

CHAPTER – I

INTRODUCTION

1.1 General Background of the Study

Upliftment of nation's economic growth and solving the problem of underdeveloped economy is widely depending on the nature of its economic infrastructure. One of the basic elements in achieving a self-reliant growth of the economy and far sustaining the desired level of economic development is an accelerated rate of investment or capital formation in the economy. The rate of investment or capital formation depends upon the efficiency of the financial system. A developed financial system is a hallmark of any free enterprises of mixed economy. The markets, instruments and institutions that comprise this system facilitate the efficient production of goods and services and there by contributing the society's well being. The financial systems or markets perform this function by channeling the nation's saving into best uses. It does this by bringing together those who have surplus funds to lend and those who wish to borrow to finance their expenditures.

The trading of shares of stocks takes places in the stock market, on one hand, it directly provides liquidity to the investors who provide funds for the establishment of the productive enterprises, and on the other, encourage savers to save more and enterprising economic units to start productive ventures. Nepal, the capital deficient economy, requires a huge amount of investment in productive activities for her rapid economic development. The stock marker can play vital role by encouraging and channeling the

saving to provide the entrepreneurs for investment in profitable projects in the Nepalese economy. The development of economy requires the productive activities, which in turn is the result of the investment ventures in productive enterprises. The establishment of these enterprises needs a huge amount of funds. There are mainly two sources of financing the productive enterprises the internal and external sources. The internal financing has the limited scope because of the limited resources and risk associated with investment so now a days, the external financing the method of financing an enterprises through the financing market, has become the most important and popular sources of financing for fostering the productive activities in the economy. Now all the economic units including the householder and government have to rely on external financing also. The introduction and developments of financial assets is the most important attributes of the external financial. Thus, stock market is the most important component of the financial market (market for financial assets) is a must for the development of economy. In the Nepalese context, the external financing has the limited scope because of the least developed financial market in the economy. The savers and investors often are the same in the Nepalese economy, which is one of the discouraging factors for the rapid growth of investment in productive activities. The basic functions of stock market are still to provide and allocate capital funds to firms with profitable investments opportunities and to offer an avenue of liquidity for individuals to invest current income or borrow against future income and there by achieve their preferred time pattern of consumption. Because investing involves uncertainty, capital market also provides a means for transferring risk among the

parties to this transaction. The stock market and economic activity move in similar cyclical patterns. In the Nepalese economy, the demand for and supply of funds for investment in productive enterprises is low due to the absence of mechanism for transferring risk which, in turn, may be attributed to the absence of well developed stock market.

Although, some analyst view stock marker in developing countries as “casinos” that have little positive impact on economic on economic growth, recent obedience suggest that stock market can give a big boost to economic development for the developing country like Nepal.

Stock market may affect economic activity through the creation of liquidity many profitable investments require a long – term commitment of capital, but investors are often reluctant to relinquish control of their saving for long periods. Liquid equity markets make investment less risky and more attractive. They allow savers to acquire an assets (equity) and to sell it quickly and cheaply if they need access to there savings or want to alter there portfolios. At the same time, company enjoys permanent access to capital raised through equity issuance. By facilitating longer term, more profitable investment, liquid markets improve the allocation of capital and enhance prospect for long term economic growth. Further by making investments less risky and more profitable, stock market liquidity can also lead more investment. But succinctly, investors will come if they can leave. Nepalese stock market is least developed from these points of view. There is a virtual absence of liquidity, which discourages further investment in economy.

Nepalese capital market, which has a number of institutional bodies like securities Board Nepal (SEBON) Nepal stock exchange (NEPSE), shareholders association Nepal (SAN) and listed companies are in existence. In Nepalese capital market twenty four brokers, nine issue managers and two securities declares for the fiscal year 2006/07. Only 135 companies listed to NEPSE, in the fiscal year 2006/07 and most of the listed companies are inactive and rarely their share is traded on the floor. Nepalese stock market in infancy stage but it is growing slowly.

However there is also a marginal mental development. It is so, because market is mostly concentrated over banks & finance companies. Nepalese capital market is very small as compared to other neighbouring countries.

As the first financial institution in Nepal, Tejaratha Adda was established in 1993 B.S. from government side. But it only provided loan in favor of government employees with minimum interest rate. Although Nepal Bank was established in 1984 B.S. It could not generate enough funds for business of industrial purpose. It only provided short-term loan for individual and business institution by pledging collateral. After the establishment of Nepal Rastra Bank in 2013 B.S., as central bank of the country, it was funded as a base of capital market. It was also authorized to issue government securities (like government bonds, treasury bills, national saving certificates etc) to collect the national debt. Without participating private sector capital market could not be developed appropriately considering this, Nepal industrial development corporation (NIDC) was established in 2016 B.S. The basic function of NIDC was to encourage private sectors for

conducting industrial activities. It also helps for the improvement and modernization of private sectors by providing economic and technical subsidies (assistance) employee provident fund (2019). Rastriya Beema Sasthan and Agriculture Development Bank (2024) were established in financial sector. However, it could not help the institutional development of security exchange because the basic objectives of these institutions were not related to securities exchange activities. Thus to provide the investment opportunities to potential investors and collection and mobilization of funds for industrial purpose, the need of independent organized institution has been felt at that time. Considering this, for the development of well functioning secondary market. Security exchange centre (SEC) was established in 1976.

The basic function of stock market are still to provide and allocate capital funds to firms with profitable investment opportunities and to offer on avenue of liquidity for individuals to invest current income for borrow against future income and there by achieve their preferred time pattern of consumption because investing involves uncertainty, capital market also provoke a means for transferring risk among the parties to these transaction. The stock market and economic activities move in similar cyclical patterns. In Nepalese economy, the demand and supply of funds for investment in productive enterprise is low due to the absence of mechanism for transferring risk which in turn, may be attributed to the absence of well developed stock market. In Nepal, some financial institution involved in capital market are Nepal Rastra Bank, commercial Banks, Securities Board of Nepal, NEPSE, Nepal Industrial development Corporation, Employees provident

fund, citizen Investment Trust, Development Banks, Co-operative Agencies, Rastriya Beema Sasthan, Insurance companies, Financial Institutions, Rural Development Banks, Agriculture development Bank, Hotels, Non-Government organization Manufacturing and Trading Agencies etc. These institutions play the vital role in the development of capital market and economy of the country.

1.1.1 Introduction of NEPSE

The concept of stock market in Nepal is very new. It is still in infancy stage though Nepal Bank Limited (NBL) and Biratnagar Jute Mills limited (BJM) began it with the issue of shares in 1937 under the company act 1936. At that time, the participation on the ownership structure of the corporate sector was restricted mostly to Rana family. Consequently, the expansion of the capital market to the desired level had been restricted. No significance attempt had been made in fourth five-year plan to reform the capital market. the establishment of Securities Exchange Center (SEC) in 1976 was the first and most important attempt made by the government to develop the stock market. Initially, the SEC serves to promote the primary as well as secondary market for government and corporate securities from the fiscal year 1984/85. Although the growth of stock market is high relative to the growth of the economy, the share of corporate sector in the national economy any is still very low due to the negligible size of the corporate sector. The incorporation if the securities Board Nepal (SEBON) under the Securities Exchange Act 1993 and conversion of SEC into the Nepal stock Exchange (NEPSE) under the government policy of capital market reform has greatly contributed to the

development of primary as well as secondary market of the corporate securities. Security Exchange center was established with an objective of facilitating and permitting the growth of capital market. Before conversion into stock exchange it was the only capital market institution undertaking job of brokering, underwriting. Managing public issue, market making for government bonds and other financial services.

Nepal government under a programme initiated to reform capital markets, converted security exchange center into Nepal stock exchange in 1993. NEPSE is a non profit organization, operating under security Exchange Act 1983. The basic objective of NEPSE is to impart free marketability and liquidity to the government and corporate securities by facilitating transactions in its trading floor through members, market intermediaries, such as brokers, dealers market makers etc. NEPSE open its trading floor on 13th January 1994.

Nepal stock exchange limited is the only stock exchange in the country. The governing Board of NEPSE comprises 9 members representing various Government and non-government sectors. The nine member board includes. Ministry of finance security Board, Nepal Rastra Bank (NIDC) representatives of license holder stock broker, general Manager of NEPSE.

Nepal government, Nepal Rastra Bank, NIDC and its members are the shareholders of NEPSE and their ownership in NEPSE are 58.67%, 34.60%, 6.12% and 0.62% respectively (Annual report, NEPSE 2061/62).

A total of 34 public limited companies raised funds amounting to Rs. 2,295.5 million by floating securities in the fiscal year 2006/07. In the fiscal year 2005/06, a total of 29 public limited companies had raised funds amounting to Rs. 2,443.3 million. In the fiscal year 2006/07, the total number of listed companies remained 135 as equal to 135 listed companies in the fiscal year 2005/06 due to the listing of additional 12 companies and delisting of 12 listed companies. In the fiscal year 2006/07, the turnover increased by 142.22 percent to be Rs. 8,360.1 million as compared to turnover of Rs. 3,451.4 million in the fiscal year 2005/06. In the fiscal year 2006/07, the market capitalization of the listed companies increased by 92.53 percent to be Rs. 1,86,301.3 million as compared to the market capitalization of Rs. 96,763.7 million in the fiscal year 2005/06. In the fiscal year 2006/07, the preliminary estimate of the contribution of market capitalization to the GDP is 27.78 percent.

1.1.2 General Economic Review of Nepal

Nepal's economy is in developing phase. So in order to speed up this phase of economic development, financial sectors may have crucial role, as they accumulate scattered savings for capital formulation. The public investors are interested to invest their money in the common stocks of financial institutions. As a result, such institutions shares are being traded among the investors in the secondary market, in larger volume everyday. Securities Board Nepal and NEPSE are the main bodies to make the stock market as competent and efficient as possible. Actual efforts have been made to develop the Nepalese stock market with the promulgation of

securities transaction Act 1983, which was subjected to frequent amendments.

Empirical studies in many developing countries suggest that every nation has a structure of financial system that exists side by side with its real infrastructure and the differences in the nation financial system have profound impact upon the back of economic growth of nation. An evidence shows that financial developments of a nation overwhelm affects its economic growth.

In the fiscal year 2006/07, GDP at current basic price is estimated to increase by 11.08 percent to Rs. 6,70,588.7 million, which had increased by 10.06 percent to Rs. 6,03,672.6 million in the fiscal year 2005/06. In the fiscal year 2006/07, gross national income at current price increased by 11.13 percent to Rs. 7,23,921.2 million, which had increased by 10.22 percent to Rs. 6,51,426.1 million in the fiscal year 2005/06. In the fiscal year 2006/07, Gross National saving at current price is estimated to increase by 12.75 percent to Rs. 2,05,449.0 million, which had increased by 8.82 percent to Rs. 1,82,216.5 million during the fiscal year 2005/06. In the fiscal year 2006/07, gross domestic saving is estimated to go up by a high rate of 31.68 percent to Rs. 67,306.4 million, which had fallen by a high rate of 24.95 percent to Rs. 51,115.3 million in the fiscal year 2005/06. In the fiscal year 2006/07, total consumption of current price is estimated to increase by 9.54 percent to Rs. 6,52,170.3 million, which had increased by 14.29 percent to Rs. 5,95,355.3 million in the fiscal year 2005/06. Of the foreign trade, it is estimated to decrease by a high rate of 33.90 percent to Rs. 1,54,676.8 million in the fiscal year 2006/07. which had increased by 12.41 percent to Rs. 2,34,014.4 million in

the fiscal year 2005/06 of the total foreign trade, the trade to India is estimated to decrease by a high rate of 32.44 percent to Rs 99,887.9 million in fiscal year 2006/07, which had increased by 15.88 percent to 1,47,857.8 million in the fiscal year 2005/06. The trade to other countries in the fiscal year 2006/07 is estimated to decrease by a high rate of 36.41 percent to Rs. 54,788.9 million, which had increased by 6.91 percent to Rs. 86,156.6 million in the fiscal year 2005/06. In the fiscal year 2006/07, due to the high growth rate of the total import as compared to total export despite the increase of both export and import, the net export of goods and services is estimated to decrease by 1.54 percent to be a negative amount of Rs. 1,15,077.8 million. Such trade deficit had increased by a high rate of 33.12 percent to be a negative amount of Rs. 1,16,875.9 million in the fiscal year 2005/06. In the fiscal year 2006/07, the total capital formation is estimated to increase by 8.6 percent to be Rs. 1,82,384.2 million, which had increased by 7.8 percent to be Rs. 1,67,991.2 million in the fiscal year 2005/06. In the fiscal year 2006/07, total fixed capital formation is estimated to increase by 8.0 percent to be Rs 1,46,197.8 million, which had increased by 15.2 percent to be Rs. 1,35,375.3 million in the fiscal year 2005/06. In the fiscal year 2006/07, the growth rate of total fixed capital formation of the public sector is estimated to be 6.3 percent, which had increased by 4.0 percent in the fiscal year 2005/06. Similarly, in the fiscal year 2006/07, growth rate of total fixed capital formation of the private sector is estimated to be 8.2 percent, which had increased by 17.1 percent in the fiscal year 2005/06.

1.2 Statement of the Problem

This study focuses on the relationship between stock market and economic growth. Both theoretically and statistically, utmost attempt is carried to fight against the accusation, which describes stock market as casinos. Considerable debate exists on the question. Is financial system important for economic growth? Stock Market is very important institution which plays a crucial role for the economic development of the nation. The research focus the importance once of financial system in mobilizing saving, formation of capital, expansion of corporation and hence economic development.

Do stock markets affect overall economic development? Although some analysts view stock markets as "casinos" that have little positive impact on economic growth, recent evidence suggests that stock markets can give a big boost to economic development.

Stock markets may affect economic activity through the creation of liquidity. Many profitable investments require a long-term commitment of capital, but investors are often reluctant to relinquish control of their savings for long periods. Liquid equity markets make investment less risky--and more attractive--because they allow savers to acquire an asset--equity--and to sell it quickly and cheaply if they need access to their savings or want to alter their portfolios. At the same time, companies enjoy permanent access to capital raised through equity issues. By facilitating longer-term, more profitable investments, liquid markets improve the allocation of capital and enhance prospects for long-term

economic growth. Further, by making investment less risky and more profitable, stock market liquidity can also lead to more investment. Put succinctly, investors will come if they can leave.

There are alternative views about the effect of liquidity on long-term economic growth, however, Some analysts argue that very liquid markets encourage investor myopia. Because they make it easy for dissatisfied investors to sell quickly, liquid markets may weaken investors' commitment and reduce investors' incentives to exert corporate control by overseeing managers and monitoring firm performance and potential. According to this view, enhanced stock market liquidity may actually hurt economic growth.

The empirical evidence, however, strongly supports the belief that greater stock market liquidity boosts--or at least precedes--economic growth (<http://www.worldbank.org/fandd>).

So, the study focuses of the relationship between stock market development and economic growth in context of Nepal.

Concisely the study covers the following areas:

- What is the relationship between stock market and economic growth?
- How can stock market influence the rate of economic growth?
- Does efficient stock market mobilize the saving effectively and help the optimum allocation of saving.
- Do stock markets affect overall economic growth?

1.3 Objective of the Study

The principal objective is to analyze the accusation, which describes the stock market as the casino and present the different theoretical aspects and statistical tools in an attempt to prove the relationship between stock market and economic growth. In other words different economic indicators are used and analyzed to visualize the relationship between stock market and economic growth.

Specifically these are the main objectives of the study:

-) To measure the relationship between stock market and economic growth.
-) To analyze the development of stocks market can accelerate the rate of economic growth.
-) To examine the role of stock market in saving channelization and capital mobilization, hence economic growth.

1.4 Limitation of the Study

This study will have some limitations. Basically the study is done far partial fulfillment of master of Business studies. Time constraints, financial problem and lack of research experience will be the primary limitations and the study is based on secondary data and only seven years data will be used for the study.

1.5 Organization of the Study

The whole study will be divided into following five chapters.

Chapter I:

First chapter deals with introduction. This includes background of the Study, statement of problem, objectives of study, limitation of study and Organization of study.

Chapter II:

Second chapter deals with the review of available literature .It Includes review of previous unpublished master degree thesis, books, journal and articles etc.

Chapter III:

Third chapter explains the research methodology used in the study, It includes research design, nature and sources of data, population and sampling, Method of data analysis and research variables etc.

Chapter IV:

Fourth chapter is the main part of this study will include presentation and analysis of data.

Chapter V:

The last chapter summarizes the main conclusion that flows from the Study and offers suggestion for further improvement and conclusion of the study.

A bibliography and appendices will be attached at the end of the study.

CHAPTER - II

REVIEW OF LITERATURE

Review of literature means reviewing research studies or other relevant propositions in the related area of the study so that all the past studies, their conclusions and deficiencies may be known and further research can be conducted. The main reason for a full review of research in the past is to know the outcomes of those investigations in area where similar concepts and methodologies have been used successfully.

The first part of the chapter deals with the theoretical framework and the second part is concerned with review of empirical works.

2.1 Theoretical Framework

Considerable debate exists on the relationships between the financial system and economic growth. Stock market is supposed to increase savings and efficiently allocate capital to productive investments, which leads to an increase in the rate of economic growth. Stock markets contribute to mobilization of domestic savings by enhancing the set of financial instruments available to savers to diversify their portfolios. In doing so, they provide an importance source of investment capital at relatively low cost (Dailami and Actin, 1990). Stock market helps investors to cope with liquidity risk by allowing those who receive a liquidity stock to sell their share to other investors. The result is that capital is not prematurely removed from firms to satisfy short term liquidity

needs. Moreover, stock markets play a key role in allocating capital to the corporate sector which will have a real effect on the economy in aggregate.

In the survey of development economics, Stern (1989) does not mention the role of the financial system in economic growth, at the end of his review Stern lists various issues that he did not have sufficient space to cover. Finance is not even included in the list of omitted topics. Similarly, a recent collection of essays by the pioneers of development economics, including three Nobel prize winners does not describe the role of the financial system in economic growth (Meier & Seers 1984).

Clearly, according to these economists, the financial system plays an inconsequential role in economic development. Furthermore, 1995 Nobel Prize winner Robert Lucas argues that economists frequently exaggerate the role of financial factors in economic development (Lucas 1980). Such a view is not limited to the recent past; Robinson (1952) argues that the financial system does not spur economic growth; financial development simply responds to developments in the real sector. thus, many influential economists give a very minor role if any, to the financial system in economic growth.

In contrast, a prominent line of research stress the role of the financial system in economic growth Bagehot (1962), Schumpeter (1932), Cameron and other (1967), Goldsmith (1969), and MC Kinnon (1973) provide conceptual descriptions of how and empirical examples of when the financial system affects economic growth. Building on these seminal contributions, Gelb (1989), Ghani (1992), King Levine (1993a, 1993b) and De Gregorion and

Guidotti (1995) show that measures of banking development are strongly correlated with economic growth in a broad cross section of countries. According to this vein of research, a well-functioning system is critical for sustained economic growth.

The following figure presents the theoretical approach to finance and growth (Levine, 1997)

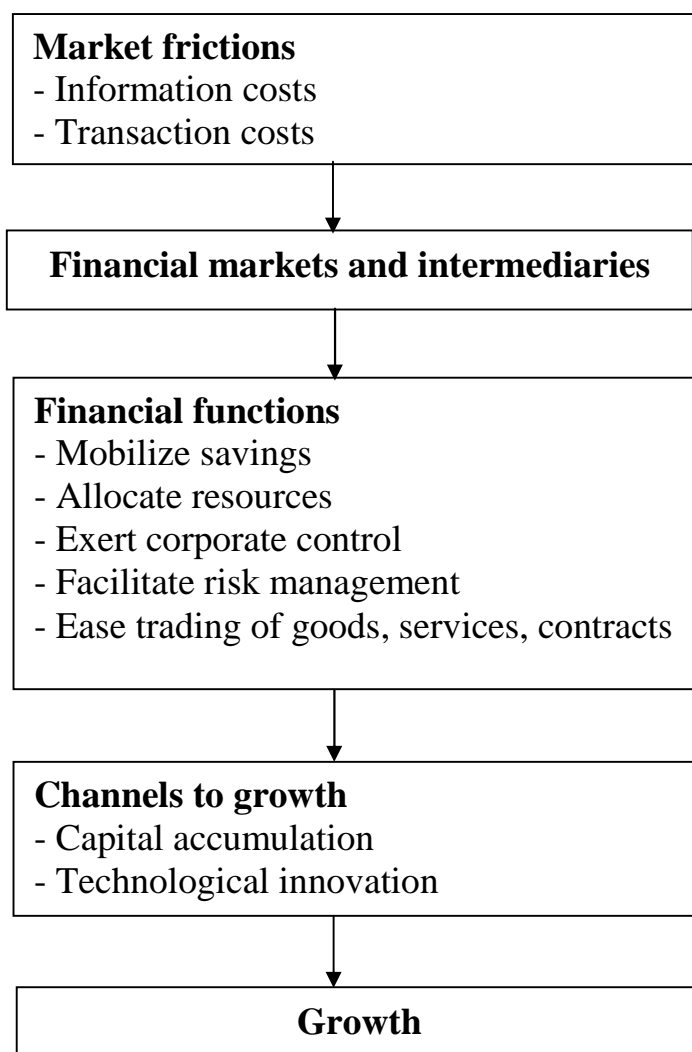


Figure 2.1: Financial Markets and Growth

In principle stock market is expected to accelerate economic growth by providing boost to domestic savings and increasing the quantity and quality of the investment (Singh, 1997). The stock

market is expected to encourage savings by providing individuals with an additional financial instrument that better meet their risk preferences and liquidity needs. Better saving mobilization may increase the saving rate (Levine and Zervos, 1998). Stock markets also provide an avenue for growing companies to raise capital at lower cost. In addition, companies in countries with developed stock markets are less dependent on bank financing, which can reduce the risk of credit crunch. Stock markets therefore are able to positively influence economic growth through encouraging savings amongst individuals and providing avenues for firm financing.

The stock market is supposed to ensure through the takeover mechanism that past investments are also most efficiently used. Theoretically, the threat of takeover is expected to provide management with an incentive to maximize firm value. The presumption is that, if management does not maximize the firm value, another economic agent may take control of the firm, replace management and reap the gains from the more efficient firm. Thus, a free market in corporate control, by providing financial discipline, is expected to provide the best guarantee of efficiency in the use of assets. Similarly, the ability to effect changes in the management of listed companies is expected to ensure that managerial resources are used efficiently (Kumar, 1984).

Efficient stock markets may also reduce the cost of information. They may do so through the generation and dissemination of firms' specific information that efficient stock price reveal. Stock markets are efficient if prices incorporate all available information. Reducing the cost of acquiring information

is expected to facilitate and improve the acquisition of information about investment opportunities and thereby improves resource allocation. Stock prices determined in exchanges and other publicly available information may help investor make better investment decisions and thereby ensure better allocation of funds among corporations and as a result a higher rate of economic growth.

Stock market liquidity is expected to reduce the downside risk and costs of investing in projects that do not pay off for a long time. With liquid market, the initial investors do not lose access to their savings for the duration of the investment project because they can easily, quickly and cheaply, sell their stake in the company (Bencivenga and Smith, 1991). Thus, more liquid stock markets could ease investment in long-term, potentially more profitable projects, thereby improving the allocation of capital and enhancing prospects for long-term growth. It is important to point out, however, that, theory is ambiguous about the exact impacts of greater stock market liquidity on economic growth. By reducing the need for precautionary savings, increased stock market liquidity may have an adverse effect on the rate of economic growth.

Critics of the stock market argue that, stock market prices do not accurately reflect the underlying fundamentals when speculative bubbles emerge in the market (Binswanger, 1999). In such situations, prices on stock market are not simply determined by discounting the expected future cash flows, which according to the efficient market hypothesis should reflect all currently available information about fundamentals. Under this condition,

the stock market develops its own speculative growth dynamics, which may be guided by irrational behaviour. This irrationality is expected to adversely affect the real sector of the economy as it is in danger of becoming the by-product of a casino.

Critics further argue that stock market liquidity may negatively influence the corporate governance because very liquid stock market may encourage investor myopia. Since investors can easily sell their shares, more liquid stock markets may weaken investors'.

Commitment and incentive to exert corporate control. In other words, instant stock market liquidity may discourage investors from having long-term commitment with firms whose shares they own and therefore create potential corporate governance problem with serious ramifications for economic growth (Bhide, 1994).

Critics also point out that the actual operation of the pricing and takeover mechanism in well functioning stock markets lead to short term and lower rates of long term investment. It also generates perverse incentives, rewarding managers for their success in financial engineering rather than creating new wealth through organic growth (Singh, 1997). This is because prices react very quickly to a variety of information influencing expectations on financial markets.

Therefore, prices on the stock market tend to be highly volatile and enable profits within short periods. Moreover, because the stock market undervalues long-term investment, managers are not encouraged to undertake long-term investments since their

activities are judged by the performance of a company's financial assets, which may harm long run prospects of companies (Binswanger, 1999). In addition, empirical evidence shows that the takeover mechanism does not perform a disciplinary function and that competitive selection in the market for corporate control takes place much more on the basis of size rather than performance (Singh, 1971). Therefore, a large inefficient firm has a higher chance of survival than a small relatively efficient firm.

The study on industrial production and prices of common stock, 1953-1975 has revealed that the stock market and economic activity move in similar cyclical patterns, this fundamental relationship shows that stock prices are meaningful in the sense of reflecting real economic variables (Barry Bosworth, 1971).

The indicators of stock market development reflect the development of an economy. It is important to predict the course of the national economy because economic activity affects corporate profits, investor attitudes and expectations and ultimately security prices. The key for the analyst is that overall economic activity manifests itself in the behaviour of stock price or stock market. This linkage between economic activity and the stock market is critical (Fisher and Jordan, 1990).

Schwartz found in third joint study that government bonds, treasury bills and real estate compensate somewhat for unexpected inflation. The surprising result, however, is that common stock returns are negatively correlated with both expected and unexpected inflation. Rather than being compensated for inflation, investors on common stock have been penalized (Schwartz, 1975).

I) Indicators of Stock Market Development

(a) Size

Market capitalization measures the size of stock market and equals the value of listed domestic shares on domestic exchanges. Although large markets do not necessarily function effectively and taxes may distort incentives to list on the exchange, many observers use capitalization as an indicator of market development.

(b) Liquidity Indicators

Turnover and value traded are two related measures of market liquidity.

First, turnover equals the value of the trades of domestic shares on domestic exchange divided by the value of listed domestic shares. Turnover measures the volume of domestic equities traded on domestic exchanges relative to the size of the market. High turnover is often used as an indicator of low transaction costs. Importantly, a large stock market is not necessarily a liquid market: a large but inactive market will have large capitalization but small turnover.

The second measure of market liquidity is value traded, which equals the value of the trades of domestic shares on domestic exchange divided by GDP while not a direct measure of trading costs or the uncertainty associated with trading on a particular exchange, theoretical models of stock market liquidity and economic growth directly motivate value traded. Value traded measures trading volume as a share of national output and should therefore positively reflect liquidity on an economy wide basis.

Value traded may be importantly different from turnover. While value traded captures trading relative to the size of the economy, turnover measures trading relative to the size of the stock market. Thus, a small and liquid market will have high turnover, but small valued traded.

(c) Volatility

This indicator is a twelve month, rolling standard deviation estimate based on market returns. Greater volatility is not necessarily a sign of more or less stock market development. Indeed, high volatility could be an indicator of development, so far as revolution of information implies volatility in a well functioning market.

(d) Concentration

In some countries a few companies dominate the market. High concentration is not desirable because it may adversely affect the liquidity of the market. To measure the degree of market concentration, share market capitalization accounted for by ten largest stocks is computed and called concentration. In more developed market the concentration is low whereas in less-developed market concentration may be quite large.

II) Indicators of Economic Growth

(a) Real per Capita GDP Growth

Economic growth can be most simply defined as the increase in the economy's output overtime. The best measure of economy's output is reads GDP or GDP in constant prices. The reason for

specifying constant price is of course, the changes over the years in GDP in current prices are the result of a mixture of price changes and output changes. Therefore, if growth is defined as the expansion of the economy's output and if we are to use GDP as a measure of growth, then price changes must be removed from GDP as in the constant price series. Furthermore; if the interest is not merely in how much the economy aggregate output expands overtime but in how much the amount of output produced per person expands overtime, real GDP must also be corrected for population increases.

(b) Physical Capital Stock Growth

Real investment adds to nation's physical stock of capital and increase employment. According to Keynes, "Investment means real investment. It means an addition to nation's physical stock of capital. It creates employment and generates income". As for example, the buildings of new factories new companies are real investment. Capital is defined as buildings, equipments and inventories and sometimes intangibles such as knowledge and technique, which are both outputs of the productive process and inputs to future production.

(c) Gross Private Saving

As a matter of accounting, investment has to be financed by saving from either domestic or foreign sources. In only a few high-investment countries has foreign savings accounted for more than 20% of investment over long stretch of time. In an economy investing, say 30% of its GDP, relying on foreign saving beyond this limit would imply running a persistent current account deficit

in excess of 6% of GDP, which would be courting disaster. Hence the critical importance of domestic saving in economic growth follows from a few straight forward facts of economic life (Rodrik, 1996). Individuals as well as business institutions define private saving as the surplus of income over consumption. Private saving is of immense importance for economic growth because it helps in increasing investment and capital stock growth.

(d) Productivity Growth

When it comes to measure the source of growth and draw the economic policy conclusions, economists rely on growth accounting. According to this approach, per capita growth is explained by two sources; capital accumulation and total factor productivity (Bebczuk, 2002).

The relation between output and inputs can be expressed as:

Total production = efficiency x volume of combined inputs = TFP x volume of combined inputs.

In other words:

$$Q = A_t F (K_t, L_t)$$

where,

Q = output (value added)

K = value of service rendered by capital

L = value of service rendered by labour

A = level of efficiency

t = time

2.2 Review of Empirical Works

Empirical evidences suggest that well functioning stock markets can promote economic development by fuelling the engine of growth through faster capital accumulation and by turning it through better resource allocation.

A large literature, dating at least as far back as Joseph A. Schumpeter (1911), emphasized the positive influence of the development of a country's financial sector to the level and the rate of growth of its per capital income.

Atje and Jovanovic (1993) presented a cross country study of stock markets and economic growth. They found a significant correlation between growth over the period 1980 –1988 and the value of stock market trading divided by G D P for 40 countries. Demirgüç–Kunt and Maksimovic (1996) show that firms in countries with better functioning banks and equity markets grow faster than predicted by individual firm characteristics. Valerie R. Bencivenga, et. al, (1995) derive models where more liquid stock markets – markets where it is less expensive to trade equities – reduce the disincentives to investing in long duration projects because investors can easily sell their stake, in the project if they need their savings before the project matures.

The most important contributions are made by Levine, Zervos and Demirgüç–Kunt. Levine's (1991) Study examined a mode in which liquidity and productivity risk-elicited the creation of a stock market and studied how the resulting stock market changes the incentives of investors in ways that alter steady state growth

rates. He found that, stock market accelerate growth by facilitating the ability to trade ownership of firms without disrupting the productive process occurring within firms, and allowing investors to hold diversified portfolios. Tax policy in his model influences growth directly by altering investment incentives and indirectly by affecting the functioning of financial markets in ways that alter investment incentives. In the model, growth only occurs if society invests and maintains a sufficient amount of capital in firms that augment human capital and technology in the process of production. The more resources allocated to firms, the more rapid will be economic growth. An externality in firm's production implies that the economy grows faster when investors do not prematurely liquidate firm capital to satisfy short term liquidity needs. In the model, without stock markets, liquidity shocks force some agents to remove capital from firms prematurely and receive a very lone liquidation return. So stock market accelerate growth directly by elimination premature capital liquidation which increases firm productivity and indirectly reducing liquidity risk which encourage firm investment.

Bencivega, Smith and Starr (1996) studied about how is volume of activities in financial markets is related to the level or efficiency of an economy's production activities. They pursued the relation between an economy's efficiency in performing financial transactions and its efficiency in performing physical production. They have also discussed how an economy's volume of financial transactions and its level. They have also analyzed why the connections between the development of an economy's financial markets and its level of real development, although close, are not

perfect. Studying open these propositions, they found that, as the efficiency of an economy's capital markets increases [i.e. as transactions costs fall] the general effect is to cause agents to make longer term, and hence more transactions intensive, investments. The result is higher rate of return on saving as well as a change in its composition. These general equilibrium effects of the composition of saving cause agents to hold more of their wealth in the form of existing equity claims and to invest less in the initiation of new capital investments. As a result, a reduction in the resources losses suffered in the transactions process can cause the capital stock either to rise or to fall. However, a general point that bears emphasis is that a reduction in transaction costs will typically alter the composition of savings and investments, and that any analysis of the consequences of such changes must take these effects into accounts.

Boyd and Smith (1996) developed a model in which capital is produced by investors who make use of two technologies. One, yields a high expected return but has the advantage of full public observability. Investors must make a decision regarding how heavily they will use each technology. This decision depends, among other things, on the relative price between capital and resources used in state verification. As an economy develops, investors will perceive a relative cost of monitoring that rises over time. As a result, under the condition typically expected to prevail, less use will be made of the unobservable return, and more use will be made of the observable return technology which is associated with equity .it is also typically expected the ratio of equity finance to rise as an economy develops. Moreover, it is possible to produce

parameter values such that at low levels of development there will be no use of equity markets. Equity markets actively can be observed for such parameters only once the economy attains a critical level of real development. It is also the case that the quantity of resources consumed by monitoring declines as an economy develops. This provides a sense in which the endogenous evolution of debt and equity markets in the development process provides an economy with a more, efficient set of capital markets. Finally their analysis provides a sense in which debt and equity markets function as complements rather than substitutes. A case against the importance of equity markets in financing real development is often made on the basis that existing credit markets are close substitutes.

Claessens (1996) found that equity portfolio flows could benefit developing countries by diversifying the sources of external finance, increasing the risk bearing by investors, reducing the cost of capital, improving incentives for managing the investment process, assisting in the development of domestic capital markets and enhancing the mobilization of domestic resources. Empirical evidence to date confirms some of these benefits. Several studies have found that emerging markets were not well integrated until the early 1980s. the corollary to the lack of integration has been that these markets have provided attractive investment and diversification opportunities for investors in industrial countries, which has most likely motivated the larger inflows of foreign equity during the past few years. So, as a result of equity inflows and opening up, it is found that emerging markets are increasing integrated with world markets and this has

brought their costs of capital more in line with those in world markets. To further reap these benefits, developing countries should [continue to] lower barriers to foreign equity flows.

Demirgüç-Kunt and Maksimovic (1996) empirically explored the effect of financial market development, particularly stock market development on the financial choices of firms. They used aggregate firm – level data for a sample of 30 countries from 1980 to 1991. They measured stock market development by the ratio of total value traded to G D P, and the ratio of total value of shares traded to market capitalization. Taking all the countries in the sample together, they found that there is a statically significant negative correlation between stock market development, as measured by market capitalization to G D P, and the ratios of both long term and short term debt to total equity of firms. There is also a statistically significant positive relationship between the size of the banking sector and leverage. The negative linear relationship between leverage and stock market development loses statistical significance when they controlled for variables that have been identified in the corporate finance literature as determining firm's financial structure. These findings suggest that the development of stock market initially affects directly the financial policies of only the larger firms. This may be because diversification of ownership and aggregation of information provided by the development of stock markets initially affects directly the financial policies of only the larger firms. This may be because diversification of ownership and aggregation of information provided by the development of stock markets initially benefits the larger firms more because of the fixed issuance. Costs and trader's costs of

information acquisition. Moreover, these firms increase leverage. Thus, initially at least an important role of the stock market is to aggregation of information and there by induce lenders to extend credit to firms whose stock is traded.

Levine and Zervos (1996) empirically evaluate the relationship between stock market development and long run growth. They found a strong correlation between overalls stock market development and long run economic growth, after controlling for the initial level of GDP per capita, initial investment in human capital, political instability and measures of monetary, fiscal and exchange rate policy, stock market development remains positively and significantly correlated with long – run economic growth. However, their study was based on cross-country growth regressions that suffer from measurement, statistical and conceptual problems. In terms of measurement problems, country officials sometimes define collect and measure variables inconsistently across countries. In terms of statistical problems, regression analysis assumes that the observations are drawn from the same population; yet vastly different countries appear in cross–country regressions. These measurements, statistical and conceptual problems, however, should not detract from the benefits that can accrue from cross- country comparisons. So, their study suggests that stock market development is positively associated with economic growth. Moreover, the instrumental variables procedures indicate a strong connection between the predetermined component of stock market development and long- run growth.

Newton (1997) also studied the relationship between stock market and the economy. He found that stock market leads the economy by one to two quarters. Rising stock markets appear to result in increased sales through increased consumer borrowing. When sales rise, the ratio of business inventories to sales declines. Change in stock markets also found to be affecting the corporate capital expenditure, through new stock issuance. Therefore, smaller companies benefit from increased stock prices by more easily raising funds. He also found that the stock market also caused changes in federal tax revenues through the capital gain taxes, which allows the government to change spending, borrowing and tax rates.

Rajan and Zingales (1998) examined whether financial development facilitates economic growth by scrutinizing one rationale for such a relationship: that financial development reduces the costs of external finance of firms. They have developed a new methodology in their paper to investigate whether financial sector development has an influence on industrial growth. Apart from the methodological contribution, they had the following findings. First, their research suggests that financial development has a substantial supportive influence on the rate of economic growth and this works, at least partially, by reducing the cost of external finance to financially dependent firms. Financial development may play a particularly beneficial role in the rise of new firms. If these firms are disproportionately the source of ideas, financial development can enhance innovation, and thus enhance growth in indirect ways, second, their paper provides fresh evidence that financial markets imperfections have an impact on

investment and growth finally, they found that the existence of a well – developed market in a certain country represents a source of comparative advantage for that country in industries that are more dependent on external finance. Similarly, the costs imposed by a lack of financial development will favour incumbent firms over new entrants. Therefore, the level of financial development can also be a factor in determining the size composition of an industry as well as its concentration.

Guglielmo, Honell's and Saliman (2002) investigated the important role that well functioning stock markets can play in promoting long–run economic growth. They included seven countries in their study. With the use of an appropriate econometric technique, they first performed causality tests in a bi-variate context, looking for casual links between the commonly used proxies for financial development (domestic credit and prevalence of bank deposits) and economic growth. On that basis they found little evidence of causality. Then they tested for causality in a tri-variate context, in order to model the dynamic interactions between financial development, stock market development and economic growth. Inclusion of the stock market changed the results dramatically. Causality between financial development and economic growth was found, in five cases out of seven but the measure of financial development which produces the results in stock market development. It was clearly found in the bi-variate system inference was affected by the omission of a stock market variable. In that case the causality was found only in two cases, they, thus, concluded that the development of stock markets

is necessary to achieve full efficiency of capital allocation if the government is to liberalize the financial system.

Demirgüç–Kunt and Levine (1996) have also studied the relationship between stock markets, corporate finance and economic growth. Their research focused on four issues, first, it compared liquidity, concentration, volatility, institutional development and international integration across forty–four industrial and developing countries from 1976 to 1993. Second the research investigated the relationship between stock markets and financial intermediaries. Third, their research analyzed the relationship between stock market development and economic growth. And, fourth, the research studied the ties between stock market development and financing choices of firms. They found that well developed stock markets can help align the interests of owners and managers and there by spur efficient resource allocation and economic growth. They also found that stock markets and other financial institutions are generally complements, they grow simultaneously.

In their next paper Demirgüç-Kunt and Levine studied about stock market development and financial intermediaries in some detail. Their article collected and summarized information on a wide assortment of indicators of stock market and financial intermediary development. To describe different characteristics of equity market development, they used measures of stock market size liquidity, integration with world markets, volatility, concentration and features of the regulatory system. To describe the development and structure of financial intermediaries, they used measures of over all size of the financial intermediary sector,

the allocation of credit, the spread interest rates and the size of the particular type of financial intermediaries, such as banks, insurance companies and pension funds. Later on they form various types of indicators and on the basis of such indicators categorize the countries market as most developed, most underdeveloped, highly developed, underdeveloped and emerging markets.

King and Levine (1993a, 1993b, 1993c) study 80 countries over the period 1960–1989 systematically, controlling for other factors affecting long run growth, examine the capital accumulation and productivity growth channels, construct additional measures of the level of financial development and analyze whether the level of financial development predicts long – run economic growth, capital accumulation and productivity growth. They use four measures of the level of financial development. The first measure, depth, measures the size of financial intermediaries and equals liquid liabilities of the financial system (currency plus demand and interest bearing liabilities of banks and non-bank financial intermediaries) divided by G D P. The second measure, bank, measures the degree to which the central bank versus commercial banks are allocating credit. Bank equals the ratio of bank credit divided by bank credit plus central bank domestic assets. The third measure, private, equals the ratio of credit allocated to private enterprises to total domestic credit (excluding credit to banks). The fourth measure, privy equals credit to private enterprises divided by GDP king and Levine (1993b, 1993c) then assess the strength of the empirical relationship between each of these four indicators of the level of financial development averaged over the 1960-1989 period "F", and three growth indicators also averaged over 1960-1989 period, "G". The three growth indicators are as follows: (i) the average

rate of real per capital GDP growth, (ii) the average rate of growth in the capital stock per person and (iii) total productivity growth which is a sale residual defined as real per capital GDP growth minus (0.3) times the growth rate of capital per person. In other words, if "F (i)" represents the value of 1st indicators of financial development and "G (i)" represents the value the "ith" growth indicators and "x" represents a matrix of conditioning information to control for other factors associated with economic growth (e.g. income per capital, education, political stability, indicators of exchange rates, trade, fiscal and monetary policy) then the following regression on cross section of 77 countries come into existence:

The summary is presented in table 2.1:

Table 2.1: Growth and contemporaneous financial indicators, 1960 -1989

Dependent variable	Depth	Bank	Private	Privy
Real per capital G.D.P growth	0.0024*** [0.007]	0.032*** [0.005]	0.034*** [0.002]	0.032*** [0.002]
R ²	0.5	0.5	0.52	0.52
Real per capital stock growth	0.022*** [0.001]	0.022** [0.012]	0.02** [0.011]	0.025*** [0.001]
R ²	0.65	0.62	0.62	0.64
Productivity growth	0.018** [0.026]	0.026** [0.010]	0.027*** [0.003]	0.025*** [0.006]
R ²	0.42	0.43	0.45	0.44

* significant at the 0.10 level, ** significant at 0.05 level, *** significant at 0.01 level (P values in brackets)

Observation-71

There is a strong positive relationship between each of the four financial development indicators, “F (i)” and the three growth indicators “G (i)” long run real per capital growth rates, capital accumulation and productivity growth. So, the results suggest that the initial level of financial development is a good predictor of subsequent rates of economic growth, physical capital accumulation and economic efficiency improvements over the next 30 years even after controlling for income, education, political stability and measures of monetary, trade and fiscal policy.

By extending King and Levine (1993a) study Levine and Zervos (1998) have conducted another significant research study. This particular study examines the empirical relationship between various measures of stock market development, banking development and long-run economic growth. They found that, even after controlling for many factors associated with growth, stock market liquidity and banking development are both positively and robustly correlated with contemporaneous and future rates of economic growth, capital accumulation and productivity growth. Furthermore, since measures of stock market liquidity and banking development both enter the growth regressions significantly, the findings suggest that banks provide different financial services from those provided by stock market. They, therefore, conclude that bank and stock markets should be developed simultaneously.

Review of Major Nepalese Studies

In Nepalese context, following studies are of some importance while studying about the relationship between the stock market and economic growth.

Mahat (1981) examines the state of capital markets and the development of financial institutions in the country. The growth of the financial institutions has been examined both in terms of the growth in the number of financial institutions and in terms of the growth in their assets. Their role in the national economy has been evaluated in terms of some indicators such as total financial institutions issue ratio and assets to GDP ratio.

Shrestha (1982) conducted a study on the role of securities marketing centre in the economic development of Nepal. The study was conducted with the objectives to examine the role played by securities marketing center in promoting Nepalese security. This study covered the period of 4 years. He has concluded that the securities marketing center is very poor in term of the primary market and facing the problem of demand and supply. Investors are influenced by the value of share and dividend policy of the company while buying or selling the securities.

Bhattarai (1985) carried out a study of impact of securities. Exchange center on capital mobilization with special reference to the government securities and share market in Nepal. The objectives of this study were to evaluate the significant features of government securities market and to find out its contribution to securities exchange center. He concluded that securities exchange center has mobilized long term capital required to the new companies for launch the development activities in the country to

provide the investment opportunities to investor through the primary market.

Wagle (2002) studies the development of stock markets in terms of its size (market capitalization) annual turnover and also studies about the ratio of Market Capitalization to GDP and annual turnover to GDP. But the study has been fairly descriptive regarding the factual information.

Shrestha (2002) studies about the Nepalese stock market efficiency, particularly the efficiency of the banking sector of the market. She concludes that NEPSE is operating in its weak form of efficiency. This result shows that, NEPSE is in its early stage of development to become a well functioning stock market.

Yadav (2002), Poudyal (1988a) Rajbanshi (1987) an Sharma (1996) have focused their study on the trends of saving, investment and capital formation in Nepal. But very little has been said or done about the \Nepalese security markets. Shrestha, however has observed that securities transactions in Nepal has increased significantly for last few years. This marks the positive sign for the development and growth of capital market.

Paneru (2003) studies about stock market and economic growth. He focused the study on the importance of development stock market in overall economic growth. He found that the size of primer as well secondary market has the positive, influence on the overall size of the economic. He further states that increasing issue of equity by firms indicate that the investors are willing to take part in the investment process and thus drive the economic force

and strongly performing stock market helps prevail the optimism in the overall economy.

Sindurkar (2004) studies about the relationship between stock market and economic growth, particularly at the role of stock market in economic growth. He used only correlation analysis and time series analysis in the study. He concludes that the significant relationship does not exist between GDP and NEPSE index. However, the relationship of GDP with market capitalization and number of listed companies is significant. The correlation between economic growth rate and turnover velocity is unexpected and insignificant.

2.3 Conclusions

The reviews of after mentioned works makes it clear that the development of the stock market is a necessary factor for modern day economy. Therefore, it is obvious that stock markets be well-functioning for the sustainable economic development. Firms need capital to grow and finance their investment needs. It requires more efficient way of raising funds. If the investment is required for new technology for the projects with long-gestation period, premature liquidation of the capital is always on cards without the existence of liquid and well-functioning stock markets. Thus, it assumes a significant role in present day economics. Because of its primary stage of growth and stabilization, the contribution of Nepalese stock market to the economy is yet to be recognized. Though, there has been a lot of studies explaining on the relationship between stock market and economic growth in other contexts, such a study is still due to come in our context. This study aims to fill the gap by assessing the contribution of NEPSE and primary stock market to the overall economic growth of the economy.

CHAPTER - III

RESEARCH METHODOLOGY

Research methodology is a process of arriving to the solution of problem through planned and systematic dealing with the collection, analysis and interpretation of the facts and figures. Research Methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objectives in view. It tries to make clear view of method and process adopted in the entire aspect of the study. It is known as a path from which we can systematically solve the research problem. This research tries to perform a well-designed quantitative and qualitative research in a very clear and direct way using both financial and statistical tools. Detail research methods are described in the following headings.

3.1 Research Design

Research design refers to the entire process of planning and carrying out a research study. To carry out the study descriptive, co-relational and analytical research design has been employed. For the purpose of description and conceptualization, descriptive and analytical research design is used. However, for the purpose of analyzing the relationship between the variables of stock market development and economic growth, co-relational research design is used. It is also chosen to investigate the causality between stock market indicators and growth indicators. The study covers the 7 years time period between the fiscal year 2000/2001 to 2006/2007

for the purpose of testing causality between various stock market indicators and growth variables.

3.2 Nature and Sources of Data

The study is based on the secondary data only. As the study is related to the aggregate values of the economy as well as the aggregate values of stock market activities no need for primary data has been felt. The required data are collected on the variables such as GDP, gross domestic saving investment, gross capital formation, market capitalization, turnover, value traded and primary issue approval and NEPSE index. The data on the variables such as stock market volatility has been derived by using appropriate relationship.

The supplementary data and information have been acquired from various sources like;

- ⇒ Trading reports of NEPSE.
- ⇒ Annual reports of SEBO/N.
- ⇒ Nepal Rastra Bank's Economic Report.
- ⇒ Previous research studies and dissertations.
- ⇒ Articles and journals available in different library.
- ⇒ Central bureaus of statistics.
- ⇒ Websites.

3.3 Selection of Study Period

The transaction of the stocks in the Nepalese stock market started from the fiscal year 1993/94. As this study is about the contribution made by the stock market in the economy, time period of the study will be 2000/01 to 2006/07. This is related to the main

part of the study. Since the study has been totally confined to the relationship between stock market and economic growth, population and samples are same.

3.4 Method of Analysis

Analysis is the systematic and careful examination of available facts so that certain conclusions can be drawn and inferences be made. The major part of this study is concerned with testing the relationship of stock market with economic growth. Various related tools and techniques have been used for this purpose. Trend analysis, correlation analysis, regression analysis, econometric models, and other statistical tools have been used for the analysis. The empirical results have been estimated in the study by using annual data for the 2000/01 to 2006/07 period.

3.4.1 Trend Analysis

Trend analysis has been used to exhibit the market scenario of different indicators of stock market and economic growth. Simple trend analysis has been used for the following purposes of the study.

- ⇒ To find the relationship between primary market activities and secondary market development, the amount of equity issuance approved in the primary market is compared with market capitalization, turnover and value traded. It is done to find some kind of relationship between primary markets and secondary markets.

- ⇒ To exhibit the trends of different indicators of economic growth GDP, saving, investment and capital formation and change in stock during study period are presented.
- ⇒ To determine the relationship between development of stock market and economic growth, the trends of primary market's amount of equity issuance and NEPSE index are compared with the factors of growth such as GDP, saving, investment, capital formation.

3.4.2 Arithmetic Mean

Arithmetic mean is average of random variable which can be used for further analysis. The arithmetic mean, in this study, is used to calculate the average of various indicators of stock market and economic growth like; market capitalization, value traded, turnover, volatility, size of primary market, GDP, saving, investment, and capital formation through the study period 2000/01 to 2006/07.

$$\text{Mean } \bar{x} = \frac{\sum f_x X}{n}$$

3.4.3 Standard Deviation

Standard deviation measures the variability of the observations around the mean value. Therefore, it is the appropriate measure of the variability of stock market returns. Volatility of stock market is measured by the use of standard deviation of the monthly stock index around the mean value. the researcher also calculates the standard deviation of various variables used in the study period 2000/01 to 2006/07.

$$\text{Standard Deviation (S.D.)} = \sqrt{\frac{\sum f_x Z_{\bar{X}}^2}{n}}$$

3.4.4 Coefficient of Variation

The coefficient of variation (CV) is the relative measure of dispersion, comparable across, which is defined as the ratios of the standard deviation to the mean expressed in percentage.

In symbol;

$$CV = \frac{\text{S.D.}}{\bar{X}} \times 100$$

where, S.D. = Standard Deviation

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

The higher CV denotes to the higher fluctuation of variables and vice-versa.

3.4.5 Correlation Analysis

The appropriate statistical tool to measure the relationship between two or more variables in quantitative terms is the correlation analysis. Correlation shows the degree of relationship between the variables. It is the square root of the coefficient of multiple determination. Correlation can either be positive or it can be negative. If the values of the variables are directly proportional then the correlation is said to be positive. On the other hand, if the values of the variables are inversely proportional, the correlation is said to be negative, but the correlation coefficient always remains within the limit of +1 to -1.

$$\text{Coefficient of correlation } (r_{XY}) = \frac{xy}{\sqrt{x^2} \sqrt{y^2}}$$

Where,

$$x = X - \bar{X}$$

$$y = Y - \bar{Y}$$

In this study, coefficient of correlation is calculated between various indicators of stock market, such as market capitalization, value traded, turnover, volatility, and size of primary market and various indicators of economic growth, such as, gross domestic product, saving, investment and capital formation.

3.4.5.1 Coefficient of Multiple Determination (R^2)

The coefficient of determination is a measure of degree (extent or strength) of linear association or correlation between two variable, one of which happens to be independent and other being dependent variable (s). In other words, R^2 measure the percentage total variation in dependent variable explained by independent variable the coefficient of determination can have value ranging from zero to one. A value of one can occur only if the unexplained variation is zero, which simply means that all the data points in the scatter diagram fall exactly on the regression line. In this study, R^2 is calculated as the requirement of model.

$$\text{Coefficient of Multiple Determination } (R^2) = \frac{\text{Explained Variation}}{\text{Total Variation}}$$

3.4.6 Regression Analysis

Regression analysis is concerned with the study of the relationship between one variable called the explained or

dependent variable and another one or more other variables called independent or explanatory variables. (Richard and David, 1994). Regression determines the average probable change in one variable based on a certain amount of change in another variable.

In this study, basically indicators of economic growth are dependent variables and indicators of stock market development are independent variables.

The main objective of this study is to assess the relationship between stock market and economy growth. Various models are used to determine the relationship between stock market and economy growth. The variables that will be used in the models are gross domestic product (GDP), Savings (S), Investment (I), Capital Formation (CF), Market Capitalization (MC), Value of traded shares (VT), Turnover (TO), Size of Primary Market (PM) and Volatility of Stock returns (V).

Theoretical statement of the model is that of GDP may be regarded as subject to the constraints of various stock market related variables. As an approximation of the theory, the function may be written as;

$$GDP = F (MC, VT, TO, V, PM) \dots \dots \dots (3.1)$$

Where,

GDP = Real Gross Domestic Product at basic price (Base year: 2000/01 = 100)

MC = Market Capitalization

VT = Value of Traded Shares

TO = Turnover of Shares

V = Volatility of Stock Returns

PM = Size of Primary Market

The estimated equation has been specified as follows;

$$GDP = a + b_1MC + b_2VT + b_3TO + b_4V + b_5PM \dots\dots\dots (3.2)$$

Similarly, theoretical statement of the model is that of savings (S) may be regarded as subject to the constraints of various stock market related variables. As an approximation of the theory, the function may be written as;

$$S = F (MC, VT, TO, V, PM) \dots\dots\dots (3.3)$$

Where,

S = Savings

The estimated equation has been specified as follows;

$$S = a + b_1MC + b_2VT + b_3TO + b_4V + b_5PM \dots\dots\dots (3.4)$$

Similarly, theoretical statement of the model is that of Investments (I) may be regarded as subject to the constraints of various stock market related variables. As an approximation of the theory, the function may be written as;

$$I = F (MC, VT, TO, V, PM) \dots\dots\dots (3.5)$$

Where,

I = Investments

The estimated equation has been specified as follows;

$$I = a + b_1MC + b_2VT + b_3TO + b_4V + b_5PM \dots\dots\dots (3.6)$$

Finally, theoretical statement of the model is that of Capital Formation (CF) may be regarded as subject to the constraints of various stock market related variables. As an approximation of the theory, the function may be written as;

$$CF = F (MC, VT, TO, V, PM)..... (3.7)$$

Where,

CF = Capital Formation

The estimated equation has been specified as follows;

$$CF = a + b_1MC + b_2VT + b_3TO + b_4V + b_5PM..... (3.8)$$

Equation (3.1) to (3.8) are concerned with the major part of this study. These equations are used to assess the nature of relationship between various stock market indicators and economic growth indicators.

3.4.6.1 Regression Constant (a)

The value of constant, which is the intercept of the model, indicates the average level of dependent variable when independent variable is zero. In another words, it is better to understand that 'a' constant indicates the mean or average effect on dependent variable of all the variables omitted from the model. In this study, regression constant is calculated for selected dependent and independent variables specified in the model, which is presented above.

3.4.6.2 Regression Coefficients ($b_1, b_2, b_3, \dots, b_n$)

The regression coefficient of each independent variable indicates the marginal relationship between that variable and value

of dependent variable, holding constant the effect of all other independent variables in the regression model. In other words, the coefficients describe how changes in independent variables affect the values of dependent variables' estimate. It is also known that the numerical constant which determines the change in dependent variable per unit change in independent variables (i.e., slope of the line).

3.4.6.3 Standard Error of Estimate (SEE)

With the help of regression equations perfect prediction is practically impossible. Standard error of an estimate is a measure of the reliability of the estimating equation, indicating the variability of the observed points around of regression line, i.e., the extent to which observed values differ from their predicted values on the regression line. The smaller the value of SEE, the closer will be the dots to the regression line and better the estimates based on the equation for this line. If SEE is zero, then there is no variation about the line and the correlation will be perfect. Thus, with the help of SEE, it is possible to ascertain how good and representative the regression line is as a description of the average relationship between two series.

3.4.7 Hypothesis Analysis

A hypothesis is defined as a tentative theory or supposition provisionally adopted to explain certain facts and to guide in the investigation of others. However, in statistics, hypothesis means a statistical statement about the values of one or more parameters of the population. After setting the hypothesis, it is necessary to test the reliability of such statistical statements. In order to make

proper decision about the quantitative statement of the population, testing of hypothesis techniques is used.

In this study 'Student's T-Statistics' is used to assess the relationship between stock market variables and economic growth variables.

3.4.7.1 Student's T-Statistics

To test the validity of assumptions of the study for small samples, t-test is used. It is very difficult to make a clear-cut distinction between small samples and large samples. However, from practical point of view, in most of the situations a sample is termed as small if $n < 30$. It should be clearly understood that exact sample techniques (Tests) can be used, even for large samples but large sample theory cannot be used for small samples. For applying t-distribution, the t-values are calculated first and compared with the critical values at a certain level of significance for given degree of freedom. If the computed value of 't' exceeds the table value (say $t_{0.05}$), it is known that the difference is significant at 5 percent level of significance but if t-values are less than the corresponding critical values of the 't' distribution, the difference is not treated as significant.

Test of Significance of Difference between Stock Market Variables and Economic Growth Variables.

Null Hypothesis (H_0): $\hat{\mu}_S = \hat{\mu}_E$

i.e. there is no significant difference between two means. This means there is no relationship between stock market and economic growth.

Alternative Hypothesis (H₁): $\hat{\mu}_S \neq \hat{\mu}_E$

i.e. there is significant difference between two means. This means there is relationship between stock market and economic growth.

Test Statistics: T-Statistic under H₀ is

$$t = \frac{\bar{X}_S - \bar{X}_E}{\sqrt{S_P^2 \left(\frac{1}{n_S} + \frac{1}{n_E} \right)}} \sim t_{n_1 + n_2 - 2}$$

Where,

\bar{X}_S = Mean value of stock market variables

\bar{X}_E = Mean value of economic growth variables

S_P^2 = an unbiased estimate of the variance

Level of significance: Fix the level of significance $\alpha = 5\%$ or other will specified level along with the type of alternative hypothesis.

Critical Value: Tabulated or critical value of 't' at $\alpha\%$ level of significance for $(n_1 + n_2 - 2)$ degree of freedom is obtained from t-tables.

Decision: If calculated $|t|$ is less than or equal to tabulated value of 't', it falls in the acceptance region and the null hypothesis is accepted and if calculated $|t|$ is greater than tabulated 't', H₀ may be rejected at the adopted level of significance.

3.4.7.2 F-Test

The Fisher's F-distribution is defined as a distribution of the ratio of two independent chi-square variables each divided by the corresponding degrees of freedom. It is clear that F-distribution has a single mode. Note that the shape of F-distribution depends on the value of degrees of freedom and the value of 'F' lies between 0 to ∞ (zero to infinity). The F-test, sometimes called variance ratio test, is based on F-distribution. In order to test goodness of fit of the regression model, F-test is used.

3.5 Limitation of the Study

Applying the econometric method for analysis of Nepalese economic aggregate is not likely to produce the reliable results due to wide range of data deficiencies. Data on important aggregate variables are available only on yearly basis. Admittedly, all economists including those in the planning commission complain this problem, but unfortunately it remains as acute as in the past and rather more acute than most other developing countries. The availability of data is far from ideal. Since all the important data are available on yearly basis, the extensive study is not possible. In the context of poor database, a rigorous quantitative analysis of the macroeconomic relationship for Nepalese economy may not be feasible and justified.

This study is based on the data for the period of seven years from 2000/01 to 2006/07. It tries to find out the relationship between stock market and economic growth. For this purpose the period of seven years is not adequate to form any kind of relationship but an attempt has been made in that direction. The following are the main limitations of this study.

- ⇒ The study is based on the period of only seven years i.e. since 2000/01 to 2006/07, so the study period may have been regarded as shorter and inference should have to be made with caution.
- ⇒ The study is based on yearly data only, hence making it a study of seven observations only. Had the database been efficient enough and monthly or quarterly data on stock market and growth been available, the result might have been for better and reliable than what is expected from this analysis.
- ⇒ The study is based on secondary sources of data, authenticity of which may be questioned, as there are variations in the some data variable across the sources.
- ⇒ The data on some variables are not readily available, and hence are estimated by standard form of relationship.
- ⇒ The stock market in Nepal is in its early stage of growth and stabilization. The investors are gradually becoming aware of the stock market activities and the authorities are realizing that the development of a strong stock market is highly needed. But, it may be a little too fast to measure the concrete contribution made by stock market to the economy and attempt to form a certain pattern of relationship. There may form no sensible relation at all or the significance of the relationship may have to be questioned.
- ⇒ The assumption that the strong and efficient stock market help to mobilize saving and efficient allocate may not be

true in our case since the Nepalese stock market is not strongly efficient. Therefore, the study in this direction may lead nowhere at the stage, but it is worth attempting.

To overcome some of these limitations and support the hypothesis that the stock market help to channelize the saving hence increase the investment and expand the corporate base, the main apart of the study is supported by different tools and techniques used.

3.6 Definition of Key Terms

The financial statements published by different organisations have its own format for publishing the financial data on a more or less uniform basis. The following terms may have different meanings in different circumstance and under different conditions. It is, therefore, desirable to define some key terms so as to avoid misunderstanding.

❖ Gross Domestic Product:- The gross domestic product, or GDP, of a country or of some other geographical region is one of the ways of measuring the size of its economy. GDP is defined as the total market value of all final goods and services produced within a given country or region in a given period of time (usually a calendar year).

❖ Savings:- Savings means excess of income over expenditure. In economics, a country's national savings is the sum of private and public savings. It is generally equal to a nation's income minus consumption and government purchases.

❖ Investments:- In national income analysis it is the value of that part of economy output for any time period that takes the form of new structure, new producers, durable equipment, and change in

inventories. Investment or investing is a term with several closely-related meanings in business management, finance and economics, related to saving or deferring consumption. An asset is usually purchased, or equivalently a deposit is made in a bank, in hopes of getting a future return or interest from it.

❖ Capital Formation:- Capital formation is a term used in national accounts statistics and macro economics. It basically refers to the net additions to the (physical) capital stock in accounting period, or, to the value of the increase of the capital stock; though it may occasionally also refer to the total stock of capital formed.

❖ Market Capitalization:- Market capitalization is a measurement of corporate or economic size equal to the share price times the number of shares outstanding of a public company. As owning stock represents owning the company, including all its assets, capitalization could represent the public opinion of a company's net worth and is a determining factor in stock valuation. Market capitalization represents the aggregate value of a company or stock.

❖ Value Traded:- Value traded is the value of the shares traded in the domestic exchanges.

❖ Turnover:- Turnover equals to the value of the trades of domestic shares on domestic exchanges divided by the value of listed domestic shares.

❖ Volatility:- Volatility is the measure of the state of instability. It measures the movement of the stock market index during the certain period around the mean value. Specifically, it is the variance of the market index during a certain period.

❖ Size of Primary Market:- Size of primary market is the amount of capital mobilization through the primary market during the study period.

CHAPTER - IV

PRESENTATION AND ANALYSIS OF DATA

This chapter is the backbone of the research. In this chapter, the collected data are presented in systematic manner and analyzed by using different appropriate tools and techniques. This chapter is divided into four sections. The first section is related with trend analysis of various indicators of stock market and economic development. In the second section of this chapter mean, standard deviation and coefficient of variation are computed to measure the average and variation among various indicators of stock market and economic growth. The third section of this chapter attempts to find out the association between the indicators of economic growth and stock market development with the help of correlation matrix. And the fourth or last section of this chapter examines the casual relationship between economic growth and stock market development indicators by using regression analysis and testing of hypothesis.

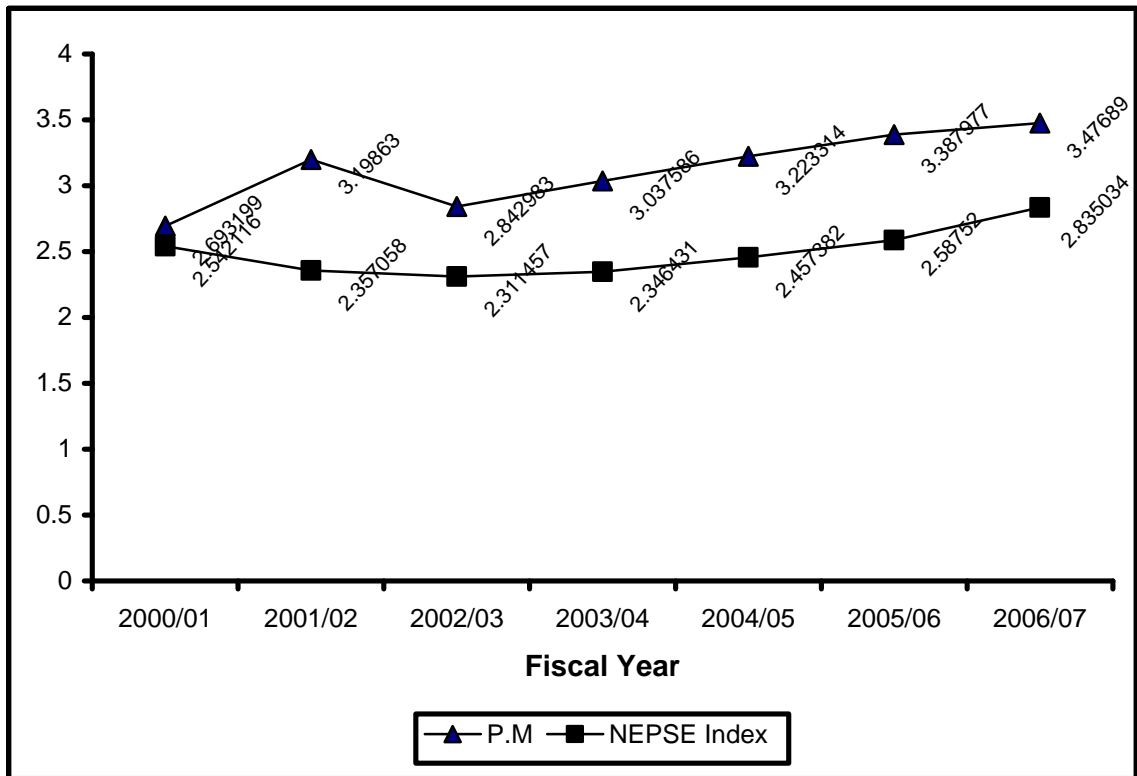
4.1 General Trend Analysis

A comparison of Primary Market Activities with secondary Market Development Data and Economic Growth Indicators

One of the most important aspects of the secondary stock market activities is that the movements in the secondary markets

not only influence the firm's other activities but also their position in the primary equity market. A firm in need of capital, unable to find it through other means, ultimately turns towards the equity investors in the primary market. But the proposition is that only those firms that are performing strongly in the secondary market could be able to raise the equity investments through the primary market. Their shares prices and its movements are used as signal by the investors for evaluating its future prospects. Therefore, to examine the direction of the movements of secondary market indicators as well as size of the primary market, simple line trend analysis is performed. Later in the section, the size of the primary market and secondary market is compared with the various indicators of economic growth for the purpose of uniformity in the comparison all the variables i.e. GDP, saving (S), investment (I), capital formation (CF), market capitalization (MC), value traded (VT), turnover (T), Volatility (V), size of primary market (PM), and NEPSE index are transformed into logarithms values.

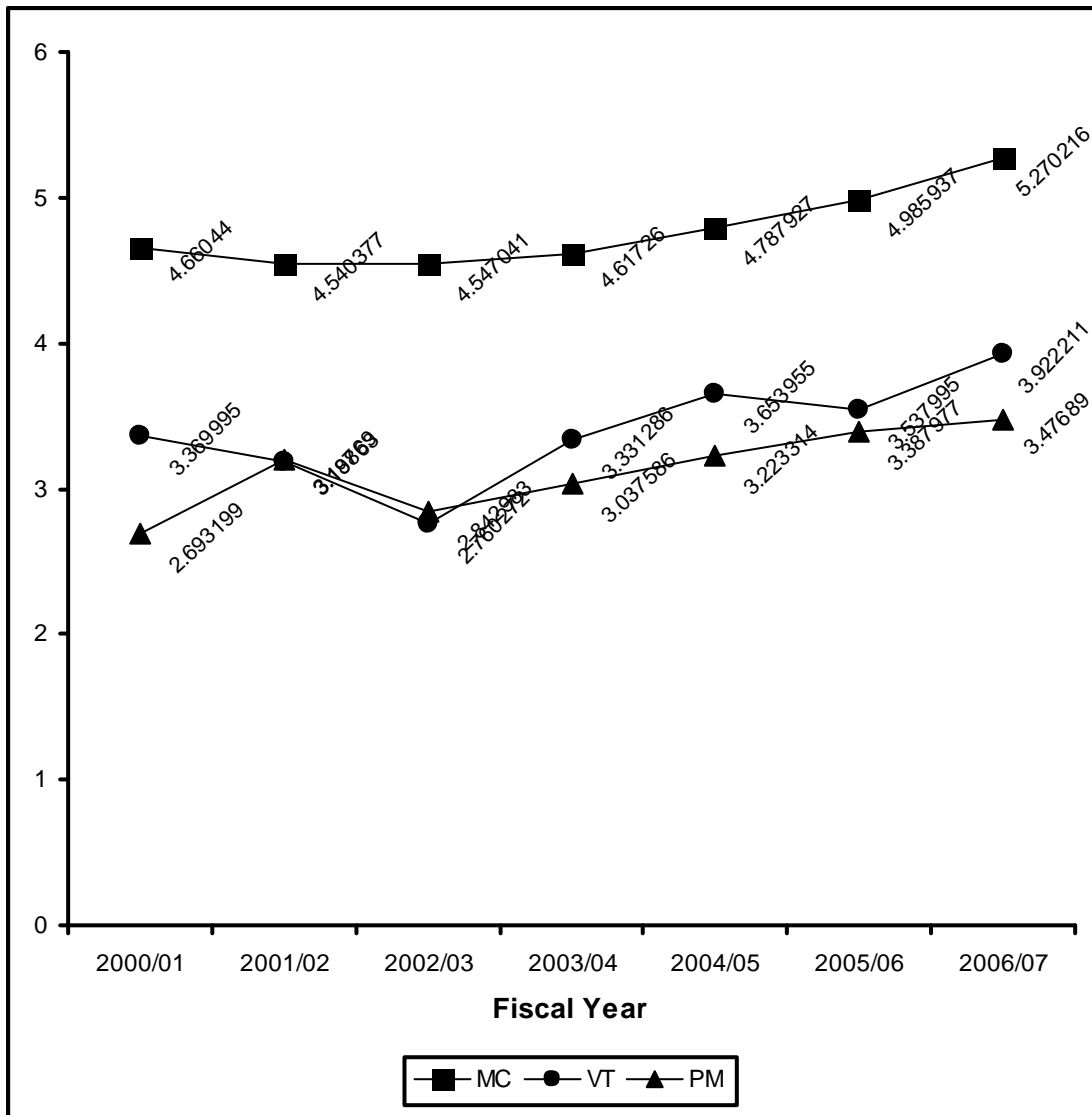
Figure 4.1: Presentation of log values of the primary issue amount (PM) and NEPSE INDEX over the study period



Source Appendix IV

The Figure 4.1 shows that the size of primary market is steadily increasing from the fiscal year 2002/03. Though in the year 2002/03 there were less equity issues in the market in comparison to previous year, otherwise the trend of primary market development are encouraging while turning to the secondary market or NEPSE index it was dramatically decreasing in the year 2001/02 and it was relatively static until the year 2003/04 and after then it was increasing in the increasing trend. So primary and secondary market presents a good sign during study period though the stock market in Nepal is developing slowly.

Figure: 4.2: Presentation of log values of market capitalization (MC), value traded (VT) and size of the primary market (PM) for the study period

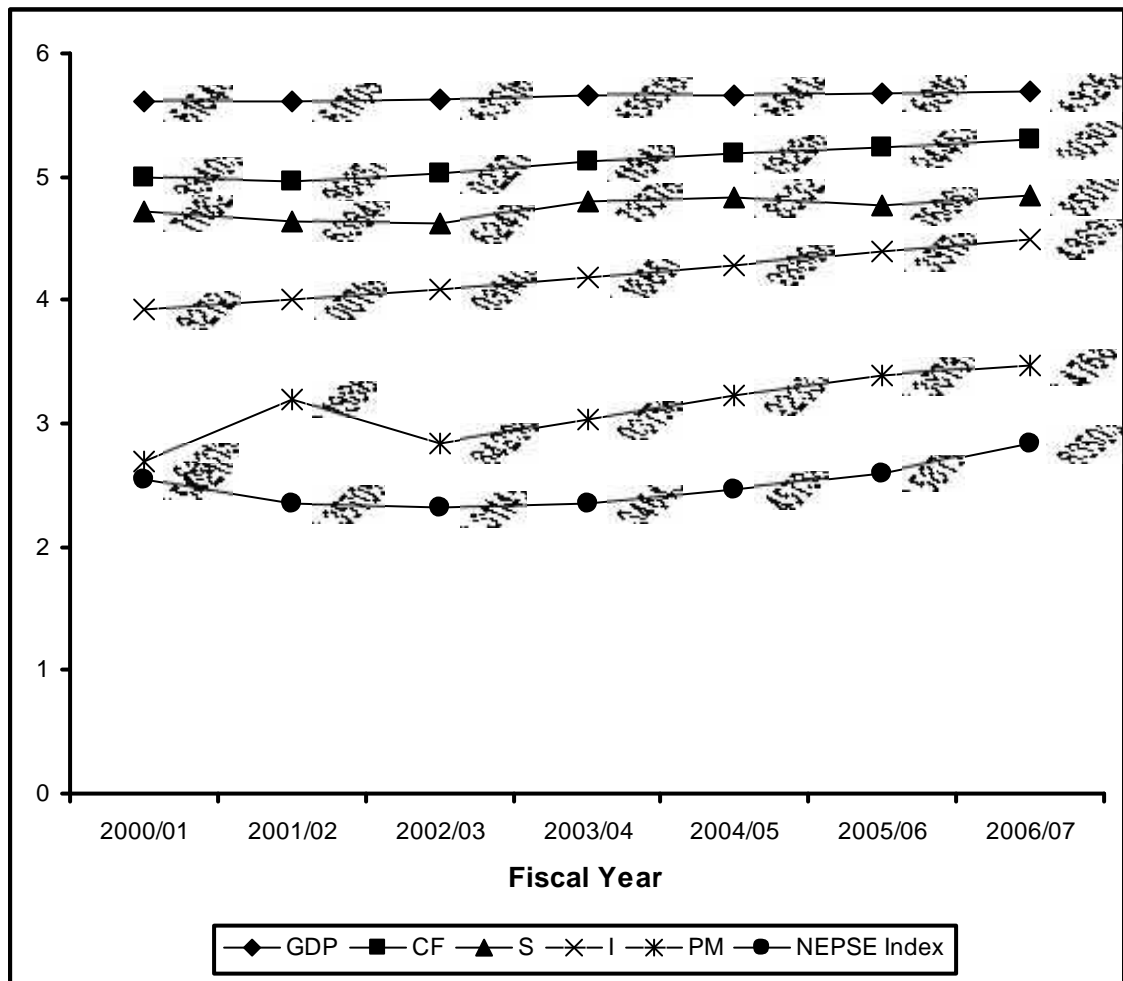


Source: Appendix IV

In Figure 4.2 size of the primary market (PM) is compared with market capitalization (MC) and value traded (VT) which presents even more encouraging signs. In the fiscal year 2001/02 MC and VT were decreased slowly but in the same period PM is increased rapidly. Moreover after the fiscal year 2002/03 all three variables were increased in increasing trend but the fiscal year 2005/06 seen as exception where value traded is decreased dramatically even though market capitalization and size of primary market were increased in similar trend. Since it is assumed that as the time increases, with it the activities in the stock market also increase. More firms are listed in the market, more investors participate in investing activities, more information become available in the market and so on. These activities have positive

impact on MC, VT and PM and from Figure 4.2 we can see it to be true

Figure 4.3: Comparison of the log value of size of the primary market (PM) and NEPSE INDEX with the log values of Gross Domestic Product (GDP), savings (S), Investment (I) and Capital Formation (CF) for the study period.



Source: Appendix IV

When the comparison of size of primary market (PM) and secondary market or NEPSE index with the macroeconomic variables such as Gross Domestic Product (GDP), savings (S), Investment(I) and capital formation (CF) presents a positive picture. In the picture GDP, S, I and CF were increased in increasing trend except the saving (S) was slightly decreased in the

fiscal year 2005/06. Size of the primary market (PM) was dramatically increased in the fiscal year 2001/02 and after then PM is increased in the same trend as GDP, S, I and CF. It can be said that size of primary market may have positive impact on saving and investment and capital formation. As the firm raise capital through primary market operation, they utilize it as the capital which is the main cause to have positive impact on investment and capital formation. If such an investment capital turns out to be profitable, firms can retain earning for future use, which has the positive impact on saving. Therefore, somehow similar movements of S, I, CF and PM is quite understandable. While comparing PM and GDP it can be said that PM also influences GDP through saving, investment and capital formation. In case of secondary market or NEPSE index, since it was slightly decreased in the beginning of the study period, but after the fiscal year 2002/03 it is moving in similar trend as to primary market and other macroeconomic variables such as GDP, S, I and CF. Hence there is positive relationship between the stock market and the national economy.

4.2 Summary Statistics

Presentation of mean, standard deviation and coefficient of variation of the indicators of stock market development and economic growth

Table 4.1**Summary Statistics: Annual Averages 2000/01- 2006/07**

	Minimum	Maximum	Mean	Standard Deviation	Coefficient of Variation	Observation
Gross Domestic Product	413429.00	492812.00	448649.4286	31402.73679	6.9994	7
Saving	42141.00	70813.00	56851.00	11433.927	20.1121	7
Investment	8458.20	31549.50	17424.2714	8355.45747	47.9530	7
Capital Formation	93020.00	203741.00	137710.5714	42291.67159	30.7105	7
Market Capitalization	34703.80	186301.30	71742.757	54966.958	76.6167	7
Value traded	575.80	8360.10	3274.8714	2577.06562	78.6921	7
Turnover	1.63	7.34	4.5271	1.73017	38.2181	7
Volatility	5.55	81.81	35.0529	27.21175	77.6305	7
Size of Primary Market	493.40	2998.40	1567.7571	909.70864	58.0261	7
NEPSE Index	204.86	683.95	337.1886	167.42118	49.6521	7

Source: Appendix II and III

Table 4.1 presents the clear picture of summary statistics on the four economic growth indicators and six stock market development indicators. We have the data for seven years period from 2000/01 to 2006/07 of Nepal. Arithmetic mean is average of random variable which can be used for further analysis. The arithmetic mean of gross domestic product, saving, investment, capital formation, market capitalization, value traded, turnover, volatility, size of primary market and NEPSE index are 448049.4286, 56851.00, 17424.2714, 137710.5714, 71742.757,

3274.8714, 4.5271, 35.0529, 1567.7571 and 337.1886 respectively. All the data are presented in rupees in million except turnover is the percentage of value traded to market capitalization, volatility is the standard deviation of monthly NEPSE index and NEPSE index in points. Standard deviation measures the variability of the observations around the mean value. The standard deviation of gross domestic product, saving investment and capital formation, market capitalization, value traded, turnover, volatility, size of primary market and NEPSE index are 31402.73679, 11433.927, 8355.45747, 42291.67159, 54966.958, 2577.06562, 1.73017, 27.21175, 909.70864, and 167.42118 respectively, which is also used for further analysis. The coefficient of variation (CV) is the relative measure of dispersion, comparable across. The CV of gross domestic product, saving, investment, capital formation, market capitalization, value traded, turnover, volatility, size of primary market and NEPSE index are 6.9994, 20.1121, 47.9530, 30.7105, 76.6167, 78.6921, 38.2181, 77.6305, 58.0261, and 49.6521 respectively. Hence the table 4.1 shows substantial variance among the growth and stock market development indicators. The value traded has the highest CV of 78.6921%, which represents there is high fluctuation of the value traded among the study period. In another words, there is 78.692% variation of the amount of value traded among study period. Similarly the GDP has the lowest CV of 6.9994%, which represents there is less fluctuation of amount of GDP among study period. In another words there is 6.9994% variation in amount of GDP among study period.

4.3 Correlation Analysis

Correlation coefficients between each of the variables are computed to determine any kind of association. The variables are gross domestic product, saving, investment, capital formation market capitalization, value traded, turnover, volatility, size of the primary market and NEPSE index for the period of seven years from 2000/01 to 2006/07. The correlation results are presented in the matrix form in Table 4.2.

Table 4.2: Correlation Matrix

	GDP	S	I	CF	MC	VT	TO	V	PM	NI
GDP	1									
S	0.810*	1								
I	0.979**	0.767*	1							
CF	0.990**	0.840*	0.988**	1						
MC	0.829*	0.664	0.915**	0.884**	1					
VT	0.803*	0.825*	0.871*	0.876**	0.935**	1				
TO	0.130	0.625	0.084	0.192	0.029	0.366	1			
V	0.309	0.327	0.457	0.433	0.752	0.733	0.137	1		
PM	0.853*	0.613	0.914**	0.875**	0.859*	0.812*	0.108	0.532	1	
NI	0.702	0.609	0.805*	0.784*	0.971**	0.918**	0.067	0.875**	0.756*	1

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level.

Source: Appendix II and III

Notes: GDP = Gross Domestic Product, S = Gross Domestic saving, I = Gross Investment, CF = Gross Capital Formation, MC = Market capitalization, VT = Value traded, TO = Turnover, V =

Volatility of NEPSE Index, PM = Size of primary market and NEPSE NI = NEPSE Index at the end of the year

Table 4.2 presents the correlations. The following correlations are worth highlighting. Obviously, there is the strong correlations between the various economic indicators, like the correlation between GDP with saving, investment and capital formation with the coefficients 0.810, 0.979 and 0.990 respectively. The interesting correlation prevail between the stock market indicator market capitalization (MC) and growth indicators i.e. gross domestic product (GDP), saving (S), investment (I), and capital formation (CF). The correlation coefficient between MC and GDP is 0.829 between MC and S is 0.664, between MC and I is 0.915 and between MC and CF is 0.884. The correlation of MC with growth variables is meaningful and telling. In the context of this significant relationship, few inferences can be made. First, as the MC is the product of market prices of shares multiplied by the outstanding number of shares and if the firms are performing strongly in a bull market, it passes an optimistic message to the general investors who tend to invest more in the market and firms. On the other hand, without having any productive and profitable investment project in hand no firm can be able to influence its share prices in the market. So to finance such projects firm need to capitalize their earnings which will increase their saving. The inference is that, as the shares are performing strongly in the market general investors as well as firms tend to save their earnings for further investment purposes, which ultimately increases the gross domestic saving. Therefore a strong correlation between market capitalization and saving is quite natural. Same proposition applies in case of the relation between MC and I as well as MC and CF also. Since the investors (individual or institutional) tend to

save, they invest their saving in the new projects and hence increasing their saving in the new projects and hence increasing their investment which fuel up the national capital formation also. The result of all this is that market capitalization is also significantly and positively strongly correlated with gross domestic product.

Some other indicators of stock market are also related to the economic growth indicators. The value traded (VT), which is equal to the amount of turnover in domestic stock market, has significant correlations with gross domestic product (GDP), saving (S), investment (I) and capital formation (CF). The correlation coefficients between VT and GDP is 0.803, between VI and S is 0.825, between VT and I is 0.871, and between VT and CF is 0.876. Higher the value traded is regarded as the good indicator of stock market that contributes positively towards the economy. Thus significant relationship of value traded to GDP, saving, investment and capital formation is meaningful. Higher the value traded means that the stock market is performing better with the maximum participation of the investors. If more investors are involved in the market savings, investments and capital formations are likely to increase and hence the GDP. Therefore, the positive significant correlations are all and expected.

Another indicator of stock market development is turnover (TO) which equals to the trading value of the stocks in domestic share market divided by market capitalization. It measures trading relative to the size of the market. A high turnover is the indicator of the more liquid market. The TO also has positive correlation with gross domestic product (GDP), saving (S), investment (I) and capital formation (CF). The correlation coefficients between TO and GDP is 0.130, between TO and S is 0.625, between TO and I

is 0.084, and TO and CF is 0.192. Though the correlations of stock market liquidity indicator TO with the economic growth indicators, such as, GDP, S, I, and CF are positive but the correlations are insignificant and unexpected. This unexpected an insignificant correlation may be due to the other unobserved factors as described in limitation.

The relationship between the size of the primary market (PM) and most of the economic growth indicators is positive and significant which indicators towards the strong relation between stock market and growth. For instance, the coefficients of correlation between PM and GDP is 0.853, between PM and S is 0.613, between PM and I is 0.914, and between PM and CF is 0.875. And also, PM is positively and significantly correlated to the major indicator of the secondary market i.e. correlation coefficients between PM and MC is 0.859, between PM and VT is 0.812, and between PM and NI is 0.756. On the basis of these relationships, few interesting implications can be observed. Strongly performing secondary market is also a cause of growing activities in the primary market. With their prices appreciating in the secondary market, firms feel at case to go for the equity issue in the primary market if and when the situation arises. The investors in the primary markets also look for the productive and profitable investment and invest in the firms' shares that are performing well in the secondary markets. This interrelation between primary and secondary market also explains the efficiency of the market. And the market efficiency is closely related to the efficiency of the economy. Therefore, the strong and positive relationship between growth of the primary market and the various indicators of economic growth is just as expectable and acceptable.

4.4 Regression Analysis

For the purpose of investigating the causality between stock market indicators and economic growth indicators four regression have been run. Variables that enter into the regression are: gross domestic product (GDP), saving (S), investment (I), capital formation (CF), market capitalization (MC), value traded (VT), turnover (TO), volatility (V) and size of the primary market (PM).

The relationship of growth indicator gross domestic product (GDP) with the stock market indicators market capitalization (MC), value traded (VT), turnover (TO), volatility (V) and size of the primary market (PM) is investigated in table 4.3.

Table 4.3: Regression of Gross Domestic Product (GDP) on market capitalization (MC), value traded (VT), turnover (TO), volatility (V) and size of the primary market (PM)

Regression Equation:

$$GDP = a + b_1MC + b_2VT + b_3TO + b_4V + b_5 PM \dots\dots 4.1$$

	MC	VT	TO	V	PM	R ²	F
Estimated Coefficient	1.521	-16.685	11942.797	-915.293	0.979	0.838	7.221
Standard Error	1.107	21.910	11924.646	331.302	13.621		
t - statistics	1.374	-0.762	1.002	-2.763	0.072		
Significance	0.401	0.586	0.500	0.221	0.954		

Source: Appendix VII

Note:

- (i) Dependent Variable: Gross Domestic Product (GDP)
- (ii) Independent Variable: Market Capitalization (MC), Value Traded (VT), Turnover (TO), Volatility (V) and size of the Primary Market (PM)
- (iii) R^2 = Adjusted Coefficient of Multiple Determination

Table 4.3 presents the results of regression where dependent variable is gross domestic product and stock market indicators are the independent variables. The results presented in table 4.3 indicate that the estimated coefficients of Market Capitalization, turnover and size of the primary market have positive and expected signs but the coefficients of value traded and volatility have negative signs. The regression coefficient of market capitalization is 1.521, which indicates 10% change in market capitalization will lead 15% change in gross domestic product. But the regression coefficient of value traded is -16.685 , which indicates there is inverse relation between value traded and gross domestic product. The regression coefficient of turnover is 11942.797 which is positive and very high but the regression coefficient of volatility is -915.293 which is insignificant. It is due to the comparison of data between amount in rupees and percentage. Similarly the regression coefficient of size of primary market is 0.979, which indicates 10% change in size of the primary market will lead 9.79% change in gross domestic product.

The value of t - statistics of market capitalization, value traded, turnover, volatility and size of the primary market are 1.374, -0.762 , -2.763 and 0.072 respectively. All the value of t-statistics are insignificant and unexpected at 5% level of significance. It may be due to the unstable and inefficient stock market prevailing in Nepal. The value of F is 7.221, which is also insignificant and unexpected. Since the value of t-statistics

and F is insignificant, $R^2 = 0.838$, which indicates there is sufficient variability in gross domestic product explained by market capitalization, value traded, turnover, volatility and size of the primary market.

These all the results, however, should be viewed very skeptically because all the results are based on only seven years observations (from 2000/01 to 2006/07). But the reasons for the positive relations of market capitalization, turnover and size of primary market are clear. The relation of gross domestic product with market capitalization is that as market capitalization is the market value of all listed outstanding share and the price element is associated with it. Pricing of securities is done with a lot of aspects keeping in view. Some factors are the profitability of the firm, its investment plans and its saving position. If prices of stocks are increasing it shows that the listed firms on an average have got good investment projects in their hands and are expected to be turned profitable in the future. This cause the investment to increase and overall optimism in the economy which help the gross domestic product to grow. The relation with liquidity indicator turnover is also positive and understandable. The more amount of shares traded the better because, the more transaction of share is the indication that the more investors are joining the market and resource are mobilized. Resource mobilization is a factor to growth. The another positive relation with gross domestic product is with size of primary market. Strongly performing secondary market is also a cause of growing activities in the primary market. The interrelation between primary and secondary market also explains the efficiency of the market. And the market efficiency is closely related to the efficiency of gross domestic product or economy as well, which is also expectable and acceptable.

It would be interesting to turn towards the relationship between saving, another factor of economic growth and the factors of stock market development such as market capitalization, value traded, turnover, volatility and size of primary market.

Table 4.4: Regression of saving (S) on market capitalization (MC), value traded (VT), Turnover (TO), volatility (V) and size of the primary market (PM)

Regression Equation:

$$S = a + b_1MC + b_2VT + b_3TO + b_4V + b_5PM \dots\dots 4.2$$

	MC	VT	TO	V	PM	R ²	F
Estimated Coefficient	0.675	-7.523	8670.303	-321.291	-6.702	0.999	1720.147
Standard Error	0.026	0.524	285.171	7.923	0.326		
t - statistics	25.496	-14.358	30.404	-40.552	20.576		
Significance	0.025	0.044	0.021	0.016	0.031		

Source: Appendix VIII

Note:

- (i) Dependent Variable: Saving (S)
- (ii) Independent Variable: Market Capitalization (MC), Value Traded (VT), Turnover (TO), Volatility (V) and size of the Primary Market (PM)
- (iii) R² = Adjusted Coefficient of Multiple Determination

Table 4.4 presents the results of regression where dependent variable is saving and stock market indicators are independent variables. The results presented in table 4.3 indicate that only two coefficient sign is

as expected. The coefficient of value traded, volatility and size of primary market are negative. All the variables i.e. market capitalization, value traded, turnover, volatility and size of the primary market significantly related with saving under t-statistics and F-test. Since the coefficients of value traded, volatility and size of the primary market are negative, they are significantly related with saving, which is interesting and unexpected part of the study. The positive coefficients of market capitalization is statistically significant meaning that the theorized relation between growth indicator saving and market capitalization is true. The value of R^2 for the model (i.e. regression equation) is 0.999 meaning that about 100% of the variability in saving is explained by the variables included in the model. And the F value of 1720.147 also indicates that assumption under which the model is formed is also good. That is, the goodness of fit satisfactory.

The coefficient of market capitalization, value traded, turnover, volatility and size of primary market are 0.675, - 7.523, 8670.303, - 321.291 and -6.702 respectively. The coefficient of market capitalization is 0.675 which shows that a change of 10% in the market capitalization may be the cause to the corresponding change of about 6.75% in the gross domestic saving if other variables holding constant. But, as before, these results also must be viewed skeptically as the number of observation is only seven. And same may be the cause for the negative coefficients of value traded, volatility and size of the primary market, which is just the opposite of theorized relationship between these variables with saving. But the result of market capitalization is significantly and positively related to saving is encouraging sign. As the market capitalization is the product of market price of the shares and number of outstanding shares, the aware and active participation of investors is necessary and they make

the decision to invest by evaluating the firms capability to utilize their funds and give them the return in equity form or dividend firm. After the firm profits from investment, both firm level saving and individual level saving increases. Therefore, a significant positive relation between saving and market capitalization is found significant. Another explanation is that, when the markets perform better and is booming, people tend to save more for investing as well as investing organizations also save to invest in the participating firms. So strong market has the strong positive effect on saving.

The positive relation between saving and turnover has also the similar economic explanation. And finally the negative relationship of saving with value traded, volatility and size of the primary market is not understandable the results may have been driven by other factors or wrong assumptions.

Since the coefficients of value traded, volatility and size of the primary market are negative, the value of t-statistics and F-test is significantly related with saving which is surprizing and unexpected part of the study.

It would be within the framework of this study to turn towards the relationship between the investment and the stock market variable i.e. market capitalization, value traded, turnover, volatility and size of the primary market.

Table 4.5 presents the regression results of growth indicator investment with stock market indicators market capitalization, value traded, turnover, volatility and size of the primary market.

Table 4.5: Regression of Investment (I) on Market Capitalization (MC), Value Traded (VT), Turnover (TO), Volatility (V) and size of the Primary Market (PM)

Regression Equation:

$$I = a + b_1MC + b_2VT + b_3TO + b_4V + b_5PM \dots\dots 4.3$$

	MC	VT	TO	V	PM	R ²	F
Estimated Coefficient	0.231	-1.386	1177.122	-157.796	1.838	0.939	19.533
Standard Error	0.181	3.575	1945.791	54.060	2.223		
t - statistics	1.281	-0.388	0.605	-2.919	0.827		
Significance	0.422	0.765	0.654	0.210	0.560		

Source: Appendix IX

Note:

- (i) Dependent Variable: Investment (I)
- (ii) Independent Variable: Market Capitalization (MC), Value Traded (VT), Turnover (TO), Volatility (V) and size of the Primary Market (PM)
- (iii) R² = Adjusted Coefficient of Multiple Determination

Table 4.5 presents the results of regression where dependent variable is investment and stock market indicators are independent variables. The results presented in table 4.5 indicate that the estimated coefficients market capitalization, turnover, and size of the primary market have positive and expected signs but the coefficients of value traded and volatility have negative signs. The regression coefficients of market capitalization is 0.231, which indicates 10% change in market

capitalization will lead 2.31% change in investment. But the regression coefficient of value traded is -1.368, which indicates there is inverse relation between value traded and investment. The regression coefficient of turnover is 1177.122, which is positive and very high but the regression coefficient of volatility is -157.796, which is insignificant. The regression coefficients of turnover and volatility is highly positive and highly negative respectively because of comparison between amount in rupees and percentage. Similarly the regression coefficient of size of primary market is 1.838, which indicates 10% change in size of primary market will lead 18.38% change in investment.

The value of t-statistics of market capitalization, value traded, turnover, volatility and size of the primary market are 1.281, -0.388, 0.605, -2.919 and 0.827 respectively. All the value of t-statistics are insignificant at 5% level of significance which is unexpected part of the study. The value of F is 19.533 which is also insignificant and unexpected. It may be due to the unstable and inefficient stock market prevailing in Nepal. Since the value of t-statistics and F is insignificant, $R^2 = 0.938$, which indicates there is sufficient variability in investment explained by market capitalization, value traded, turnover, volatility and size of the primary market.

In the context of relationship of stock market and economic growth, finally this study turns towards the relationship between capital formation (CF) a factor of economic growth and stock market variables: Market Capitalization (MC), value traded (VT), turnover (TO), volatility (V) and size of the primary market (PM)

Table 4.6: Regression of Capital Formation (CF) on market capitalization (MC), value traded (VT), turnover (TO), volatility (V) and size of the primary market (PM)

Regression Equation:

$$CF = a + b_1MC + b_2VT + b_3TO + b_4V + b_5 PM \dots\dots 4.5$$

	MC	VT	TO	V	PM	R ²	F
Estimated Coefficient	1.839	-18.819	15248.631	-955.403	0.564	0.842	7.379
Standard Error	1.475	29.199	15891.978	441.526	18.153		
t - statistics	1.247	-0.645	0.960	-2.164	0.031		
Significance	0.430	0.636	0.513	0.276	0.980		

Source: Appendix X

Note:

- (i) Dependent Variable: Capital Formation (CF)
- (ii) Independent Variable: Market Capitalization (MC), Value Traded (VT), Turnover (TO), Volatility (V) and size of the Primary Market (PM)
- (iii) R² = Adjusted Coefficient of Multiple Determination

Table 4.6 presents the results of regression where dependent variable is capital formation and stock market indicators are independent variables. The results presented in table 4.6 indicate that the estimated coefficients market capitalization, turnover, and size of the primary market have positive and expected signs but the coefficients of value traded and volatility have negative signs. From the results presented in table 4.6, it can be seen that non of the results is statistically significant. However, coefficients of three variables i.e. market capitalization; turnover and size of the primary market are positive which is consistent with the assumption of positive relationship between capital formation

and stock market development. But the coefficient of two variables i.e. value traded and volatility are negative which is not consistent with the assumption.

Since all the value of t-statistics and F is insignificant, $R^2 = 0.842$, which indicates there is sufficient variability in capital formation explained by market capitalization, value traded, turnover, volatility and size of the primary market.

The analysis of the relationship between the stock market variables such as market capitalization, value traded, turnover, volatility and size of the primary market and the aggregate economic growth variables such as gross domestic product, saving, investments and capital formation is performed. The result obtained in analysis are mixed type. In some of the cases, the relationship found to be consistent with the assumption and statistically significant, but in other cases the results are either insignificant or inconsistent with assumptions and insignificant at the same time.

This chapter presented the data and analyzed those data in the context of the objectives of the study. In the next chapter, the major finding of the study, summary and conclusions are outlined along with the recommendation for future research possibilities in this area.

4.5 Major Findings

Major finding of trend analysis are stated as follows:

1. The size of the primary stock market in Nepal is gradually increasing over the study period except the fiscal year 2002/03. This marks more and more individual as well as institutional investors are involved in the market in subsequent years. Size of the secondary stock

market, as measured by NEPSE index was decreasing up to the fiscal year 2002/03, then after it was also increasing trend.

2. While comparing the major indicators of stock market i.e. size of the primary market (PM) and NEPSE index with the major indicator of economic growth i.e. GDP, S, I, and CF we find positive results. Over the years GDP, CF, I, PM, and NI are increasing trend. This certainly tells about the positive relationship between financial markets and real activities in the economy. Only saving in the Nepalese economy is quite fluctuating. Though the increase in the size of the stock market is not very quick fast, but keeping in mind the state of our economy, it is encouraging.

The major findings of correlation analysis are presented as follows:

1. The correlation coefficients of market capitalization (MC), the stock market variable with various economic growth related variables: gross domestic product (GDP), saving (S), investment (I), and capital formation (CF) are 0.829, 0.664, 0.915, and 0.884 respectively. All the coefficients are highly significant and positive. Hence there is positive relationship between stock market variable, MC and growth variables; GDP, S, I and CF.

2. The correlation coefficients of value traded (VT) the stock market variable with various economic growth related variables: GDP, S, I and CF are 0.803, 0.825, 0.871 and 0.876 respectively. All the coefficients are positive and significant. Hence there is also positive relationship between the stock market variable VT and the growth variables; GDP, S, I and CF.

3. The correlation coefficients of size of primary market (PM), the major indicator of primary stock market with various economic growth indicators: GDP, S, I, and CF are 0.853, 0.613, 0.914 and 0.875

respectively. All the coefficients are positive and significant. Hence there is positive relationship between primary stock market and economic growth.

4. The correlation coefficients of NEPSE Index (NI), the composite indicator of secondary stock market with the various economic growth indicators; GDP, S, I, and CF are 0.702, 0.609, 0.805, and 0.784 respectively. All the coefficients are positive and significant. Hence there is positive relationship between secondary stock market and economic growth.

Since, none of the coefficients are negative and most of the coefficients are greater than 70%, the researcher found there is positive relationship between stock market and economic growth of Nepal.

Major findings of regression analysis are presented as follows:

1. The estimated coefficients of GDP on MC, I and PM have positive and expected signs. The causal relation tells that with the increase in the size of the market as measured by MC and PM, the size of the economy as measured by GDP, also increases. This result supports theoretical assumption of Levine and Zervos (1998). But the estimated coefficients of VT and V have negative signs. These results are consistent with assumption. All the values of t-statistics are insignificant at 5% level of significance which is unexpected part of the study.

2. The estimated coefficients of S on MC and TO have positive and expected signs but the coefficient of VT, V, and PM have negative signs. All the variables, i.e. MC, VT, T, V, and PM have significantly related with saving (S) under t-statistics and F-test. The causal relation specifies that with the size of the secondary stock market saving level of the

economy also increases due to the increased saving by firms and individuals.

3. The regression coefficients of I and CF on MC, T and PM have positive and expected signs but the coefficients of VT and V have negative signs which is unexpected part of the study. All the value of t-statistics are insignificant at 5% level of significance which is also unexpected part of the study. So far, the cause of results being insignificant concerned, there may be other factors such as very small observation period, data dissertations and other invisible factors.

4. Though some of the relations are quite consistent with the theoretical relationship of stock market variable and economic growth variables as proposed by Levine and Zervos (1999), surprisingly, value traded and volatility are not related significantly even with any one of the economic growth variables.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary, Conclusion

Stock market works as the medium to channelize the saving resources towards the productive uses in the form of investment. Where as secondary stock market does it by influencing the perception of investors and firms about the economic activities and prospect, the primary market plays the vital role directly in increasing the investment level and thus, capital stock, of firms through mobilizing the savings of individual investors as well as institutional bodies. An efficient stock market is the medium through which only productive firms that have better performance can easily raise capital through primary markets. this type of behaviour of efficient market enhances the economic growth process by the productivity growth. Stock markets also help agents manage liquidity and productivity risk by eliminating premature capital liquidation which also increases the firms' productivity. Stock market works as a vehicle for raising capital for firms. Stock markets help investors to diversify their wealth accross variety of assets. The companies enjoy permanent access to capital fund raised through equity issue. The growth in the economy only occurs if society invests and maintains a sufficient amount of capital in firms that augment human capital and technologies. The more resource allocated to the firms, the more rapid will be economic growth. Efficient stock markets perform this role by reducing the liquidity risk to the investors.

This study, assessing the role of stock market in economic growth in the context of Nepal. the study is totally based on the secondary data. for the purpose of the study's objectives, the data on aggregate economic variables such as gross domestic product, saving, investment, capital formation and stock market variables such as market capitalization, value traded, turnover, volatility, and size of the primary market were collected from the fiscal year 2000/01 to 2006/07.

The main aim of this study is to measure the relationship between stock market and economic growth in context of Nepal. Specifically, the objectives of the study are set as: first, to measure the relationship between various indicators of stock market development such as market capitalization, value traded turnover, volatility, and size of the primary market, with various indicators. of economic growth such as gross domestic product, saving, investment, and capital formation; second, to analyze the significance of the development of stock market in economic growth and third to examine the role of stock market in saving channelization and capital mobilization, hence economic growth with the purpose of aggregate analysis all the data on economic variables and stock market variables are transformed into logarithm. It is done in order to have the comparision and relation simple and more interpreting. Another reason was to have the analysis of simple line trend on the basis of log values because these process showed the direction of change more clearly than the magnitude of change. Then correlation analysis is performed so as to understand the simple association between the variables. This analysis is done with the help of correlation matrix. Finally the regression analysis is performed to find the casual association between stock market variables and economic growth variables. Though, the results obtained from this analysis on the aggregate economic growth

variables and stock market variables should be viewed quite skeptically and while drawing conclusion, a cautious and calculative process is required. The main reason for this is that the observation period for the study is only 7 (from 2000/01 to 2006/07). Because of unavailability of quarterly data only yearly data have been used which is not that much sufficient for the regression analysis.

At last but not least a few very interesting inferences can be made from this research.

5.2 Recommendations

As is found by the numerous research works, including this particular one, stock markets are very strong economic institutions and are found to be the cause of economic enhancement of the nation. Since the economic activities of the nation get big boost by the orderly and efficient functioning of stock market, creating the framework for the efficient functioning of the stock market is the must. An appropriate legal framework, with sufficient provisions to safe guard the interests of the investors and making them aware, to regulate the behaviour of the participating firms in the market, to make sufficient improvements in the ways the securities are traded with adopting to new technologies of trading such as automatic quotation system via computers should be created such on atmosphere should be present for the firms such that the firms abide by rules in terms of timely and regularly reporting of their financial position to the investors. to develop the foreign portfolio investment by making adjustment necessary steps should be taken.

Specifically following recommendations are suggested.

- ➔ Strong provisions via specific laws should be made to protect the rights of the investors.

- Prospective and incumbent investors should be made more aware about the functioning mechanism of the market.
- Maximum possible information should be made available to the investors at minimum possible costs.
- Timely and regular disclosure of the information should be made necessary for the participating firms. Provisions should be made so as to necessitate the organizations to disclose their financial data at least quarterly.
- Management of the listing and de-listing of the firms should be made effective with the help of specific criteria.
- Market makers and investment bankers should be encouraged to participate in the stock market.
- Specific provisions should be made to attract the foreign portfolio investment in the domestic market.
- All the necessary organisms should be set up for the efficient functioning of the market.
- Ways of transaction should be rectified and modified via automated quotation and appropriate technology.

If the necessary measures are taken towards making the Nepalese stock market more efficient, not only investors and participating firms but the whole economy is likely to benefit. Since, the efficiency of the market may be the cause for the efficiency of the economy, this goal should be pursued by concerning authorities more vigorously and seriously.

Finally, there is a lot of scope for research in this particular field. Finding the contribution of stock market to the economy and research study in this area are new phenomena. therefore, in case of Nepal, as

well, the extended and comprehensive study in this field will be just as timely and appropriate. Even, this particular study can be extended by including more and more specific variables and designing the research more appropriately. Another aspect of future research may be not merely the casual relationship between stock market and growth variables but mainly focus on the channels through which the stock market are able to influence the growth process positively.

Studies on the role of stock market on expansion of the corporate base, industrialization, technological advances and employment generations will not be out of place considering the early stage of our stock market and its efficiency level.

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APPENDIX – I

Monthly NEPSE Index from the Fiscal year 2000/01 to 2006/07

Base: 1994, Feb = 100

Year	Month	Index	Year	Month	Index
2000/01	July/Aug	364.24	2003/04	Mar/Apr	201.22
	Aug/Sept	421.18		Apr/May	204.35
	Sept/Oct	433.91		May/June	213.12
	Oct/Nov	519.33		June/July	222.04
	Nov/Dec	480.05	2004/05	July/Aug	241.51
	Dec/Jan	464.76		Aug/Sept	234.58
	Jan/Feb	455.34		Sept/Oct	231.31
	Feb/March	395.85		Oct/Nov	235.08
	March/April	369.05		Nov/Dec	236.38
	April/May	355.60		Dec/Jan	239.61
	May/June	333.18		Jan/Feb	257.29
	June/July	348.43		Feb/March	280.65
2001/02	July/Aug	322.13		March/April	293.26
	Aug/Sept	265.22		April/May	285.42
	Sept/Oct	281.21		May/June	277.79
	Oct/Nov	300.15		June/July	286.67
	Nov/Dec	284.48	2005/06	July/Aug	300.05
	Dec/Jan	255.92		Aug/Sept	293.35
	Jan/Feb	236.01		Sept/Oct	297.94
	Feb/March	193.83		Oct/Nov	302.39
	March/April	216.21		Nov/Dec	303.12
	April/May	239.09		Dec/Jan	305.50
	May/June	226.04		Jan/Feb	317.79
	June/July	227.54		Feb/March	339.79
2002/03	July/Aug	226.59		March/April	334.77
	Aug/Sept	222.98		April/May	385.89
	Sept/Oct	219.26		May/June	372.01
	Oct/Nov	220.73		June/July	386.83
	Nov/Dec	214.57	2006/07	July/Aug	390.86
	Dec/Jan	200.80		Aug/Sept	382.56
	Jan/Feb	213.31		Sept/Oct	398.44
	Feb/March	209.66		Oct/Nov	447.43
	March/April	214.08		Nov/Dec	508.58
	April/May	207.45		Dec/Jan	537.09
	May/June	207.65		Jan/Feb	523.94
	June/July	204.86		Feb/March	494.06
2003/04	July/Aug	207.92		March/April	494.59
	Aug/Sept	208.46		April/May	513.45
	Sept/Oct	207.54		May/June	575.04
	Oct/Nov	206.21		June/July	683.95
	Nov/Dec	201.94			
	Dec/Jan	201.95			
	Jan/Feb	211.31			
	Feb/March	207.80			

Source: Various Yearly Publications of trading reports of NEPSE from the year

APPENDIX – II

Indicators of Economic Growth

Year	GDP	Savings	Investments	Capital Formation
2000/01	413429	51502	8458.2	98649
01/02	414091	43600	10166.8	93020
02/03	429699	42141	12342.5	105384
03/04	448654	63064	15366.4	131670
04/05	461452	68110	19438.5	155907
05/06	480409	58727	24648.0	175603
06/07	492812	70813	31549.5	203741

APPENDIX – III

Indicators of Stock Market

Year	Market Capitalization	Value traded	Turnover (%)	Volatility	Size of Primary Mkt.	NEPSE Index
2000/01	46349.4	2344.2	5.06	57.15	493.40	348.43
01/02	34703.8	1540.6	4.44	36.11	1579.90	227.54
02/03	35240.4	575.8	1.63	7.48	696.60	204.86
03/04	41424.8	2144.3	5.18	5.55	1090.40	222.04
04/05	61365.9	4507.7	7.34	23.43	1672.30	286.67
05/06	96813.7	3451.4	3.56	33.84	2443.30	386.83
06/07	186301.3	8360.1	4.48	81.81	2998.4	683.95

APPENDIX – IV

Year	GDP	Saving	Investment	Capital Formation	Market Capitalization	Value Traded	Turnover	Volatility	size of Primary Market	NEPSE Index
2000/01	5.616401	4.711824	3.927278	4.994093	4.666044	3.369995	0.704151	1.757016	2.693199	2.542116
01/02	5.617096	4.639486	4.007184	4.968576	4.540377	3.187690	0.647383	1.557627	3.198630	2.357058
02/03	5.633164	4.624705	4.091403	5.022775	4.547041	2.760272	0.212188	0.873902	2.842983	2.311457
03/04	5.651912	4.799782	4.186572	5.119487	4.617260	3.331286	0.714330	0.744293	3.037586	2.346431
04/05	5.664127	4.833211	4.288663	5.192866	4.787927	3.653955	0.865696	1.369772	3.223314	2.457382
05/06	5.681611	4.768838	4.391782	5.244532	4.985937	3.537995	0.551450	1.529430	3.387977	2.587520
06/07	5.692681	4.850113	4.498992	5.309078	5.270216	3.922211	0.651278	1.912806	3.476890	2.835034

Statistics

		Value traded	Turnover	Volatility	Size of primary market	NEPSE index
N	Valid	7	7	7	7	7
	Missing	0	0	0	0	0
	Mean	3274.8714	4.5271	35.0529	1567.7571	337.1886
	Std. Error of Mean	974.03925	0.65394	10.28507	343.83755	63.27926
	Median	2344.2000	4.4800	33.8400	1579.90000	286.6700
	Mode	575.80 ^a	1.63 ^a	5.55 ^a	493.40 ^a	204.86 ^a
	Std. Deviation	2577.06562	1.73017	27.21175	909.70864	167.42118
	Variance	6641267.2	2.993	740.479	827569.803	28029.852
	Skewness	1.449	-.114	.750	.493	1.816
	Std. Error of Skewness	.794	.794	.794	.794	.794
	Kurtosis	2.382	1.588	.023	-.809	3.568
	Std. Error of Kurtosis	1.587	1.587	1.587	1.587	1.587
	Range	7784.30	5.71	76.26	2505.00	479.09
	Minimum	575.80	1.63	5.55	493.40	204.86
	Maximum	8360.10	7.34	81.81	2998.40	683.95
	Sum	22924.10	31.69	245.37	10974.30	2360.32

a. Multiple modes exist. The smallest value is shown.

APPENDIX – V

Correlations

		Gross domestic product	Saving	Investment	Capital formation	Market capitalization	Value traded	Turnover	Volatility	Size of Primary Market	NEPSE Index
GROSS PRODUCT DOMESTIC	Pearson Correlation sig.(2-tailed) N	1 7	.810* .027* 7	.990** .000 7	.829* .021 7	.803* .030* 7	.130 .781 7	.309** .500 7	.853* .015 7	.702 .079 7	.979** .000 7
SAVING	Pearson Correlation sig.(2-tailed) N	.810* .027 7	1 7	.840* .018 7	.664 .104 7	.825* .022 7	.625 .133 7	.327 .475 7	.613 .144 7	.609 .147 7	.767* .044 7
INVESTMENT	Pearson Correlation sig.(2-tailed) N	.979** .000 7	.767* .044 7	.988** .000 7	.915** .004 7	.871* .011 7	.084 .859 7	.457 .303 7	.914* .004 7	.805* .029 7	1 7
CAPITAL FORMATION	Pearson Correlation sig.(2-tailed) N	.990** .000 7	.840* .018 7	1 7	.884** .008 7	.876** .010 7	.192 .680 7	.433 .332 7	.875** .010 7	.784* .037 7	.988** .000 7
MARKET CAPITALZATON	Pearson Correlation sig.(2-tailed) N	.829* .021 7	.664 .104 7	.884** .008 7	1 7	.935** .002 7	.029 .950 7	.752 .051 7	.859* .013 7	.971** .000 7	.915** .004 7
VALUE TRADED	Pearson Correlation sig.(2-tailed) N	.803* .030 7	.825* .022 7	.876** .010 7	.935** .002 7	1 7	.366 .419 7	.733 .061 7	.812* .026 7	.918** .004 7	.871* .011 7
TURNOVER	Pearson Correlation sig.(2-tailed) N	.130 .781 7	.625 .133 7	.192 .680 7	.029 .950 7	.366 .419 7	1 7	.137 .770 7	.108 .818 7	.067 .886 7	.084 .859 7
VOLATILITY	Pearson Correlation sig.(2-tailed) N	.309 .500 7	.327 .475 7	.433 .332 7	.752 .051 7	.733 .061 7	.137 .770 7	1 7	.532 .219 7	.875** .010 7	.457 .303 7
SIZE OF PRIMARY	Pearson Correlation sig.(2-tailed) N	.853* .015 7	.613 .144 7	.875** .010 7	.859* .013 7	.812* .026 7	.108 .818 7	.532 .219 7	1 7	.756* .049 7	.914** .004 7
NEPSE INDEX	Pearson Correlation sig.(2-tailed) N	.702 .079 7	.609 .147 7	.784* .037 7	.971** .000 7	.918** .004 7	.067 .886 7	.875** .010 7	.756* .049 7	1 7	.805* .029 7

APPENDIX – VI

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the estimate
1	.986 ^a	.973	.838	12627.50135

a. Predictors: (Constant), Size of primary market, turnover, volatility, value traded, market capitalization.

ANOVA^b

Model		Sum of Squares	df	Mean square	F	Sig.
1	Regression	5.8E+009	5	1151467495.1	7.221	.275 ^a
	Residual	1.6E + 008	1	159453790.22		
	Total	5. 9E + 009	6			

a. Predictors: (Constant), Size of primary market, turnover, volatility, value traded, market capitalization.

b. Dependent Variable: Gross Domestic Product.

Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients		Sig.
	B	Std. Error	Beta	t	
1. (Constant)	370650.95	47152.810		7.861	.081
Market capitalization	1.521	1.107	2.662	1.374	.401
Value trade	-16.685	21.910	-1.369	-.762	.586
Turnover	11942.797	11924.646	.658	1.002	.500
Volatility	-915.293	331.302	-.793	-2.763	.221
Size of Primary market	.979	13.621	.028	-.072	.954

a. Dependent Variables: Gross Domestic Product.

APPENDIX – VII

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	1.000 ^a	1.000	.999	301.97986

a. Predictors: (Constant), Size of primary market, turnover, volatility, value traded, market capitalization.

ANOVA^b

Model		Sum of Squares	df	Mean square	F	Sig.
1	Regression	7.8E+008	5	156863396.03	1720.147	.018 ^a
	Residual	91191.836	1	91191.836		
	Total	7.8E + 008	6			

a. Predictors: (Constant), Size of primary market, turnover, volatility, value traded, market capitalization.

b. Dependent Variable: Gross Domestic Saving.

Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
1. (Constant)	15586.141	1127.634		13.822	.046
Market Capitalization	.675	.026	3.245	25.496	.025
Value trade	-7.523	.524	-1.696	-14.358	.044
Turnover	8670.303	285.171	1.312	30.404	.021
Volatility	-321.291	7.923	-.765	-40.552	.016
Size of primary market	-6.702	.326	.533	-20.576	.031

a. Dependent Variables: Gross Domestic Saving.

APPENDIX – VIII

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	.995 ^a	.990	.939	2060.47900

a. Predictors: (Constant), Size of primary market, turnover, volatility, value traded, market capitalization.

ANOVA^b

Model		Sum of Squares	df	Mean square	F	Sig.
1	Regression	4.1E+008	5	82927288.754	19.533	.170 ^a
	Residual	4245573.7	1	4245573.705		
	Total	4.2E + 008	6			

a. Predictors: (Constant), Size of primary market, turnover, volatility, value traded, market capitalization.

b. Dependent Variable: Investment.

Coefficients^a

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. Error	Beta		
1.	(Constant)	2680.575	7694.109		.348	.787
	Market Capitalization	.231	.181	1.522	1.281	.422
	Value trade	-1.386	3.575	-.427	-.388	.765
	Turnover	1177.122	1945.791	.244	.605	.654
	Volatility	-157.796	54.060	-.514	-2.919	.210
	Size of primary market	1.838	2.223	.200	.827	.560

a. Dependent Variables: Investment.

APPENDIX – IX

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	.987 ^a	.974	.842	16828.67300

a. Predictors: (Constant), Size of primary market, turnover, volatility, value traded, market capitalization.

ANOVA^b

Model		Sum of Squares	df	Mean square	F	Sig.
1	Regression	1.0E+010	5	2089661735.8	7.379	.272 ^a
	Residual	2.8E+008	1	283204234.83		
	Total	1.1E +010	6			

a. Predictors: (Constant), Size of primary market, turnover, volatility, value traded, market capitalization.

b. Dependent Variable: Capital Formation

Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
1. (Constant)	30974.171	62840.557		.493	.708
Market Capitalization	1.839	1.475	2.390	1.247	.430
Value trade	-18.819	29.199	-1.147	-.645	.636
Turnover	15248.631	15891.978	.624	.960	.513
Volatility	-955.403	441.526	-.615	-2.164	.276
Size of primary market	.564	18.153	.012	.031	.980

a. Dependent Variables: Capital Formation.