Measuring Assessment of the Stock of Manufacturing Companies of Nepal on the Basis of Risk and Return on Share Prices

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Abstract
The purpose of this study is to assess and review the stock of selected Manufacturing Companies of Nepal. After completing this research job, one can understand whether the stocks of Manufacturing Companies of Nepal are correctly valued or not. For this, the expected rate of return, required rate of return, the correlation coefficient between the return on individual stock and the market portfolio are computed. The study had been carried out satisfied sampling containing companies to market capitalization listed in NEPSE. Secondary data was collected from 2013-2018 (i.e. five years period). Descriptive statistics was used to perform the data analysis. The stocks of two Manufacturing Companies are overpriced and the stocks of two Manufacturing Companies are underpriced.

Key Words: *Stock Price, Expected Rate of Return, Required Rate of Return, Standard Deviation, Beta-Co-efficient,*

I. Introduction

An investment is an asset or item acquired with the goal of generating income or appreciation. In an economic sense, an investment is the purchase of goods that are not consumed today but are used in the future to create wealth. In finance, an investment is a monetary asset purchased with the idea that the asset will provide income in the future or will later be sold at a higher price for a profit.

It always concerns the outlay of some asset today (time, money, effort, etc.) in hopes of a greater payoff in the future than what was originally put in.

An investment is commitment of funds made in expiation of some positive rate of return (Fisher & Johnson, 200). Investors scarify current consumption in the hope of attaining increased future consumption. They invest their savings in one form or other to get higher return in future.

The rate of return varies from one form of investment to the other depending on the degree of risk involved in it. This is with high degree of risk the investor's expected return is more and vice-versa. However the choice of investment depends on the investors risk preference. The investment objective is to select assets which have the maximum expected return in their risk class, otherwise stated, the objective is to maximize the investors expected wealth at some preferred level of risk (Francis, 1986).

The security market, providing fair prices and free and active market to diverse securities to suit the varying notion and whims of a vast mass of savers about liquidity, profitability and risk element in their investment play a vital role in channelizing savings into most productive channel of investment (Srivastava, 1985). Efficient security pricing therefore tantamount to efficient allocation of economic resources which is good for everybody economic development and for everybody for that matter. If the securities are efficiently priced investors would obtain just return to their investment, cost of funds would be just and no one make abnormal profit (Yalaguresh, 1989).

For mobilizing funds, the security, plays a vital role. On the contrary, these markets in the developing countries play comparatively lesser important role mainly due to heavy reliance of business enterprise on debt financing through the banking system owing to such behavioral trend of the corporate sector, the developing countries generally suffer from inadequate and illiquid securities markets. Generally, economists believe that for the development of security markets, sustained growth of private business enterprises need to be profit making. So that they may actively participate in the security markets. It may be stated that growth occurs when profit making business enterprises accumulate retained earnings for their anticipated expansion and increase assets to serve as collateral security for debt financing. The availability of retained earnings usually increases the access of the business enterprises to equity financing.

In Nepal, for equity financing the most important sources of funds is household savings. The performance and seize of the society markets can only be improved if the household savers are provided with a wide variety of securities suited to their performance, customs and habits. Stock market provides a place or mechanism for active trading securities among investors themselves. Nepal Stock Exchange (NEPSE) is an example of stock market in Nepal. It opened its floor for the trading of corporate securities on the 1th of January 1994 prior to the establishment of NEPSE in 1994. Secondary market was opened over the counter facility, which is provided and managed by Security Exchange Center (SEC). The number of listed companies, which stood as 15 in 1993/1994, increased to 230 by the end of the fiscal year 2013/2014.

II. Objective of the Study

The objective of the study is to evaluate the stocks of Manufacturing Companies on the basis of risk and return. It also aims to determine whether the shares of Manufacturing Companies in Nepal are overpriced, under priced and correctly priced.

III. Conceptual Framework

The Efficient Markets and Share Price Theory

The Efficient Market and Share Price Theory are not properly understood by a large semantics of financial community. This theory holds that market prices fully and instantaneously reflect all available information. In this sense, share prices are said to be correct and provide accurate signals for resource allocation (Firth M., 1986). In other words,

in an efficient market, all relevant information is fully reflected in stock prices. So that no investors is able to make excess profits based on any existing information. As such informed competition establishes stock prices and these offer investors a fair combination of risk and return. By virtue of this even in major market professional investors "cannot beat the market by pricing the winning stocks consistently". This fact has been well supported by empirical studies carried out by the financial experts during the last decades in the developed countries such as USA, UK and Australia etc. But smaller and less developed stock markets may not be efficient to the extent. In these movements the individual investors may be able to earn above normal return by pricing stocks that can outperform the market.

Capital efficiency has been divisionalised into three levels: the weak form, the semi-strong form and the strong form. The above classification is attributable (Roberts, 1967) and (Fama, 1970). Under the weak form of shares prices fully reflect the information implied by all previous price movements. This means that there is no relationship between the past and future prices movements. This means that there is no relationship between the past and future prices movements. This in turn implies that the best linear predictor of tomorrow's price is today's price. So that future price changes cannot be predicted from historical price changes. Consequently investors are unable to profit from studying charts of past price changes. The weak form of efficiently has also been designed in literature as 'random walk hypothesis'. The semi strong form of efficiency market theory holds that stock prices adjust rapidly to all publicly available information. This implies that all information affecting stock prices, both public and private, is reflected in stock prices. If the market is not the efficient in this form, individual might have and edge in acquiring new information and might be able to earn above normal returns.

The Investment Returns

Investment returns is the difference between the terminal value of wealth and initial value of wealth. If the terminal value of wealth is greater than initial value of wealth, there is positive return and if the terminal value of wealth is less than the initial value of wealth, there is negative return. The investment return is the sum of capital gain and dividend.

Single-Period Return

Holding period return is generally determined for only the single year is known as single period return. It can be computed as follows:

$$\frac{\text{Ending Price - Beginning Price + Dividends}}{\text{Beginning Price}}$$

or,

$$HPR = (Pi-Po+Di)/Po$$

Where,	Po	=	Beginning Price of Stock
	Pi	=	Ending Price of Stock
	Di	=	Dividend at the End of One Year

Several Period Return

Several Period Return is the annualized rate of return over the several periods. It can be computed as follows:

$$HPR = \sum_{t=1}^{n} HPR\ t / n$$

The Expected Rate of Returns

The expected rate of return for any assets is the weighted average rate of return using probability of each rate of return on the weights. The expected rate of return can be computed as follows;

Expected Rate of Returns, Σ (Rj) = EPjRj

Where, Pj = The Probability of the jth outcome
Rj = The Possible rate of return

The Average Rate of Return

The average rate of return is also known as the arithmetic mean for a single investment. An investor may hold his/her investment for the number of periods and may be invested to know the average return return of his/her investment. This can be computed as follows:

$R = \Sigma R/N$

Where,
R = Average Rate of Return
Σ R = The Sum of the Annual Rate of Return
N = Total Number of the Periods.

Required Rate of Return

The rate of return a firm must earn to compensate its stakeholders for their risk exposure. The required rate of return can be computed as follows:

$E(Rj) = Ri + (Rm - Ri)\ \beta j$

Where,
E(R) = Required Rate of Return
Ri = Risk Free Rate of Return
Rm = Market Rate of Return
βj = beta Co-efficient of Security j

Investment Risk

Risk in holding securities is generally associated with the possibility that realized return will be less than the return that was expected.

Standard Deviation

The Standard Deviation (σ) is the statistical tool for measuring risk. It measures the total risk of the investment. The higher the standard deviation the higher will be the degree of risk of the stock. The formula standard deviation can be as follows:

$$\text{Standard Deviation } (\sigma) = \frac{\Sigma(R-R)2}{N}$$

or,

Standard deviation (σ) = √Σ(K-KAvg)2/ N

In this equation, R is the possible return and R is the average return and N is the number of observations. The variance can also be used to measure risk, which is the square of the standard deviation. Total risk of an investment consists of two components: diversifiable and non-diversifiable risk. Diversifiable or unsystematic risk represents the position of an investment's risk that can be eliminated by holding enough stocks. Non-diversifiable or systematic risk is external to an industry and or business and it's attributed to broad forces, such as war, inflation and political as well as the sociological events. The relationship between total risk, diversifiable risk and non-diversifiable risk is given equation.

Total Risk (σ) = Systematic Risk + Unsystematic Risk

Where,

Systematic Risk = P jM x σj

Unsystematic Risk = σ - Systematic Risk

The Coefficient of Variation

The coefficient of variation is a measure of relative dispersion that is useful in comparing the risk of assets with differing expected returns. It can be computed as follows:

Co-efficient of Variation, CV = σ/R

The Beta Coefficient

The beta coefficient (β) is a measure of systematic risk. It can be computed as follows.

Beta coefficient (β) = Cov iM /σM2 or Pjm- σj/σm

CoviM is the covariance between the return of an individual asset and the returns of the market and σM2 is the variance of the market returns. Stocks can be classified as aggressive or defensive or average depending on the value of beta coefficients.

On the basis of beta coefficient, stocks can be classified as follows.

$\beta j = 1$, Average stock or equality risky as the market.

$\beta j > 1$, Aggressive stock or more risky than the market

$\beta j < 1$, Defensive stock or less risky than the market.

The Capital Assets Pricing Model

The capital Assets Pricing Model (CAPM) is a model that relates the required rate of return for a security to its risk as measure by beta. CAPM predicts the relationship between the risk and equilibrium expected returns and risky assets. The capital assets pricing model almost always referred to as CAPM. Under CAPM concept the required rate of return can be computed as follows:

$$E(Rj) = Rf + (Rm - Rf)\beta$$

Review of Literature

This chapter deals with the discussion on the earlier studies for the present topic of research.

(Poudel, 2002) studied investing in shares of commercial banks and suggests that the analyzed shares are not in equilibrium with most of the shares being less risky than market.

(Coonter, 1962) studied weekly price data on 45 stocks from New York, stock exchange testing the randomness by means a mean square successive random.

(Bourno, 1973) tested whether European stock price follow random walk. A sample of 234 securities from eight major European markets where used in this study. He tested the data using serial correlation test and found that departure from the randomness of rate of return gets less significant with increasing time interval.

(Sharma & Robert, 1977) tested randomness in the shares in the stock market of India in comparison to stock market in US and London. It was observed that Bombay stock exchange obey a random walk and is equivalent in this sense to the behavior of stock prices in the market of advanced industrialized countries.

(Gupta, 1984) in his doctoral thesis analyzed the random behavior of stock prices by using serial correlation and run test. He conducted share prices follow randomness.

(Fama E, 1965) conducted strong and volummous evidence in favor of randomness in the share price behavior.

(Kendal, 1953) analyzed the behavior of weekly price changes of British Industrial share prices. The study found the stock price changes behaves as if they had been generated by a suitably designed roulette wheel.

(Robert, 1`959) conducted a simulation test with a series of number created by cumulating random numbers. He found that later series produces patterns to the pattern of share price series.

(Rao & Mukherjee, 1971) used spectral analysis on weekly prices of just one company during 1950 - 1970 and found evidence contrary to random walk hypothesis.

(Yalguresh, 1988) examined 122 common stock listed in Bombay Stock Exchange for the period of 1963 to 1982 based on monthly closing prices. He adopted two non parametric test namely Spearman's rank correlation and run test for the purpose of analysis and come out with significant result in favor of random walk hypothesis.

(Dixit, 1988) study covered 42 companies drawn from 14 different industries. He found out dividends EPS and size have powerful influence on share prices.

Deo, 1996) in her doctoral thesis return and risk on share price in India. She found expected yield higher rate of return in comparison to other form of investment. At the same time the market price of securities is subjected to high degree of fluctuation. High return can only be earned by assuming high risk. The interlink between risk, return and price of securities lend rationally to the security markets.

Research Methodology

With the help of random sample, five Manufacturing Companies are taken into research study. The sample period is covered from 2013 to 2018.

Research Techniques

For the purpose of this study, the secondary data is collected. To analyze the collected data the descriptive statistics is used.

Research Tools

The required data is collected from the published documents from Nepal Stock Exchange Limited, Security Board of Nepal and Nepal Rastra Bank.

Nature of Study: The approach followed to analyze the data empirical. The analysis is made on the basis of data collected.

Presentation and Analysis of Data:

Table - 1 Expected rate of return, required rate of return and pricing

Name of Manufacturing Companies	Exp. Return (%)	Req. Return (%)	Price	Decision
BNTL	18	5.94	Under Priced	Sell
HDL	-0.58	3.36	Over Priced	"
NLOL	-2.87	2,41	…..".…..	"
UNNL	2.37	-375.54	Under Priced	"
STC	16	4.75	Under Priced	Sell
Market Portfolio	16.01			

From the above computed expected rate of return, only the stocks of Botlers Nepal (Terai) Ltd., Uniliver Nepal Ltd. have the positive expected rate of return. Out of the stock of five Manufacturing Companies, three companies like, Botlers Nepal, Uniliver & Surya Tobacco has the highest expected rate of return. The highest rate of return is 18 of Botlers Nepal. Remaining the share of two Manufacturing Himalayan Distillery and Nepal Lube Oil have the have negative expected rate of return.

The share of bank having positive expected rate of return Everest Bank Ltd., NICA Bank Ltd., and Nepal Bangladesh Bank Ltd. With the comparison of expected rate of return on market portfolio, only one Bank's expected rate of return is higher than the expected rate of return on market port folio.

With the comparison of expected rate of return and required rate of return, all the banks except one have lower expected rate of return than required rate of return. So the stocks of the banks are overpriced and potential investor should sell the stocks. But one bank like Nepal Bangladesh Bank Ltd. has more expected rate of return than required rate of return and the stocks are underpriced, so the investor should buy the stocks.

Table - II
Expected Risk

Name of the Bank	S.D. (%)	Systematic Risk (%)	Unsystematic Risk (%)	CV (%)	β
BOK	26.76	16.08	10.68	-1.73	0.3
EBL	47.21	40.03	7.18	10.25	0.74
HBL	31.63	23.37	8.26	-3.56	0.043
NABIL	42.51	35.45	7.06	-5.56	0.65
NBB	70.4	55.62	14.78	2.48	1.03
SCB	27.46	23.84	3.62	-1.77	0.44
NIB	38.51	28.07	10.44	-18.25	0.52

NICA	32.97	25.06	7.91	7.02	0.46
NCCB	60.81	54.61	6.2	3.99	1.01
SBI	44.25	34.69	9.56	-18.51	0.64
Market Portfolio	54.2	54.2			

On the basis of risk, measured by standard deviation, Nepal Bangladesh Bank has the higher standard deviation than the standard deviation of market portfolio. So, it has high risky stock than market. And the other's bank stock has less standard deviation than market. Bank of Kathmandu (BOK) has low standard deviation than the standard deviation of stock of all other banks.

The stocks of Nepal Credit & Commerce Bank Ltd. and Nepal Bangladesh Bank Ltd. have the higher systematic risk i.e.54.61 & 55.62 respectively whereas the Himalayan Bank Ltd. has the lower amount of systematic risk i.e. 23.17. The table II above indicated that the BOK has the lowest systematic risk i.e. 16.08. The co-efficient of variation is another tool for measuring risk. On the basis of coefficient of variation, the stock of Everest Bank Ltd. (EBL) is the most risky investment which has the 10.25 coefficient of variation. Likewise the stock of Nepal State Bank of India (SBI) has the lowest coefficient of variation, i.e. (-18.51)

From analysis of beta coefficient, the stock with beta equals 1.0 considered to be equally risky as the market portfolio. And the stock with beta coefficient greater than 1.0 is classified as the defensive stock.

In the above table, the stock of only one bank i.e. Nepal Bangladesh Bank Ltd. has the higher beta than the market portfolio. So, it is considered as aggressive investment. The stock of Nepal Credit & Commerce Bank Ltd. is classified as equally risky stock than market portfolio. Out of ten commercial banks, stocks of eight commercial banks have the lower amount of beta coefficient than the market and all stock of banks are considered as defensive stock.

Conclusion

The above calculations and the analysis have shown that the most of the commercial banks have the higher required rate of return than the expected rate of rate of return except the stock of Nepal Bangladesh Bank Ltd. The stock of this bank has the highest expected rate of return than the than the expected rate of return on market portfolio. The stocks of the banks have the lower expected rate of return than the market portfolio.

Out of the stock of ten commercial banks, stocks of six commercial banks have the negative expected rate of return. Most of the commercial bank's stocks have lower standard deviation than the market portfolio except the stock of Nepal Bangladesh Bank Ltd. and NCC Bank Ltd. The stocks of NBB & NCCB have the higher systematic risk and stock of BOK has the lower systematic risk. Out of the total risk, systematic risk has higher percentage than

unsystematic risk, which shows the external factors have the greater impact on total risk. NBB bank Ltd., Everest Bank Ltd, NICA Bank Ltd., and NCCA Banks have the higher coefficient of variation than the market portfolio.

Out of the ten commercial banks, stocks of eight commercial banks have the lower amount of beta coefficient than the market portfolio beta. Only the stock of one commercial bank has the higher beta coefficient than market portfolio and considered as aggressive risk.

On the basis of the risk and return on shares as analysis and measuring assessment of the stock of ten commercial banks of Nepal, nine commercial banks are over priced or valued but the stock of only one commercial bank is under valued. So, based on the valuation of stock of this period, it is appropriate for stock selling rather than for not buying.

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