue. In case of KBL, the share prices went upto Rs. 378 immediately before right issue and dropped' down to Rs. 330 after right issue. NSBI share prices saw quite a fluctuation with prices rising upto Rs. 370 before right issue which fall to Rs. 346 and then goes up to Rs. 373 after issue finally getting down at Rs. 335. NIBL price goes up till eight days before the issue date to Rs. 800 and goes down thereafter; share price was Rs. 785 after the issue of rights share and again fall down to Rs. 660 after three months.

Regarding bonus share issue almost all the sample companies (BOK, NIC, and HBL) shows a similar trend regarding the movement of prices. The share prices fall down immediately after the record date. BOK's price falls from Rs. 1113 to Rs. 920, while NIC's price from Rs. 467 to Rs. 385. Similarly HBL's price dropped from Rs 1125 to Rs 950 . EBL's share prices dropped from Rs 981 to Rs 800 after the issue of bonus share.

The major objective of this study was to find out if there is any significant change in share price after the issue of rights shares and bonus share analyze the issue regarding
investors related to right share and bonus share practice in Nepal and highlight some policy that will help to rectify the current problems in the issue of securities especially regarding rights offering and bonus share issue.

Rights issue is comparatively new practice in Nepalese context. Very few studies have been undertaken related with right share and bonus share in Nepal. Researcher has made full effort to collect the related studies for review in second chapter. This study is basically based on secondary data. Secondary data was taken from .SEBO/N, Newspaper and Annual Reports of respective companies. To conduct this study, statistical tools as well as financial tools have been used.

Now, the effort has been made in this chapter to conclude major findings of the study in rights share practice in Nepal and its impact on share price of listed companies.

### 5.2 Conclusion

Conclusively, rights share practice is comparatively gaining popularity in Nepalese context Number of rights offering has gone up from 3 ten years ago to 16 in F.Y. 2006/07 contributing $55.12 \%$ of total public floatation during the fiscal year. There, is no doubt that there are lots of things to work out to make the rights offering as effective instrument of raising fund. Bonus share is used as an easy way to convert reserve funds to capital and used this fund for expansion and growth of the organizations.

When we look at the rights offering of four sample companies all the samples have met the theory to greater extent i.e. the share price has increased significantly before the issue of right share and then traded on ex-right price (i.e. reduced price) after the allotment of rights shares. Average prices of the shares have declined in all the samples selected (MBL: From Rs. 380 to Rs 333, KBL: From Rs 371 to Rs. 343, NSBI: From Rs. 425 to Rs. 352, NIBL: From Rs. 798 to Rs. 660 - Refer annexure 1). Since the samples comprises of the commercial banks only no huge variation in share price movement across the samples is noted. It can be concluded that the share price has changed significantly after the rights issue.

In Nepal rights are now legally transferable but still not fully utilized in the absence of clear procedures. There is no clear and easy provisions regarding sales of unsubscribed rights share and many companies are distributing it to their employees. The employees
are gaining at the cost of existing shareholders. In Nepal there exist large number of shareholders holding the few share and they generally ignore about the rights share.

In case of bonus share issue also all the sample companies seemed to follow the theory as the prices have fallen down immediately after the issue of bonus. (BOK: From Rs. 1,128 to Rs. 1,076 , NIC: From Rs. 449 to. Rs. 403, HBL: From Rs. 1,080 to Rs 935 and EBL: From Rs. 988 to Rs. 806 - Refer annexure 6).

The legal provision and polices regarding issue of securities is not clear and the process of approval is lengthy. There is long formalities to be completed by issue manager before getting approval which takes long times. Some time it may take a whole fiscal year and in the next fiscal year the essence of issue may not remain. The regulation regarding the calculation of premium is not clear and certain regulation require company to issue rights share in par value that result in wide difference between market price per share and subscription price.

Thus we can say that rights offering have some impact on share price (refer findings \# 4.9.1 and 4.9.2). The market price of share is also influenced by the general market movement to greater extent in Nepal. The capital market of Nepal is not matured. The flow of information is not effective and the investors are not all aware. Their decision is market driven rather than information driven.

The drop of price after the issue of right share and bonus share is also significant as signified by t-test (refer findings \# 4.9.1-a and 4.9.2-a). However the drop in price after right share issue is not proportionate to the drop in theoretical ex-right value (refer findings \# 4.9.1-b). This gives room for investment to prospective investors in the secondary market for right shares. It is always nice to be informed and invest wisely.

### 5.3 Recommendation

Though the financial sector of Nepal has come a long way it is still in primary stage and is not without flaws. Some fallacies are found on the part of regulating bodies, investors, legal framework and the associated companies. On the basis of the findings of study, following recommendations are made for concerned sectors.
a) During the analysis it is found that the share price behavior of some of the companies doesn't follow the theory regarding right and bonus share. One major cause is lack of knowledge about its impact to the secondary market. So SEBO/N need to organize workshop for the investor, how rights share and bonus share affects market price.
b) In order to attract the investments, the issue prospectus should provide a clear picture of both the systematic and unsystematic risk of the business so that investors will be able to make tradeoff between risk and return. Otherwise, the investors will be reluctant to sink their hard earned money on the bottomless charm.
c) One critical factor that: affects the share price and subscription is the holder's record date. The investors who purchase the share after that day are unable to get share. So, the rights share issuing companies should set the proper holder record date so the investors who want to enjoy the rights offering can purchase the share issued by them.
d) Company act is quite vague regarding the allotment of the rights shares which are not subscribed by the existing shareholders. The current practice to distribute them among the employees of the respective companies violates the very essence of the rights offering. The company Act, therefore, should be quite clear in this regard.
e) Nepalese security market is heavily regulated and controlled by various regulatory bodies regarding the issue of securities. Hence a high powered regulator with responsibility to regulate the market should be developed in order to develop the 'one-window policy.

## List of Annexures

1 Share Prices of Different Banks and corresponding Index for different points of Time -Right Issue (MBL, KBL, NSBI and NIBL)

2 Share Prices and corresponding Index for five different points of time and Price Relatives-Right Issue

3 Calculation of Theoretical Value of Right \& Ex -right value for Stock of Different Commercial Banks

4 Correlation between Share Price Movements and General Market Movement during Five different Points of Time for right share issue

5 T-statistics to measure the immediate impact of rights offering on the share price of the banks

6 Share Prices of Different Banks and corresponding Index for different points of Time-Bonus Issue (BOK, MC, HBL and EBL)

7 Share Prices and corresponding Index for five different points of time and Price Relatives-Bonus Issue

8 Calculation of Theoretical Value of a share after bonus issue for Different Commercial Banks

9 Correlation between Share Price Movements and General Market Movement during Five different Points of Time for bonus share issue

10 T-statistics to measure the immediate impact of bonus issue on the share price of the banks

## BIBLIOGRAPHY

Aryal, B. Nirmal (2003), Equity Rights Issue; Its Practice and Impact in Nepal. An Unpublished Master Degree's Dissertation, T.U. Central Department of Management Kathmandu.

Bacon, Peter W. (1972), The Subscription Price in Rights Offering, Journal of Financial Management. September.

Brealy, R.A. and Myers, S. (1991), Principles of Corporate Finance, New York: McGraw-Hill.

Gautam, Banmshidhar (2001), An Analysis of Share Price Movement Attributed to Rights Offering Announcement. An Unpublished Master Degree's Dissertation, Shanker Dev Campus.
Kathmandu.

Gharti, Padam(2001), Bonus share announcement and its impact on stock price of Nepalese, corporate firms, An Unpublished Master Degree's Dissertation, Shanker Dev Campus, Kathmandu.

Ghimire, Sagar Mani (2005), Determinants of Pricing of Securities in Nepal, An U npublished M aster Degree's Dissertation, Shanker Dev Campus, Kathmandu.

Joshi, P. R. (2002), Research Methodology Kathmandu Buddha Academic Publishers and Distributers Pvt. Ltd.

Kothari, C. R. (1994), Quantitative Techniques, Vikash Publishing House Pvt. Ltd, New Delhi.

Lamichhane, Kavita (2007), Right share \& its impact on market price of the stock, An Unpublished M aster's Thesis, Shanker Dev Campus, Kathmandu,

Mayer, Macuigan and Kretlow (1997), Contemporary Financial Management, Ohio: 'An International Thomson Publishing Companies.

Pandey, I.M. (1999), Financial Management, Vikas Publishing House Pvt Ltd, New Delhi.

Pinchas, E. George (1990), Essentials of Financial Management, New York: Harper. Collins Publishers.

Scholes, S. (1972). Market for Securities: Substitution versus Price Pressure and the Effects of Information on Share Price, Journal of Business, April.

Security Board, Annual Report, Fiscal year 2002/03, Kathmandu.
Security Board, Annual Report, Fiscal year 2003/04, Kathmandu.
Security Board, Annual Report, Fiscal year 2004/05, Kathmandu.
Security Board, Annual Report, Fiscal year 2005/06, Kathmandu.
Security Board, Annual Report, Fiscal year 2006/07, Kathmandu.
Security Board, Sebon Journal, Vol III, July 2007.
Shrestha, Manohar K. (1992), Shareholders Democracy and Financial General Meeting Feedback. Portfolio Analysis Nepal Publication, Kathmandu.

Smith, C.W. Jr. (1997), Substitute Methods for Raising Additional Capital: Rights Offering vs. Under Written Issues, Journal of Financial Economics, March.

Sthapit, Ajaya B., Gautam, H., Joshi, P. R. and Dangol, P. M. (2003), Statistical Methods, Kathmandu: Buddha Academic publishers and distributors Pvt. Ltd.

Timilsina, Sadakar (1998), Dividend and Stock Price: An Empirical Study, An Unpublished Master Degree's Dissertation, T U Central Department, Kathmandu.

Van Home, James C. (1992), Financial Management and Policy, Prentice Hall of India Pvt. Ltd, New Delhi.

Van Home, James C. (2002), Financial Management and Policy, Prentice Hall of India Pvt. Ltd. New Delhi.

Weston, J. Fred and Brigham, Eugene F. (1981 ), Managerial Finance, Hinsdale, Illinois : The Dryden Press.

Wolf, H. and Pant, P.R. (1991), Social Science Research and Thesis Writing, Buddha Academic Publication, Kathmandu.

## Acts and Regulations

Nepal Government, The Company Act 2063. Ministry of Law, Justice and Parliamentary Affairs, Kathmandu

Nepal Stock Exchange Ltd, Securities Listing Bye-laws 2053, Kathmandu.
Securities Board Nepal, Bonus Share Issue Directives 2058, Kathmandu.
Securities Board Nepal, Securities Registration and Issue Approval Guidelines 2057,
Kathmandu.
Securities Board Nepal, Share Allotment Guidelines 2051, Kathmandu.

## Websites

www.nepalstock.com
www.nrb.org.np
$w \backslash v w$. sebonp.com
www.stockscores.com

## Share Prices of Different Banks and Corresponding Index for different points of Time -Right Issue

## Machhapuchre Bank Ltd

| Issue date | $:$ | $24 / 5 / 2006$ |  |
| :--- | :--- | :--- | ---: | May

## Information about Share Price and Index

| Share price before 3 months <br> of Issue Date |  |  | Share price immediately <br> before <br> Issue Date (X) |  |  |  | Share price after 3 months <br> of Issue Date (Y) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Share <br> Price | Index | Date | Share <br> Price | Index | Date | Share <br> Price | Index |  |
| $2 / 28 / 2006$ | 345.00 | 341.05 | $5 / 1 / 2006$ | 400.00 | 374.87 | $8 / 24 / 2006$ | 335.00 | 379.83 |  |
| $3 / 1 / 2006$ | 345.00 | 343.28 | $5 / 7 / 2006$ | 400.00 | 368.68 | $8 / 28 / 2006$ | 330.00 | 378.4 |  |
| $3 / 7 / 2006$ | 332.00 | 332.28 | $5 / 11 / 2006$ | 415.00 | 381.70 | $9 / 5 / 2006$ | 333.00 | 380.92 |  |
| $3 / 12 / 2006$ | 343.00 | 337.32 | $5 / 18 / 2006$ | 348.00 | 348.11 | $9 / 11 / 2006$ | 330.00 | 381.37 |  |
| $3 / 21 / 2006$ | 350.00 | 339.03 | $5 / 24 / 2006$ | 340.00 | 370.89 | $9 / 19 / 2006$ | 337.00 | 393.02 |  |
| Totals | $\mathbf{1 7 1 5 . 0 0}$ | $\mathbf{1 6 9 2 . 9 6}$ |  | $\mathbf{1 9 0 3 . 0 0}$ | $\mathbf{1 8 4 4 . 2 5}$ |  | $\mathbf{1 6 6 5 . 0 0}$ | $\mathbf{1 9 1 3 . 5 4}$ |  |
| Averages | $\mathbf{3 4 3 . 0 0}$ | $\mathbf{3 3 8 . 5 9}$ |  | $\mathbf{3 8 0 . 6 0}$ | $\mathbf{3 6 8 . 8 5}$ |  | $\mathbf{3 3 3 . 0 0}$ | $\mathbf{3 8 2 . 7 1}$ |  |

## Kumari Bank Ltd

| Issue date | $:$ | $21 / 12 / 2005$ | Dec |
| :--- | :--- | :--- | :--- |
| Issued Amount (Rs in Million) | $:$ | 125 Million |  |
| Issue Ratio | $:$ | $1: 4$ | 0.25 |
| Number of share issued | $:$ | $1,250,000$ |  |
| Issue manager | $:$ | NIDC |  |

## Information about Share Price and Index

| Share price before 3 months <br> of Issue Date |  |  |  | Share price immediately <br> before <br> Issue Date (X) |  |  |  | Share price after 3 months <br> of Issue Date (Y) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Share <br> Price |  | Index | Date | Share <br> Price | Index | Date | Share <br> Price | Index <br> $9 / 25 / 2005$ |  |
| 376.00 | 294.12 | $11 / 29 / 2005$ | 380.00 | 300.96 | $3 / 21 / 2006$ | 348.00 | 339.03 |  |  |  |
| $10 / 2 / 2005$ | 380.00 | 296.37 | $12 / 1 / 2005$ | 378.00 | 301.76 | $4 / 2 / 2006$ | 331.00 | 336.71 |  |  |
| $10 / 9 / 2005$ | 380.00 | 297.34 | $12 / 4 / 2005$ | 380.00 | 301.65 | $4 / 17 / 2006$ | 330.00 | 331.88 |  |  |
| $10 / 23 / 2005$ | 381.00 | 302.83 | $12 / 5 / 2005$ | 378.00 | 301.97 | $4 / 26 / 2006$ | 352.00 | 343.28 |  |  |
| $11 / 7 / 2005$ | 380.00 | 303.94 | $12 / 21 / 2005$ | 340.00 | 308.13 | $4 / 30 / 2006$ | 358.00 | 361.58 |  |  |
| Totals | $\mathbf{1 8 9 7 . 0 0}$ | $\mathbf{1 4 9 4 . 6 0}$ |  | $\mathbf{1 8 5 6 . 0 0}$ | $\mathbf{1 5 1 4 . 4 7}$ |  | $\mathbf{1 7 1 9 . 0 0}$ | $\mathbf{1 7 1 2 . 4 8}$ |  |  |
| Averages | $\mathbf{3 7 9 . 4 0}$ | $\mathbf{2 9 8 . 9 2}$ |  | $\mathbf{3 7 1 . 2 0}$ | $\mathbf{3 0 2 . 8 9}$ |  | $\mathbf{3 4 3 . 8 0}$ | $\mathbf{3 4 2 . 5 0}$ |  |  |

## Nepal SBI Bank Ltd

| Issue date | $:$ | $3 / 5 / 2005$ | May | / |
| :--- | :--- | :--- | :--- | :--- |
| Issued Amount (Rs in Million) | $:$ | 115.93 Million |  |  |
| Issue Ratio | $:$ | $1: 2$ | 0.5 |  |
| Number of share issued | $:$ | $2,159,300$ |  |  |
| Issue manager | $:$ | NMB |  |  |

Information about Share Price and Index

| Share price before 3 months <br> of Issue Date |  |  |  | Share price immediately <br> before Issue Date (X) |  |  |  | Share price after 3 months <br> of Issue Date (Y) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Share <br> Price | Index | Date | Share <br> Price | Index | Date | Share <br> Price | Index |  |  |
| $2 / 4 / 2005$ | 339.00 | 250.76 | $4 / 11 / 2005$ | 464.00 | 290.65 | $7 / 14 / 2005$ | 335.00 | 286.67 |  |  |
| $2 / 8 / 2005$ | 335.00 | 261.68 | $4 / 13 / 2005$ | 475.00 | 293.26 | $7 / 19 / 2005$ | 339.00 | 289.93 |  |  |
| $2 / 14 / 2005$ | 352.00 | 259.05 | $4 / 18 / 2005$ | 470.00 | 293.71 | $7 / 24 / 2005$ | 347.00 | 291.97 |  |  |
| $2 / 21 / 2005$ | 360.00 | 263.72 | $4 / 20 / 2005$ | 370.00 | 292.59 | $7 / 26 / 2005$ | 357.00 | 294.30 |  |  |
| $2 / 28 / 2005$ | 379.00 | 265.97 | $5 / 3 / 2005$ | 346.00 | 297.81 | $8 / 1 / 2005$ | 386.00 | 299.61 |  |  |
| Totals | $\mathbf{1 7 6 5 . 0 0}$ | $\mathbf{1 3 0 1 . 1 8}$ |  | $\mathbf{2 1 2 5 . 0 0}$ | $\mathbf{1 4 6 8 . 0 2}$ |  | $\mathbf{1 7 6 4 . 0 0}$ | $\mathbf{1 4 6 2 . 4 8}$ |  |  |
| Averages | $\mathbf{3 5 3 . 0 0}$ | $\mathbf{2 6 0 . 2 4}$ |  | $\mathbf{4 2 5 . 0 0}$ | $\mathbf{2 9 3 . 6 0}$ |  | $\mathbf{3 5 2 . 8 0}$ | $\mathbf{2 9 2 . 5 0}$ |  |  |

## Nepal Investment Bank Ltd

| Issue date | 27/9/2002 | Sep |
| :---: | :---: | :---: |
| Issued Amount (Rs in Million) | 57.24 Million |  |
| Issue Ratio | 1:3 | 0.33 |
| Number of share issued | 572,400 |  |
| Issue manager | NIDC Capital | Markets Ltd. |

Information about Share Price and Index

| Share price before 3 months <br> of Issue Date |  |  |  | Share price immediately <br> before Issue Date (X) |  |  |  | Share price after 3 months <br> of Issue Date (Y) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Share <br> Price | Index | Date | Share <br> Price | Index | Date | Share <br> Price | Index |  |  |
| $7 / 2 / 2002$ | 765.00 | 229.18 | $9 / 3 / 2002$ | 802.00 | 225.30 | $1 / 20 / 2003$ | 660.00 | 199.28 |  |  |
| $7 / 10 / 2002$ | 770.00 | 224.48 | $9 / 9 / 2002$ | 800.00 | 223.92 | $1 / 22 / 2003$ | 645.00 | 198.55 |  |  |
| $7 / 17 / 2002$ | 760.00 | 222.06 | $9 / 13 / 2002$ | 800.00 | 223.03 | $1 / 24 / 2003$ | 645.00 | 198.44 |  |  |
| $7 / 29 / 2002$ | 755.00 | 224.65 | $9 / 19 / 2002$ | 800.00 | 223.14 | $1 / 31 / 2003$ | 635.00 | 199.03 |  |  |
| $8 / 9 / 2002$ | 730.00 | 224.03 | $9 / 30 / 2002$ | 790.00 | 217.53 | $2 / 7 / 2003$ | 715.00 | 213.3 |  |  |
| Totals | $\mathbf{3 7 8 0 . 0 0}$ | $\mathbf{1 1 2 4 . 4 0}$ |  | $\mathbf{3 9 9 2} .00$ | $\mathbf{1 1 2 . 9 2}$ |  | $\mathbf{3 3 0 0 . 0 0}$ | $\mathbf{1 0 0 8 . 6 0}$ |  |  |
| Averages | $\mathbf{7 5 6 . 0 0}$ | $\mathbf{2 2 4 . 8 8}$ |  | $\mathbf{7 9 8 . 4 0}$ | $\mathbf{2 2 2 . 5 8}$ |  | $\mathbf{6 6 0 . 0 0}$ | $\mathbf{2 0 1 . 7 2}$ |  |  |

## Share Prices and corresponding Index for five different points of time and Price Relatives-Right Issue

|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Name of <br> Bank | Selected Points of Time | Share <br> Price <br> (Rs.) | Price Relatives | Total Price Index (NEPSE) | Price Index converted to new base | $\%$ change from base | $\begin{aligned} & \text { Adjusted Price } \\ & \text { relatives } \\ & 2 \text { as } \% \text { of } 4 \\ & \hline \end{aligned}$ | $\%$ change from base |
| MBL | I | 345 | 100.00 | 341.05 | 100.00 | - | 100.00 | - |
|  | II | 348 | 100.87 | 384.11 | 112.63 | 12.63 | 89.56 | -10.44 |
|  | III | 340 | 98.55 | 379.89 | 108.75 | 8.75 | 90.62 | -9.38 |
|  | IV | 345 | 100.00 | 371.74 | 109.00 | 9.00 | 91.74 | -8.26 |
|  | V | 335 | 97.10 | 379.93 | 111.40 | 11.40 | 87.16 | -12.84 |
|  |  |  |  |  |  |  |  |  |
| KBL | I | 376 | 100.00 | 294.12 | 100.00 | - | 100.00 | - |
|  | II | 378 | 100.53 | 301.97 | 102.67 | 2.67 | 97.92 | -2.08 |
|  | III | 340 | 90.43 | 308.13 | 104.76 | 4.76 | 86.32 | -13.68 |
|  | IV | 330 | 87.77 | 301.60 | 102.54 | 2.54 | 85.60 | -14.40 |
|  | V | 348 | 92.55 | 339.03 | 115.27 | 15.27 | 80.29 | -19.71 |
|  |  |  |  |  |  |  |  |  |
| NSBI | I | 339 | 100.00 | 250.76 | 100.00 | - | 100.00 | - |
|  | II | 370 | 109.14 | 292.59 | 116.68 | 16.68 | 93.54 | -6.46 |
|  | III | 346 | 102.06 | 297.81 | 118.76 | 18.76 | 85.94 | -14.06 |
|  | IV | 373 | 110.03 | 285.42 | 113.82 | 13.82 | 96.67 | -3.33 |
|  | V | 335 | 98.82 | 286.67 | 114.32 | 14.32 | 86.44 | -13.56 |
|  |  |  |  |  |  |  |  |  |
| NIBL | I | 765 | 100.00 | 229.18 | 100.00 | - | 100.00 | - |
|  | II | 800 | 104.58 | 223.14 | 97.36 | -2.64 | 107.42 | 7.42 |
|  | III | 790 | 103.27 | 217.53 | 94.92 | -5.08 | 108.80 | 8.80 |
|  | IV | 785 | 102.61 | 218.76 | 95.45 | -4.55 | 107.50 | 7.50 |
|  | V | 660 | 86.27 | 199.28 | 86.95 | -13.05 | 99.22 | -0.78 |

Annexure - 2 contd.


Annexure - 3
Calculation of Theoretical Value of Right and Ex-right for Stock of Different Commercial Banks

|  |  | MBL | KBL | NSBI | NIBL |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Po | Market price of a share selling rights on (Average) | 380.60 | 371.20 | 425.00 | 798.40 |
| S | Subscription price of new share in right offering | 100.00 | 100.00 | 100.00 | 100.00 |
| N | No. of rights required to purchase one share | 3.33 | 4.00 | 2.00 | 3.00 |
|  | Calculation for: $\text { Value of Right }(R o)=\frac{P o-S}{N+1}$ |  |  |  |  |
|  | Po-S | 280.60 | 271.20 | 325.00 | 698.40 |
|  | N+1 | 4.33 | 5.00 | 3.00 | 4.00 |
| Ro | Theoretical value of a right | 64.80 | 54.24 | 108.33 | 174.60 |
| Pe | Theoretical Ex-right value of share (Ro $\times \mathrm{N}+\mathrm{S}$ ) | 315.80 | 316.96 | 316.67 | 623.80 |
|  | Actual Ex-right price after right offering (Average) | 333.00 | 343.80 | 352.80 | 660.00 |

Since actual price after right offering is higher than the theoretical value it's wise to invest in right issues. The investor gets more than the value of right even after drop of the price due to the effect of offering.

|  | MBL | KBL | NSBI | NIBL |
| :--- | :---: | :---: | :---: | :---: |
| Right issue ratio | 30.00 | 25.00 | 50.00 | 33.33 |
| Drop of price (decrease to Ex-right price as \% of <br> Right-on price) | -12.51 | -7.38 | -16.99 | -17.33 |

Higher the ratio higher will be the drop of price.


Annexure - 4

## Correlation between Share Price Movement and General Market Movement during Five different Points of Time for Right Shares

Variables Defined:
$\mathrm{X}=$ Share price
$\mathrm{Y}=$ NEPSE Indices for total equity capital
P.E. = Probable error
r = Value of correlation coefficient
$\mathrm{n} \quad=\quad$ Number of pairs of observations $=5$
$\mathrm{S}=$ Standard deviation

| MBL | Five points of time | X | $\left(\begin{array}{c} (\mathrm{x}) \\ (X-\bar{X}) \end{array}\right.$ | $\begin{gathered} (x)^{2} \\ (X-\bar{X})^{2} \end{gathered}$ | $\begin{gathered} \mathrm{Y} \\ \text { (NEPSE) } \\ \hline \end{gathered}$ | $\left(\begin{array}{c} (\mathrm{y}) \\ (Y-\bar{Y}) \end{array}\right.$ | $\begin{gathered} (\mathrm{y})^{2} \\ (Y-\bar{Y})^{2} \end{gathered}$ | xy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | I | 345.00 | 2.40 | 5.76 | 341.00 | -28.60 | 817.96 | -68.64 |
|  | II | 348.00 | 5.40 | 29.16 | 384.00 | 14.40 | 207.36 | 77.76 |
|  | III | 340.00 | -2.60 | 6.76 | 371.00 | 1.40 | 1.96 | -3.64 |
|  | IV | 345.00 | 2.40 | 5.76 | 372.00 | 2.40 | 5.76 | 5.76 |
|  | V | 335.00 | -7.60 | 57.76 | 380.00 | 10.40 | 108.16 | -79.04 |
|  | Totals | 1713.00 | 0.00 | 105.20 | 1848.00 | 0.00 | 1141.20 | -67.80 |
|  | Averages | 342.60 |  |  | 369.60 |  |  |  |

Covariance of X and $\mathrm{Y}=\frac{1}{n} x \sum(x y) \quad=\frac{1}{5} x(-67.80) \quad=-13.56$
Variance for $\mathrm{X}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{n} x \sum(X-\bar{X})^{2} \quad=\frac{1}{5} \times 105.20 \quad=21.04$
$\mathrm{Sx}=\sqrt{\sigma_{x}{ }^{2}} \quad=\sqrt{21.04} \quad=4.59$
Variance for $\mathrm{Y}\left(\sigma_{y}{ }^{2}\right) \quad=\frac{1}{n} x \sum(Y-\bar{Y})^{2} \quad=\frac{1}{5} x 1141.20 \quad=228.24$
$\mathrm{Sy}=\sqrt{\sigma_{y}{ }^{2}}$
$=\sqrt{228.24}$
$=15.11$

## Karl Pearson's coefficeint of correlation (r)

$$
=\frac{\operatorname{Cov} \cdot(X Y)}{S x \cdot S y}=\frac{-13.56}{4.59 \times 15.11} \quad=\mathbf{- 0 . 1 9 5 5}=\mathbf{- 1 9 . 5 5 \%}
$$

Coefficeint of determination $\left(\mathrm{r}^{2}\right)$
Probability error (P.E.) $=0.6745 x \frac{\left(1-r^{2}\right)}{\sqrt{n}} \quad=0.6745 x \frac{(1-0.0382)}{\sqrt{5}}=0.2901$

$$
6 \times \text { P.E. }=6 \times 0.2901=1.7407
$$

$$
=(-0.1955)^{2} \quad=0.0382
$$

| KBL | Five points <br> of time | X | $(\mathrm{x})$ <br> $(X-\bar{X})$ | $(\mathrm{x})^{2}$ <br> $(X-\bar{X})^{2}$ | Y <br> $(\mathrm{NEPSE})$ | $(\mathrm{y})$ <br> $(Y-\bar{Y})$ | $(\mathrm{y})^{2}$ <br> $(Y-\bar{Y})^{2}$ | xy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | I | 376.00 | 21.60 | 466.56 | 294.00 | -15.00 | 225.00 | -324.00 |
|  | II | 378.00 | 23.60 | 556.96 | 302.00 | -7.00 | 49.00 | -165.20 |
|  | III | 340.00 | -14.40 | 207.36 | 308.00 | -1.00 | 1.00 | 14.40 |
|  | IV | 330.00 | -24.40 | 595.36 | 302.00 | -7.00 | 49.00 | 170.80 |
|  | V | 348.00 | -6.40 | 40.96 | 339.00 | 30.00 | 900.00 | -192.00 |
|  | Totals | $\mathbf{1 7 7 2 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{1 8 6 7 . 2 0}$ | $\mathbf{1 5 4 5 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{1 2 2 4 . 0 0}$ | $\mathbf{- 4 9 6 . 0 0}$ |
|  | Averages | $\mathbf{3 5 4 . 4 0}$ |  |  | $\mathbf{3 0 9 . 0 0}$ |  |  |  |

Covariance of X and $\mathrm{Y}=\frac{1}{n} x \sum(x y) \quad=\frac{1}{5} x(-496.00) \quad=-99.20$
Variance for $\mathrm{X}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{n} x \sum(X-\bar{X})^{2} \quad=\frac{1}{5} x 1867.20 \quad=373.44$
$S x=\sqrt{\sigma_{x}{ }^{2}}$
$=\sqrt{373.44}$
$=19.32$

Variance for $Y\left(\sigma_{y}{ }^{2}\right) \quad=\frac{1}{n} x \sum(Y-\bar{Y})^{2} \quad=\frac{1}{5} x 1224.00 \quad=244.80$
$\mathrm{Sy}=\sqrt{\boldsymbol{\sigma}_{y}{ }^{2}}$

$$
=\sqrt{244.80} \quad=15.65
$$

## Karl Pearson's coefficent of correlation (r)

$$
=\frac{\operatorname{Cov} \cdot(X Y)}{S x \cdot S y}=\frac{-99.20}{19.32 \times 15.65}
$$

$$
=-0.3280=-32.80 \%
$$

Coefficeint of determination $\left(r^{2}\right)$

$$
=(-0.3280)^{2} \quad=0.1076
$$

Probability error (P.E.) $=0.6745 x \frac{\left(1-r^{2}\right)}{\sqrt{n}}=0.6745 x \frac{(1-0.1076)}{\sqrt{5}}=0.2691$

$$
6 \times \text { P.E. }=6 \times 0.2691=1.6151
$$

Annexure - 4 contd.

| NSBI | Five points <br> of time | X | $(\mathrm{x})$ <br> $(X-\bar{X})$ | $(\mathrm{x})^{2}$ <br> $(X-\bar{X})^{2}$ | Y <br> $($ NEPSE $)$ | $(\mathrm{y})$ <br> $(Y-\bar{Y})$ | $(\mathrm{y})^{2}$ <br> $(Y-\bar{Y})^{2}$ | xy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | I | 339.00 | -13.60 | 184.96 | 251.00 | -31.80 | 1011.24 | 432.48 |
|  | II | 370.00 | 17.40 | 302.76 | 293.00 | 10.20 | 104.04 | 177.48 |
|  | III | 346.00 | -6.60 | 43.56 | 298.00 | 15.20 | 231.04 | -100.32 |
|  | IV | 373.00 | 20.40 | 416.16 | 285.00 | 2.20 | 4.84 | 44.88 |
|  | V | 335.00 | -17.60 | 309.76 | 287.00 | 4.20 | 17.64 | -73.92 |
|  | Totals | $\mathbf{1 7 6 3 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{1 2 5 7 . 2 0}$ | $\mathbf{1 4 1 4 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{1 3 6 8 . 8 0}$ | $\mathbf{4 8 0 . 6 0}$ |
|  | Averages | $\mathbf{3 5 2 . 6 0}$ |  | $\mathbf{2 8 2 . 8 0}$ |  |  |  |  |

Covariance of X and $\mathrm{Y}=\frac{1}{n} x \sum(x y) \quad=\frac{1}{5} x(480.60) \quad 96.12$
Variance for $\mathrm{X}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{n} x \sum(X-\bar{X})^{2} \quad=\frac{1}{5} x 1257.20 \quad=251.44$
$\mathrm{SX}=\sqrt{\sigma_{x}{ }^{2}} \quad=\sqrt{251.44} \quad=15.86$

Variance for $Y\left(\sigma_{y}{ }^{2}\right) \quad=\frac{1}{n} x \sum(Y-\bar{Y})^{2} \quad=\frac{1}{5} x 1368.80 \quad=273.76$

$$
\mathrm{Sy}=\sqrt{\sigma_{y}^{2}} \quad=\sqrt{273.76} \quad=16.55
$$

## Karl Pearson's coefficeint of correlation (r)

$$
=\frac{\operatorname{Cov} \cdot(X Y)}{S x \cdot S y}=\frac{96.12}{15.86 \times 16.55} \quad=\mathbf{0 . 3 6 6 2}=\mathbf{3 6 . 6 2 \%}
$$

Coefficeint of determination $\left(\mathrm{r}^{2}\right) \quad=(0.3662)^{2} \quad=0.1341$
Probability error (P.E.) $=0.6745 x \frac{\left(1-r^{2}\right)}{\sqrt{n}} \quad=0.6745 x \frac{(1-0.1341)}{\sqrt{5}}=0.2612$

$$
6 \times \text { P.E. }=6 \times 0.2612 \quad=1.5672
$$

Annexure - 4 contd.

| NIBL | Five points <br> of time | X | $(\mathrm{x})$ <br> $(X-\bar{X})$ | $(\mathrm{x})^{2}$ <br> $(X-\bar{X})^{2}$ | Y <br> $(\mathrm{NEPSE})$ | $(\mathrm{y})$ <br> $(Y-\bar{Y})$ | $(\mathrm{y})^{2}$ <br> $(Y-\bar{Y})^{2}$ | xy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | I | 765.00 | 5.00 | 25.00 | 229.00 | 11.40 | 129.96 | 57.00 |
|  | II | 800.00 | 40.00 | 1600.00 | 223.00 | 5.40 | 29.16 | 216.00 |
|  | III | 790.00 | 30.00 | 900.00 | 218.00 | 0.40 | 0.16 | 12.00 |
|  | IV | 785.00 | 25.00 | 625.00 | 219.00 | 1.40 | 1.96 | 35.00 |
|  | V | 660.00 | -100.00 | 10000.00 | 199.00 | -18.60 | 345.96 | 1860.00 |
|  | Totals | $\mathbf{3 8 0 0 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{1 3 1 5 0 . 0 0}$ | $\mathbf{1 0 8 8 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{5 0 7 . 2 0}$ | $\mathbf{2 1 8 0 . 0 0}$ |
|  | Averages | $\mathbf{7 6 0 . 0 0}$ |  |  | $\mathbf{2 1 7 . 6 0}$ |  |  |  |

Covariance of X and $\mathrm{Y}=\frac{1}{n} x \sum(x y) \quad=\frac{1}{5} x(2180.00)=436.00$
Variance for $\mathrm{X}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{n} x \sum(X-\bar{X})^{2} \quad=\frac{1}{5} x 13150.00 \quad=2630.00$
$\mathrm{Sx}=\sqrt{\boldsymbol{\sigma}_{x}{ }^{2}}$
$=\sqrt{2630.00}$
$=51.28$

Variance for $Y\left(\sigma_{y}{ }^{2}\right) \quad=\frac{1}{n} x \sum(Y-\bar{Y})^{2} \quad=\frac{1}{5} x 507.20 \quad=101.44$
$\mathrm{Sy}=\sqrt{\boldsymbol{\sigma}_{y}{ }^{2}}$
$=\sqrt{101.44}$
$=10.07$

## Karl Pearson's coefficeint of correlation (r)

$$
=\frac{\operatorname{Cov} \cdot(X Y)}{S x \cdot S y}=\frac{436.00}{51.28 \times 10.07} \quad=\mathbf{0 . 8 4 4 2}=\mathbf{8 4 . 4 2 \%}
$$

Coefficeint of determination $\left(\mathrm{r}^{2}\right) \quad=(0.8442)^{2} \quad=0.7126$
Probability error (P.E.) $=0.6745 x \frac{\left(1-r^{2}\right)}{\sqrt{n}} \quad=0.6745 x \frac{(1-0.7126)}{\sqrt{5}}=0.08669$

$$
6 \times \text { P.E. }=6 \times 0.08669=0.52016
$$

Paired t-test

| Name of the Banks | Before Issue <br> Xi | After Issue <br> Yi | $d_{i}=\left(X_{i}-Y_{i}\right)$ | $\left(d_{i}\right)^{2}$ | $\left(d_{i}-\overline{d i}\right)$ | $\left(d_{i}-\overline{d i}\right)^{2}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| MBL | 380.60 | 333.00 | 47.60 | 2265.76 | -23.80 | 566.44 |
| KBL | 371.20 | 343.80 | 27.40 | 750.76 | -44.00 | 1936.00 |
| NSBI | 425.00 | 352.80 | 72.20 | 5212.84 | 0.80 | 0.64 |
| NIBL | 798.40 | 660.00 | 138.40 | 19154.56 | 67.00 | 4489.00 |
| Totals | $\mathbf{1 9 7 5 . 2 0}$ | $\mathbf{1 6 8 9 . 6 0}$ | $\mathbf{2 8 5 . 6 0}$ | $\mathbf{2 7 3 8 3 . 9 2}$ | $\mathbf{0 . 0 0}$ | $\mathbf{6 9 9 2 . 0 8}$ |
| Averages | $\mathbf{4 9 3 . 8 0}$ | $\mathbf{4 2 2 . 4 0}$ | $\mathbf{7 1 . 4 0}$ | $\mathbf{6 8 4 5 . 9 8}$ |  |  |

Count(n) $=4 \quad(\overline{d i})=71.40$
Variance $\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{(n-1)} x \sum\left(d_{i}-\overline{d i}\right)^{2} \quad=\frac{1}{(4-1)} x 6992.08=2330.69$

Standard Deviation (S)

$$
=\sqrt{\sigma_{x}^{2}} \quad=\sqrt{2330.69}
$$

$$
=48.28
$$

$\sqrt{n}=\sqrt{4} \quad=2$
$\frac{S}{\sqrt{n}}=\frac{48.28}{\sqrt{4}}=24.14$,
$t_{c a l}=\frac{\overline{d i}}{S / \sqrt{n}}$
$=\frac{71.40}{48.28 / \sqrt{4}}=$
2.958
$t_{t a b}=2.35$
$5 \%, 3$ d.f.
Since $t_{c a l}>t_{t a b}$, null hypothesis is rejected. There is significant difference.

# Share Prices of Different Banks and corresponding Index for Different Points of Time -Bonus Issue 

## Bank of Kathmandu

| Year | $:$ | $2006 / 07$ |
| :--- | :---: | :--- |
| Record date | $:$ | $14 / 12 / 2006$ |
| Book Closure Period | $:$ | $12 / 18 / 2006$ to $1 / 4 / 2007$ |
| Bonus Dividend |  | $:$ |
| Bonus Ratio | $:$ | $30 \%$ |

Information about Share Price and Index

| Share price before <br> Announcement Date |  |  |  | Share price from <br> Announcement Date |  |  |  | Share price after 3 months of <br> Announcement Date |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Share <br> Price | Index | Date | Share <br> Price | Index | Date | Share <br> Price | Index |  |
| $10 / 31 / 2006$ | 1028.00 | 408.00 | $12 / 14 / 2006$ | 1113.00 | 508.00 | $3 / 14 / 2007$ | 920.00 | 494.00 |  |
| $11 / 7 / 2006$ | 1080.00 | 424.00 | $12 / 20 / 2006$ | 1088.00 | 511.00 | $3 / 21 / 2007$ | 910.00 | 492.00 |  |
| $11 / 12 / 2006$ | 1161.00 | 448.00 | $12 / 28 / 2006$ | 1095.00 | 517.46 | $3 / 29 / 2007$ | 880.00 | 480.00 |  |
| $11 / 15 / 2006$ | 1140.00 | 448.00 | $1 / 3 / 2007$ | 1035.00 | 505.00 | $4 / 5 / 2007$ | 910.00 | 488.00 |  |
| $11 / 23 / 2006$ | 1232.00 | 453.00 | $1 / 22 / 2007$ | 1050.00 | 527.05 | $4 / 12 / 2007$ | 935.00 | 494.00 |  |
| Totals | $\mathbf{5 6 4 1 . 0 0}$ | $\mathbf{2 1 8 1 . 0 0}$ |  | $\mathbf{5 3 8 1 . 0 0}$ | $\mathbf{2 5 6 8 . 5 1}$ |  | $\mathbf{4 5 5 5 . 0 0}$ | $\mathbf{2 4 4 8 . 0 0}$ |  |
| Averages | $\mathbf{1 1 2 8 . 2 0}$ | $\mathbf{4 3 6 . 2 0}$ |  | $\mathbf{1 0 7 6 . 2 0}$ | $\mathbf{5 1 3 . 7 0}$ |  | $\mathbf{9 1 1 . 0 0}$ | $\mathbf{4 8 9 . 6 0}$ |  |


| Year | $:$ | 2004/05 |
| :--- | :--- | :--- |
| Record date | $:$ | $23 / 11 / 2005$ |
| Book Closure Period | $:$ | $11 / 25 / 2005$ to $12 / 9 / 2005$ |
| Bonus Dividend |  | $:$ |
| Bonus Ratio | $:$ | $20 \%$ |

Information about Share Price and Index

| Share price before <br> Announcement Date |  |  | Share price from Announcement Date |  |  | Share price after 3 months of Announcement Date |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Share Price | Index | Date | Share Price | Index | Date | Share Price | Index |
| 9/5/2005 | 400.00 | 297.00 | 11/23/2005 | 467.00 | 301.00 | 3/7/2006 | 426.00 | 332.00 |
| 9/28/2005 | 410.00 | 297.00 | 12/6/2005 | 385.00 | 298.00 | 3/12/2006 | 425.00 | 337.00 |
| 10/24/2005 | 499.00 | 307.00 | 12/13/2005 | 388.00 | 301.00 | 3/13/2006 | 425.00 | 340.00 |
| 10/27/2005 | 463.00 | 306.00 | 12/19/2005 | 394.00 | 305.00 | 3/15/2006 | 426.00 | 340.00 |
| 10/30/2005 | 475.00 | 308.00 | 12/27/2005 | 380.00 | 301.00 | 4/19/2006 | 432.00 | 340.00 |
| Totals | 2247.00 | 1515.00 |  | 2014.00 | 1506.00 |  | 2134.00 | 1689.00 |
| Averages | 449.40 | 303.00 |  | 402.80 | 301.20 |  | 426.80 | 337.80 |


| Year | $:$ | $2004 / 05$ |
| :--- | :--- | :--- |
| Record date | $:$ | $20 / 12 / 2005$ |
| Book Closure Period | $:$ | $12 / 21 / 2005$ to $1 / 10 / 2006$ |
| Bonus Dividend | $:$ | $5: 1$ |
| Bonus Ratio | $:$ | $20 \%$ |

## Information about Share Price and Index

| Share price before <br> Announcement |  |  |  | Share price from <br> Announcement |  |  |  | Share price after 3 months of <br> Announcement Date |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Share <br> Price | Index | Date | Share <br> Price | Index | Date | Share <br> Price | Index |  |  |
| $10 / 9 / 2005$ | 1000.00 | 297.00 | $12 / 15 / 2006$ | 900.00 | 300.00 | $3 / 7 / 2006$ | 1002.00 | 332.00 |  |  |
| $11 / 10 / 2005$ | 1041.00 | 308.00 | $1 / 2 / 2006$ | 950.00 | 304.00 | $3 / 12 / 2006$ | 1027.00 | 337.00 |  |  |
| $12 / 11 / 2005$ | 1118.00 | 300.00 | $1 / 18 / 2006$ | 935.00 | 306.00 | $3 / 21 / 2006$ | 1020.00 | 339.00 |  |  |
| $12 / 15 / 2005$ | 1140.00 | 303.00 | $2 / 1 / 2006$ | 950.00 | 308.00 | $3 / 23 / 2006$ | 1016.00 | 338.00 |  |  |
| $12 / 20 / 2005$ | 1100.00 | 307.00 | $2 / 6 / 2006$ | 940.00 | 309.00 | $3 / 27 / 2006$ | 1008.00 | 337.00 |  |  |
| Totals | $\mathbf{5 3 9 9 . 0 0}$ | $\mathbf{1 5 1 5 . 0 0}$ |  | $\mathbf{4 6 7 5 . 0 0}$ | $\mathbf{1 5 2 7 . 0 0}$ |  | $\mathbf{5 0 7 3 . 0 0}$ | $\mathbf{1 6 8 3 . 0 0}$ |  |  |
| Averages | $\mathbf{1 0 7 9 . 8 0}$ | $\mathbf{3 0 3 . 0 0}$ |  | $\mathbf{9 3 5 . 0 0}$ | $\mathbf{3 0 5 . 4 0}$ |  | $\mathbf{1 0 1 4 . 6 0}$ | $\mathbf{3 3 6 . 6 0}$ |  |  |

Annexure - 6 contd.

## Everest Bank Ltd.

Year : 2005/06

| Record date | $:$ | $28 / 11 / 2005$ |
| :--- | :--- | :--- |
| Book Closure Period | $:$ | $12 / 2 / 2005$ to $12 / 17 / 2006$ |
| Bonus Dividend | $:$ | $5: 1$ |
| Bonus Ratio | $:$ | $20 \%$ |

## Information about Share Price and Index

| Share price before <br> Announcement Date |  |  |  | Share price from <br> Announcement Date |  |  |  | Share price after 3 months of <br> Announcement Date |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Date | Share <br> Price | Index | Date | Share <br> Price | Index | Date | Share <br> Price | Index |  |  |
| $9 / 27 / 2005$ | 985.00 | 296.00 | $11 / 28 / 2005$ | 805.00 | 302.00 | $1 / 24 / 2006$ | 876.00 | 306.00 |  |  |
| $9 / 29 / 2005$ | 990.00 | 297.00 | $12 / 1 / 2005$ | 800.00 | 302.00 | $1 / 30 / 2006$ | 880.00 | 306.00 |  |  |
| $10 / 6 / 2005$ | 980.00 | 297.00 | $12 / 4 / 2005$ | 803.00 | 302.00 | $2 / 1 / 2006$ | 891.00 | 308.00 |  |  |
| $10 / 23 / 2005$ | 985.00 | 303.00 | $12 / 6 / 2005$ | 803.00 | 298.00 | $2 / 7 / 2006$ | 895.00 | 309.00 |  |  |
| $10 / 27 / 2005$ | 1000.00 | 306.00 | $12 / 11 / 2005$ | 819.00 | 300.00 | $2 / 9 / 2006$ | 910.00 | 313.00 |  |  |
| Totals | $\mathbf{4 9 4 0 . 0 0}$ | $\mathbf{1 4 9 9 . 0 0}$ |  | $\mathbf{4 0 3 0 . 0 0}$ | $\mathbf{1 5 0 4 . 0 0}$ |  | $\mathbf{4 4 5 2 . 0 0}$ | $\mathbf{1 5 4 2 . 0 0}$ |  |  |
| Averages | $\mathbf{9 8 8 . 0 0}$ | $\mathbf{2 9 9 . 8 0}$ |  | $\mathbf{8 0 6 . 0 0}$ | $\mathbf{3 0 0 . 8 0}$ |  | $\mathbf{8 9 0 . 4 0}$ | $\mathbf{3 0 8 . 4 0}$ |  |  |

Annexure - 7

Share Prices and corresponding Index for five different points of time and Price Relatives-Bonus Issue

|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Name of Bank | Selected Points of Time | Share <br> Price <br> (Rs.) | Price Relatives | Total Price Index (NEPSE) | Price Index converted to new base | $\%$ <br> change <br> from base | $\begin{array}{\|c\|} \hline \text { Adjusted Price } \\ \text { relatives } \\ 2 \text { as } \% \text { of } 4 \\ \hline \end{array}$ | \% change from base |
| BOK | I | 1028 | 100.00 | 408.00 | 100.00 | - | 100.00 | - |
|  | II | 1025 | 99.71 | 473.00 | 115.93 | 15.93 | 86.01 | -13.99 |
|  | III | 1113 | 108.27 | 508.00 | 124.51 | 24.51 | 86.96 | -13.04 |
|  | IV | 1088 | 105.84 | 511.00 | 125.25 | 25.25 | 84.50 | -15.50 |
|  | V | 920 | 89.49 | 494.00 | 121.08 | 21.08 | 73.91 | -26.09 |
|  |  |  |  |  |  |  |  |  |
| NIC | I | 400 | 100.00 | 296.76 | 100.00 | - | 100.00 | - |
|  | II | 465 | 116.25 | 300.57 | 101.28 | 1.28 | 114.78 | 14.78 |
|  | III | 467 | 116.75 | 300.78 | 101.35 | 1.35 | 115.19 | 15.19 |
|  | IV | 385 | 96.25 | 298.00 | 100.42 | 0.42 | 95.85 | -4.15 |
|  | V | 426 | 106.50 | 332.28 | 111.97 | 11.97 | 95.11 | -4.89 |
|  |  |  |  |  |  |  |  |  |
| HBL | I | 1000 | 100.00 | 297.34 | 100.00 | - | 100.00 | - |
|  | II | 1125 | 112.50 | 299.71 | 100.80 | 0.80 | 111.61 | 11.61 |
|  | III | 900 | 90.00 | 300.49 | 101.06 | 1.06 | 89.06 | -10.94 |
|  | IV | 950 | 95.00 | 304.16 | 102.29 | 2.29 | 92.87 | -7.13 |
|  | V | 1002 | 100.20 | 332.28 | 111.75 | 11.75 | 89.66 | -10.34 |
|  |  |  |  |  |  |  |  |  |
| EBL | I | 985 | 100.00 | 296.20 | 100.00 | - | 100.00 | - |
|  | II | 981 | 99.59 | 307.98 | 103.98 | 3.98 | 95.78 | -4.22 |
|  | III | 805 | 81.73 | 301.67 | 101.85 | 1.85 | 80.25 | -19.75 |
|  | IV | 800 | 81.22 | 301.76 | 101.88 | 1.88 | 79.72 | -20.28 |
|  | V | 876 | 88.93 | 305.51 | 103.14 | 3.14 | 86.22 | -13.78 |

Annexure - 7 contd.


|  |  | BOK | NIC | HBL | EBL |
| :--- | :--- | :---: | :---: | :---: | :---: |
| Po | Market price of a share before bonus issue(Average) | 1128.00 | 449.00 | 1080.00 | 988.00 |
| N | Bonus Ratio | $30 \%$ | $20 \%$ | $20 \%$ | $20 \%$ |
| n | No. of shares required to get one share | 3.33 | 5.00 | 5.00 | 5.00 |
|  | Calculation for: |  |  |  |  |
|  | Value of shares after Bonus Issue |  |  |  |  |
|  | Total Value Paid | 3761.00 | 2247.00 | 5399.00 | 4940.00 |
|  | No. of shares held at the end | 4.33 | 6.00 | 6.00 | 6.00 |
| Pe | Theoretical value of a share after Bonus Issue | 868.00 | 375.00 | 900.00 | 823.00 |
|  | Actual price after Bonus Issue (Average) | 1076.00 | 403.00 | 935.00 | 806.00 |



Annexure - 9
Correlation Between Share Price Movement and General Market Movement during Five Different Points of Time for Bonus Share Issue

Variables Defined:
$\mathrm{X}=$ Share price
Y $=$ NEPSE Indices for total equity capital
P.E. = Probable error
r $\quad=\quad$ Value of correlation coefficient
$\mathrm{n}=\quad$ Number of pairs of observations $=5$
$\mathrm{S}=\quad$ Standard deviation

| BOK | Five points <br> of time | X | $(\mathrm{x})$ <br> $(X-\bar{X})$ | $(\mathrm{x})^{2}$ <br> $(X-\bar{X})^{2}$ | Y <br> $($ NEPSE $)$ | $(\mathrm{y})$ <br> $(Y-\bar{Y})$ | $(\mathrm{y})^{2}$ <br> $(Y-\bar{Y})^{2}$ | xy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | I | 1028.00 | -6.80 | 46.24 | 408.00 | -70.80 | 5012.64 | 481.44 |
|  | II | 1025.00 | -9.80 | 96.04 | 473.00 | -5.80 | 33.64 | 56.84 |
|  | III | 1113.00 | 78.20 | 6115.24 | 508.00 | 29.20 | 852.64 | 2283.44 |
|  | IV | 1088.00 | 53.20 | 2830.24 | 511.00 | 32.20 | 1036.84 | 1713.04 |
|  | V | 920.00 | -114.80 | 13179.04 | 494.00 | 15.20 | 231.04 | -1744.96 |
|  | Totals | $\mathbf{5 1 7 4 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{2 2 2 6 6 . 8 0}$ | $\mathbf{2 3 9 4 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{7 1 6 6 . 8 0}$ | $\mathbf{2 7 8 9 . 8 0}$ |
|  | Averages | $\mathbf{1 0 3 4 . 8 0}$ |  |  | $\mathbf{4 7 8 . 8 0}$ |  |  |  |

Covariance of X and $\mathrm{Y}=\frac{1}{n} x \sum(x y) \quad=\frac{1}{5} x(-2789.80) \quad=557.96$
Variance for $\mathrm{X}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{n} x \sum(X-\bar{X})^{2} \quad=\frac{1}{5} x 22266.80 \quad=4453.36$
$\mathrm{Sx}=\sqrt{\sigma_{x}{ }^{2}} \quad=\sqrt{4453.36} \quad=66.73$
Variance for $\mathrm{Y}\left(\sigma_{y}{ }^{2}\right) \quad=\frac{1}{n} x \sum(Y-\bar{Y})^{2} \quad=\frac{1}{5} x 7166.80 \quad=1433.36$
$\mathrm{Sy}=\sqrt{\sigma_{y}{ }^{2}} \quad=\sqrt{1433.36} \quad=37.86$

## Karl Pearson's coefficeint of correlation (r)

$$
=\frac{\operatorname{Cov} \cdot(X Y)}{S x . S y}=\frac{557.96}{66.73 \times 37.86} \quad=\mathbf{0 . 2 2 0 9}=\mathbf{2 2 . 0 9 \%}
$$

Coefficeint of determination $\left(\mathrm{r}^{2}\right)$

$$
=(0.2209)^{2} \quad=0.0488
$$

Probability error (P.E.) $\quad=0.6745 x \frac{\left(1-r^{2}\right)}{\sqrt{n}} \quad=0.6745 x \frac{(1-0.0488)}{\sqrt{5}} \quad=0.2869$

$$
6 \times \text { P.E. }=6 \times 0.2869 \quad=1.7216
$$

Annexure - 9 contd.

| NIC | Five points <br> of time | X | $(\mathrm{x})$ <br> $(X-\bar{X})$ | $(\mathrm{x})^{2}$ <br> $(X-\bar{X})^{2}$ | Y <br> $($ NEPSE $)$ | $(\mathrm{y})$ <br> $(Y-\bar{Y})$ | $(\mathrm{y})^{2}$ <br> $(Y-\bar{Y})^{2}$ | xy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | I | 400.00 | -28.60 | 817.96 | 297.00 | -8.80 | 77.44 | 251.68 |
|  | II | 465.00 | 36.40 | 1324.96 | 301.00 | -4.80 | 23.04 | -174.72 |
|  | III | 467.00 | 38.40 | 1474.56 | 301.00 | -4.80 | 23.04 | -184.32 |
|  | IV | 385.00 | -43.60 | 1900.96 | 298.00 | -7.80 | 60.84 | 340.08 |
|  | V | 426.00 | -2.60 | 6.76 | 332.00 | 26.20 | 686.44 | -68.12 |
|  | Totals | $\mathbf{2 1 4 3 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{5 5 2 5 . 2 0}$ | $\mathbf{1 5 2 9 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{8 7 0 . 8 0}$ | $\mathbf{1 6 4 . 6 0}$ |
|  | Averages | $\mathbf{4 2 8 . 6 0}$ |  |  | $\mathbf{3 0 5 . 8 0}$ |  |  |  |

Covariance of X and $\mathrm{Y}=\frac{1}{n} x \sum(x y) \quad=\frac{1}{5} x(164.60)=32.92$

Variance for $\mathrm{X}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{n} x \sum(X-\bar{X})^{2} \quad=\frac{1}{5} x 5525.20 \quad=1105.04$
$S \mathrm{X}=\sqrt{\sigma_{x}{ }^{2}} \quad=\sqrt{1105.04} \quad=33.24$

Variance for $Y\left(\sigma_{y}{ }^{2}\right) \quad=\frac{1}{n} x \sum(Y-\bar{Y})^{2} \quad=\frac{1}{5} x 870.80 \quad=174.16$
$\mathrm{Sy}=\sqrt{\sigma_{y}{ }^{2}} \quad=\sqrt{174.16} \quad=13.20$

## Karl Pearson's coefficent of correlation (r)

$$
=\frac{\operatorname{Cov} \cdot(X Y)}{S x . S y}=\frac{32.92}{33.24 \times 13.20}
$$

$$
=0.0750=7.50 \%
$$

Coefficeint of determination $\left(\mathrm{r}^{2}\right) \quad=(0.0750)^{2}=0.0000107$

Probability error (P.E.) $=0.6745 x \frac{\left(1-r^{2}\right)}{\sqrt{n}}=0.6745 x \frac{(1-0.00001073)}{\sqrt{5}}=0.30165$

$$
6 \times \text { P.E. }=6 \times 0.30165=1.8099
$$

Annexure - 9 contd.

| HBL | Five points <br> of time | X | $(\mathrm{x})$ <br> $(X-\bar{X})$ | $(\mathrm{x})^{2}$ <br> $(X-\bar{X})^{2}$ | Y <br> $(\mathrm{NEPSE})$ | $(\mathrm{y})$ <br> $(Y-\bar{Y})$ | $(\mathrm{y})^{2}$ <br> $(Y-\bar{Y})^{2}$ | xy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | I | 1000.00 | 4.60 | 21.16 | 297.00 | -9.60 | 92.16 | -44.16 |
|  | II | 1125.00 | 129.60 | 16796.16 | 300.00 | -6.60 | 43.56 | -855.36 |
|  | III | 900.00 | -95.40 | 9101.16 | 300.00 | -6.60 | 43.56 | 629.64 |
|  | IV | 950.00 | -45.40 | 2061.16 | 304.00 | -2.60 | 6.76 | 118.04 |
|  | V | 1002.00 | 6.60 | 43.56 | 332.00 | 25.40 | 645.16 | 167.64 |
|  | Totals | $\mathbf{4 9 7 7 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{2 8 0 2 3 . 2 0}$ | $\mathbf{1 5 3 3 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{8 3 1 . 2 0}$ | $\mathbf{1 5 . 8 0}$ |
|  | Averages | $\mathbf{9 9 5 . 4 0}$ |  |  | $\mathbf{3 0 6 . 6 0}$ |  |  |  |

Covariance of X and $\mathrm{Y}=\frac{1}{n} x \sum(x y) \quad=\frac{1}{5} x(15.80)=3.16$
Variance for $\mathrm{X}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{n} x \sum(X-\bar{X})^{2} \quad=\frac{1}{5} x 28023.20 \quad=5604.64$
$S X=\sqrt{\sigma_{x}{ }^{2}} \quad=\sqrt{5604.64} \quad=74.86$

Variance for $\mathrm{Y}\left(\sigma_{y}{ }^{2}\right) \quad=\frac{1}{n} x \sum(Y-\bar{Y})^{2} \quad=\frac{1}{5} x 831.20 \quad=166.24$
$\mathrm{Sy}=\sqrt{\sigma_{y}{ }^{2}} \quad=\sqrt{166.24} \quad=12.89$

## Karl Pearson's coefficent of correlation (r)

$$
=\frac{\operatorname{Cov} \cdot(X Y)}{S x . S y}=\frac{3.16}{74.86 \times 12.89} \quad=\mathbf{0 . 0 0 3 3}=\mathbf{0 . 3 3 \%}
$$

Coefficeint of determination $\left(\mathrm{r}^{2}\right)$

$$
=(0.0033)^{2} \quad=0.00003
$$

Probability error (P.E.) $=0.6745 x \frac{\left(1-r^{2}\right)}{\sqrt{n}}=0.6745 x \frac{(1-0.00003)}{\sqrt{5}}=0.3016$

$$
6 \times \text { P.E. }=6 \times 0.3016 \quad=1.8098
$$

| EBL | Five points <br> of time | X | $(\mathrm{x})$ <br> $(X-\bar{X})$ | $(\mathrm{x})^{2}$ <br> $(X-\bar{X})^{2}$ | Y <br> $(\mathrm{NEPSE})$ | $(\mathrm{y})$ <br> $(Y-\bar{Y})$ | $(\mathrm{y})^{2}$ <br> $(Y-\bar{Y})^{2}$ | xy |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | I | 985.00 | 95.60 | 9139.36 | 296.20 | -6.44 | 41.47 | -615.66 |
|  | II | 981.00 | 91.60 | 8390.56 | 308.00 | 5.36 | 28.73 | 490.98 |
|  | III | 805.00 | -84.40 | 7123.36 | 301.70 | -0.94 | 0.88 | 79.34 |
|  | IV | 800.00 | -89.40 | 7992.36 | 301.80 | -0.84 | 0.71 | 75.10 |
|  | V | 876.00 | -13.40 | 179.56 | 305.50 | 2.86 | 8.18 | -38.32 |
|  | Totals | $\mathbf{4 4 4 7 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{3 2 8 2 5 . 2 0}$ | $\mathbf{1 5 1 3 . 2 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{7 9 . 9 7}$ | $\mathbf{- 8 . 5 8}$ |
|  | $\mathbf{3 0 2 . 6 4}$ |  |  |  |  |  |  |  |

Covariance of X and $\mathrm{Y} \quad=\frac{1}{n} x \sum(x y) \quad=\frac{1}{5} x(-8.58) \quad=-1.72$
Variance for $\mathrm{X}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{n} x \sum(X-\bar{X})^{2} \quad=\frac{1}{5} x 32825.20 \quad=6565.04$
$S x=\sqrt{\sigma_{x}{ }^{2}} \quad=\sqrt{6565.04} \quad=81.02$

Variance for $Y\left(\sigma_{y}{ }^{2}\right) \quad=\frac{1}{n} x \sum(Y-\bar{Y})^{2} \quad=\frac{1}{5} x 79.97 \quad=15.99$
$\mathrm{Sy}=\sqrt{\sigma_{y}^{2}} \quad=\sqrt{15.99} \quad=4.00$

## Karl Pearson's coefficent of correlation (r)

$$
=\frac{\operatorname{Cov} \cdot(X Y)}{\operatorname{Sx.Sy}}=\frac{-1.72}{81.02 \times 4.00} \quad=\mathbf{- 0 . 0 0 5 3}=\mathbf{- 0 . 5 3 \%}
$$

Coefficeint of determination $\left(\mathrm{r}^{2}\right)$

$$
=(0.0053)^{2} \quad=0.00003
$$

Probability error (P.E.) $=0.6745 x \frac{\left(1-r^{2}\right)}{\sqrt{n}}=0.6745 x \frac{(1-0.00003)}{\sqrt{5}}=0.3016$

$$
6 \times \text { P.E. }=6 \times 0.3016 \quad=1.8098
$$

T-Statics to Measure the Immediate Impact of Bonus Issue on the Share Price of the Banks

Paired t-test

| Name of the Banks | Before Issue <br> Xi | After Issue <br> Yi | $d_{i}=\left(X_{i}-Y_{i}\right)$ | $\left(d_{i}\right)^{2}$ | $\left(d_{i}-\overline{d i}\right)$ | $\left(d_{i}-\overline{d i}\right)^{2}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| BOK | 1128.00 | 1076.00 | 52.00 | 2704.00 | -54.25 | 2943.06 |
| NIC | 449.00 | 403.00 | 46.00 | 2116.00 | -60.25 | 3630.06 |
| HBL | 1080.00 | 935.00 | 145.00 | 21025.00 | 38.75 | 1501.56 |
| EBL | 988.00 | 806.00 | 182.00 | 33124.00 | 75.75 | 5738.06 |
| Totals | $\mathbf{3 6 4 5 . 0 0}$ | $\mathbf{3 2 2 0 . 0 0}$ | $\mathbf{4 2 5 . 0 0}$ | $\mathbf{5 8 9 6 9 . 0 0}$ | $\mathbf{0 . 0 0}$ | $\mathbf{1 3 8 1 2 . 7 5}$ |
| Averages | $\mathbf{9 1 1 . 2 5}$ | $\mathbf{8 0 5 . 0 0}$ | $\mathbf{1 0 6 . 2 5}$ | $\mathbf{1 4 7 4 2 . 2 5}$ |  |  |

$\operatorname{Count}(\mathrm{n}) \quad=4 \quad(\overline{d i})=106.25$
$\operatorname{Variance}\left(\sigma_{x}{ }^{2}\right) \quad=\frac{1}{(n-1)} x \sum\left(d_{i}-\overline{d i}\right)^{2} \quad=\frac{1}{(4-1)} x 13812.75=4604.25$

Standard Deviation (S)

$$
=\sqrt{\sigma_{x}^{2}}
$$

$$
=\sqrt{4604.25}
$$

$$
=67.85
$$

$\sqrt{n}=\sqrt{4} \quad=2$
$\frac{S}{\sqrt{n}}=\frac{67.85}{\sqrt{4}} \quad=33.93$,
$t_{c a l}=\frac{\overline{d i}}{S / \sqrt{n}}$
$=\frac{106.25}{67.85 / \sqrt{4}}=$
3.132
$t_{t a b}=2.35$
$5 \%, 3$ d.f.
Since $t_{c a l}>t_{t a b}$, null hypothesis is rejected. There is significant difference.

