ผลกระทบของการพัฒนาตลาดหุ้นต่ออัตราการเจริญเติบโตทางเศรษฐกิจ กรณีประเทศสมาชิกในกลุ่มความร่วมมือระดับภูมิภาคเอเชียใต้

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THE IMPACT OF STOCK MARKET DEVELOPMENT ON ECONOMIC GROWTH: EVIDENCE FROM MAJOR SAARC COUNTRIES

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A Thesis Submitted in Partial Fulfillment of the Requirements
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วิทยานิพนธ์ฉบับนี้ศึกษาถึงผลกระทบของการพัฒนาตลาดหุ้นต่อการเจริญเติบโตทางเศรษฐกิจของประเทศสมาชิกในกลุ่มความร่วมมือระดับภูมิภาคเอเชียใต้ ทั้งในระดับภูมิภาคและรายประเทศสมาชิกของกลุ่ม การศึกษานี้อาศัยแบบจำลองเชิงพลวัต 2 แบบจำลอง ซึ่งครอบคลุมข้อมูลตั้งแต่ปี ค.ศ. 1980 – 2004 โดยแบบจำลองแรกศึกษาผลกระทบโดยตรงของตลาดหลักทรัพย์ต่อการเจริญเติบโตของขนาดผลผลิตต่อประชากร ในขณะที่แบบจำลองที่สอง ศึกษาผลกระทบของตลาดหลักทรัพย์ต่อการเจริญเติบโตทางเศรษฐกิจโดยผ่านการลงทุน

ผลการศึกษาพบว่าตัวแปรตลาดหุ้น ได้แก่ ขนาดของตลาด ปริมาณกิจกรรม และสภาพคล่อง ไม่ได้ส่งผลกระทบอย่างมีนัยสำคัญทางสถิติต่ออัตราการเจริญเติบโตของผลิตภัณฑ์มวลรวมประชาชาติเบื้องต้นต่อหัวสำหรับประเทศในกลุ่มภูมิภาค ทั้งในระดับภูมิภาคและรายประเทศ ซึ่งอาจเนื่องมาจากขนาดของตลาดหลักทรัพย์ยังมีขนาดค่อนข้างเล็กเมื่อเทียบกับระบบเศรษฐกิจโดยรวม

สาขาวิชาเศรษฐศาสตร์และการเงินระหว่างประเทศ ลายมือชื่อนิสิต .....
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The study is to investigate the impact of stock market development on economic growth in SAARC region as well as for each of the member countries. The paper employs the two dynamic panel models for the period of 1980 to 2004. The first model tries to assess the stock market effect directly where as the second one does it by having its influence through investment.

The findings can be identified that both models reflected the fact that no stock market variables such as size, market activity, and liquidity have positive effect on the per capita growth rate in SAARC region. The study also finds out that stock market indicators do not have any significant impact on the growth rate of any SAARC member countries. This may be due to the small size of the stock market relative to economy.

Field of Study: International Economics and Finance Student's signature .....
Academic year 2007 Advisor's signature .....

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SAARC:	South Asian Association for Regional Cooperation
ASEAN:	Association of Southeast Asian Nations
SEC:	Securities & Exchange Commission
SAFE:	South Asian Federation of Exchanges
WFE:	Word Federation of Exchanges
WDI:	World Development Indicators
DSE:	Dhaka Stock Exchange
KSE:	Karachi Stock Exchange
CSE:	Colombo Stock Exchange
SSE:	SriLankan Stock Exchange
BSE:	Bombay Stock Exchange
IMF	International Monetary Fund

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The deepening and level of sophistication of modern financial markets is arguably a recent phenomenon. Since the 1980s the irreversible process of financial reforms, financial globalisation, and the deregulation of the financial systems have been throwing up daunting challenging for developing countries. The very common ways of meeting these challenges are to overcome these apprehensions, to promote structural improvements to markets and to speedily move towards the development of regional stock markets.

The development of equity markets provides a more diversified set of channels (in channeling the limited resources from surplus units to deficit units) for financial intermediation to support growth, thus bolstering financial stability of economy. The most important measure taken in this regard by many Asian countries in general and South Asian (SAARC) countries in particular by the opening of their respective stock markets to international investors' i.e, liberalised their stock markets in the early 90s. It is noted that the growth in developing markets is evident from the fact that from 1985 to 1995, the period of stock market liberalization in many developing countries, the market capitalization of all developing markets increased by 1,007 percent compared to an increase of 253 percent in the case of developed markets. As a result, the share of developing markets in the world market capitalization increased from 4 percent in 1985 to 11 percent in 1995.

The growth of South Asian stock market can be gauged by comparing their markets with the growth of developing and World stock markets. The table 1 below illustrates this significant role of the SAARC countries.

Table: 1.1 Role of SAARC Stock Markets

Countries	Market Established	Market Liberalise	Market Capitalisation % of GDP		Value Traded % of GDP		
			1990	2005	1990	2004	2005
Bangladesh	1954	1991	1.1	3.1	0.0	1.6	2.1
India	1875	1992	12.2	56.1	6.9	54.8	56.55
Pakistan	1947	1990	7.1	30.2	0.6	76.9	77.4
SriLanka	1896	1991	11.4	18.2	0.5	2.9	2.9
South Asia			10.8	39.6	5.6	52.2	51.2
World			47.8	88.5	28.5	97	92.5

Source: Estimated from WDI, Various Issues

It can be observed from the above analysis that the SAARC region has a long and varying history in equity markets. India and Sri Lanka have more than 100 years old markets whereas in Bangladesh and Pakistan the markets came into existence about 50 years ago. Although the South Asian equity markets have different history in terms of establishment, all these markets underwent for liberalisation at the same time, that is, in early 90s (meaning that equity markets in this region have been opened for the foreign investors since 1990). In 1990 the market capitalization in South Asia is 10.8 percent compared to World rate of 47.8 percent where only India represents 12.2 percent followed by SriLanka 11.4 percent and Pakistan 7.1 percent. In 2003 this ratio has increased for South Asian equity markets by 266 percent in comparison with the World 85 percent increase over the last 13 years. In 2005 the market capitalization ratio increased by 350 percent for South Asia stock market and by 102 percent for World equity markets compared to 1990 period. Over the last fifteen years world stock market has registered a significant plunge in terms of size of the market measured by market capitalization.

On the other hand, in 2004 the value traded to GDP ratio was 52.2 percent compared to 5.6 percent in 1990 for South Asian equity market. There was a 850 percent increase over these periods. The world equity markets have realized a 330

percent increase in terms of trading activity of the equity market. In particular, the improvement in trading activity in Pakistan is phenomenal among the South Asian countries. The trading activity ratio for Pakistan has increased by 127 times followed by 7 times for India. In 2005 value traded ratio increased by 814 percent for South Asian equity market and 230 percent for world equity market. Despite the fact that stock market goes down a little bit from the 2004 to year 2005, stock market for both World and South Asia experienced a bullish pattern over the last 15 years.

Now look at the development of stock markets in South Asia, Emerging and World markets covering both the periods before and after liberalisations.

Table: 1.2 No. of Listing Companies in SAARC, Emerging, & World Market

Countries	1983	1988	1993	1998	2003	2004	2005
Bangladesh	2.54	3.46	3.58	2.94	3.61	3.62	3.72
India	68.03	76.69	76.43	82.84	82.56	82.92	82.6
Pakistan	19.33	13.83	15.30	10.93	10.25	10.45	10.25
SriLanka	10.11	6.03	4.68	3.29	3.57	3.03	3.40
South Asia	1692	2921	4269	7074	6836	6909	6000
Percent of Emerging Markets	25.01	27.08	36.94	27.65	26.87	26.95	25.13
Percent of World	7.22	10.00	14.77	15.46	13.71	13.80	12.27
Emerging Markets	6764	10788	11557	25582	25441	25625	23873
Percent of World	28.86	36.94	40.00	55.91	51.03	51.25	48.84
World	23434	29205	28895	45753	49855	50038	48874

Source: Estimated from WDI Various Issues

Above table shows such developments over two decades. The statistics from the table shows that at the end of 1983 a little over 23,000 companies were listed at the stock markets of the World of which less than 30 percent were listed at the markets of developing nations and 7 per cent were listed in the SAARC equity

markets. A quarter of com panies listed at emerging stock markets belong to SAARC member countries. In 2003 W orld market experiences around 50000 listed companies of which 50 percent were listed in Em erging m arkets and around 14 percent were listed in South Asian equity markets. Over the two decades, the listed companies grew at the rate of more than 110 percent at the world markets. However, the growth in the case of e merging markets and South Asian m arkets were m ore than 275 percent and 300 percent, respectively. Recently in 2004 the growth rate of em erging markets was 207 percent and for South Asian m arkets it was 305 percent. As a result, the share of emerging markets increased to more than 50 percent whereas the share of South Asian markets in W orld market increased from 7 percent to around 14 pe rcent. For the year 2005 the statistics are alm ost sim ilar for emerging, South Asia and W orld equity markets.

Table: 1.3 Market Capitalisation ($US) Position of SAARC, Developing & World Equity Markets

Countries	1983	1988	1993	1998	2003	2005
Bangladesh	0.58	1.1	0.40	0.91	0.55	1.1
India	84.69	87.65	87.07	92.80	93.03	96.1
Pakistan	11.21	9.04	10.31	4.78	5.53	3.2
SriLanka	3.63	1.73	2.22	1.50	0.90	0.92
South Asia	10049	27206	112529	113345	300005	424403
Percent of Emerging Markets	11.88	7.38	6.76	6.38	8.20	10.04
Percent of World	0.30	0.28	0.80	0.42	0.94	1.09
Emerging Markets	84554	368491	1664045	1775267	3656722	4225954
Percent of World	2.51	3.74	11.87	6.59	11.45	1086
World	3371298	9857059	14016925	26923830	31947703	38904431

Source: Estimated from WDI Various Issues

This is despite the fact that the listed companies have actually gone down in South Asia during the last five years. The shares of emerging markets were only around 2 percent in 1983. The shares of South Asian markets were a little over 10 percent in emerging markets but were near to zero in world markets. In 2003 the share of emerging markets and the share of South Asian equity market were close to 12 percent and 1 percent respectively. Over the two decades, the market capitalization increased by 30 times in South Asian and by 43 times in emerging markets. The corresponding increase in World markets was 9 times causing an increase in the share of emerging markets to around 11 percent. In 2005, the market capitalization increased by 28 times in South Asia, 10 times in World and 55 times in emerging markets compared to the 1990 period. However, despite this significant increase the share of South Asian markets is still below 1 percent in world market whereas its share in emerging markets actually increased to 8 percent.

It is understandable to look at the activity of the equity markets of Emerging, South Asia and World. The SAARC countries performed much better in the activity ratio.

Table: 1.4 The Value Traded ($US) Position of SAARC, Developing & World Stock Market

Countries	1983	1988	1993	1998	2003	2005
Bangladesh	.02	0.03	0.6	0.50	0.09	0.95
India	92.84	98.45	90.66	93.62	80.80	84.8
Pakistan	7.03	1.42	7.68	5.72	18.89	18.9
SriLanka	0.12	0.10	1.60	0.18	0.22	0.98
South Asia	2560	12434	24023	158348	352496	364725
Percent of Emerging Markets	10.15	3.06	2.19	6.69	12.17	12.30
Percent of World	0.21	0.21	0.33	0.70	1.19	1.12
Emerging Markets	25215	406272	1096098	2368356	2896144	2963392
Percent of World	2.05	6.77	15.24	10.49	9.77	9.10
World	1227761	5997370	7194575	22575478	29639297	32564753

Source: Estimated from WDI Various Issues

In 1983 the value traded was $1227761 for World equity market of which SAARC countries stock markets accounted for 0.21 percent and emerging market accounted for 2 percent. In 2003, South Asian markets share was 1.1 percent and emerging markets share was 9.77 percent. This statistics implies that the value traded increased by 138 times in South Asian markets compared to 115 times in emerging and 24 times in World markets over the last two decades. For 2004 the growth rate for South Asian and emerging markets were 1.12 percent and 9.10 percent respectively. The share of South Asian equity market has moved to a little over 12 percent in emerging and over 1 percent in World markets.

1.2 Rationale of the Study

The existing literature clearly shows that developed economies had explored the two channels through which resources mobilization affects economic growth and development –money and stock markets (Samuel, 1996; Demirguc-Kunt and Levine, 1996). This is however, not the case in developing economies where emphasis was placed on money market with little consideration for stock market (Nyong, 1997). There are a few studies done in South Asia considering the impact of stock market development on economic growth.. Empirical studies have divergent views about the stock market role on economic growth. Some have expressed the optimism about the impact, while others are skeptical.

South Asian stock markets have undergone massive financial reforms in recent times, which have opened up the countries in the region to increased investment flows. Since the early 1990s, countries in South Asia have taken a number of policy decisions for revamping the overall structure of the stock market to create a more conducive investment-friendly environment. These include introduction of structural adjustment programs, deregulation of the financial sector and the privatization exercises, liberalizing then for international investors, strengthening the structure of the Securities and Exchange Commissions, and bringing the market more in line with accepted international norms. Under this backdrop, this paper makes attempt to assess the impact of stock market development on economic growth from the SAARC perspective.

1.3 The Objective of the Study

The linkage between stock market and economic growth has occupied a central position in the development literature (see Samuel, 1996; Demirguc-Kunt and Levine, 1996; Akinifesi, 1987; Levine and Zervos, 1996). According to the background to the research presented above, it would be interesting to examine whether the impact of stock market development has influence on economic growth among the members of SAARC countries or other policy options to develop the stock markets in the region. To reach conclusion and suggest any policy option, a quantitative assessment is required to ascertain the role of stock markets in SAARC countries.

The objective of the study can be presented as follows:

- To investigate the impact of stock market development on economic growth in SAARC Region

- To ascertain the impact of stock market development on economic growth for each of the SAARC member countries

1.4 Scope of the Study

The paper focuses on the impact of stock market development on economic growth among the SAARC member countries. The study aims at analyzing the impact of stock market on the economic growth for Bangladesh, India, Pakistan, and SriLanka. The study did not consider the other three members of SAARC, Nepal, Maldives and Bhutan because these three equity markets emerged in recent years. Among the SAARC countries these four countries stock market constitute almost 98% of overall equity volume in the region. The time series annual data for the period of 1980-2004 will be considered to assess the stock market impact in the region.

1.5 The organization of the study

Introductory chapter is designed to have an overall understanding of the background to the research by focusing on the size of the South Asian stock market relative to emerging and world stock market.

At the outset, chapter two is devoted to undertake a theoretical background of the research and literature review in order to gain understanding about the theoretical framework and empirical research findings.

The chapter three is devoted to focus on the methodology of the study to be followed to investigate the impact of stock market development on per capita growth, the data sources and the measurement of variables considered for the study.

The Significance of the South Asian stock markets will be demonstrated in chapter four by focusing on characteristics of South Asian stock market, history of SAARC stock markets, stock market development & trends in development of stock market in the region as well as sectoral performance of each of the stock markets in South Asia. The chapter also emphasizes how the stock market mobilizes resources for economy in each of the respective SAARC countries. A brief overview of South Asian Federation of Exchanges has also been presented in this chapter to have an understanding that how SAFE can initiate to promote the stock market in the region.

The fifth chapter is devoted to interpret the results from the models used in the study to examine the stock market role on the economic growth of SAARC member countries.

Finally, the conclusions and the some recommendations for the South Asian stock market as a whole will be presented in chapter six that would help the policy makers to strengthen the stock markets in the region particularly bin Bangladesh.

CHAPTER II

THEORETICAL FRAMEWORK & LITERATURE REVIEW

2.1 Introduction

This chapter is dedicated to explicitly focus on the theoretical motivation that how stock market as part of financial system contributes to the real economic activity. It is worthwhile to understand this phenomenon because theoretical disagreements exist about the importance of well functioning stock market for economic growth. There are few research studies done on this issue. Recent unprecedented explosive growth pattern of world equity markets have motivated the researchers to examine the fact that whether the development of stock market can influence the long-run rates of economic growth.

Three major surges in growth theory have been occurred in this century:

i) the first theory can be identified as the Harrod-Domar growth model.

ii) the second surge is the neoclassical growth theory in which Solow (1956) is the most important figure,

iii) and finally the third surge in growth theory was initiated by the work of Romer (1986) and Lucas (1988) and is called "the theory of endogenous growth."

Why these growth theories have been taken into consideration here is that in all these theories, the concept of capital accumulation plays an important role in determining the growth of the economy and the Steady-State. The problem that many developing countries face is a deficiency in capital accumulation. That means different theories of economic development consider the lack of capital one of the major problems that developing countries face (Basu, 1997). Therefore, such countries need a well-developed financial sector to enable firms to finance their needs in order to stimulate capital accumulation. The stock market, in this regard, can be identified as one of the easiest ways to finance firms and enable savers to have access to their investments at any time. Moreover, the stock market gives investors a higher

return than interest rates, which encourages people to save and invest in the stock market.

2.1.1 Linking the Role of Stock Market to Real Economic Activity

The functional approach of Levine (1997) provides a useful framework to think about the role of stock market. Stock markets allow for more efficient financing of private and public investment projects. By representing ownership of large-value, indivisible physical assets by easily tradeable and divisible financial assets, and making trade in them more liquid, they promote the efficient allocation of capital. They give lenders the opportunity to diversify their investments. In these roles, stock markets increase the quality and quantity of intermediated funds.

Several possible vehicles have been advanced in order to link the role of equity market to economic development. These vehicles are outlined into the following categories:

i) Liquidity

The stock market development can influence the real economy by reducing the liquidity and productivity shocks. A developed equity market alleviates liquidity shocks by preventing the premature withdrawal of physical capital invested in the long-term higher return projects which induce more productive investments and lead to economic growth.

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. Specifically, liquid stock markets reduce the downside risk and costs of investing in projects that do not pay off for a long time. By facilitating longer-term, more profitable investments, liquid markets improve the allocation of capital and enhance prospects for long-term economic growth. So, the primary benefit of a stock market is that it constitutes a liquid trading and price determining mechanism for a diverse range of financial instruments. This allows risk spreading by capital raisers and

investors and matching of the maturity preferences of capital raisers (generally long-term) and investors (short-term). This in turn stimulates investment in the economy and contributes to long-run economic growth.

The study of Wider (1990), Bencivenga and Smith (1991), Levine (1991), and Neusser and Kugler, 1998] highlighted the role of stock market liquidity to contribute growth.

ii) Information

Stock market can also influence economic growth through information channel. It is emphasized that stock market by reducing the adverse selection and moral hazard effects provides the mechanism for structuring managerial incentives to make productive investments decision that affect the firm value over a longer time period. For example, how information vehicle works can be identified as follows: stock markets function as a monitor of managerial performance because the stock price incorporates performance information that cannot be extracted from a firm's current or future data. A poorly performing management may become the target for a take-over. The argument is that takeover threats induce managers to maximize the firm's equity price. Thus, the information that is reflected in a firm's share price is important for structuring managerial incentives to build up a firm's productivity, and promote efficient resource allocation and hence economic growth in aggregate.

The study of Laffont and Tirole (1988) and Scharfstein (1988) Greenwood and Jovanovic (1990), Holmstrom and Tirole (1993), Dow and Gordon (1997), have registered the role of information as stock market vehicle to contribute to growth in their study.

iii) Innovation

Another prominent vehicle through which stock market can affect the long-run economic growth is innovation. Stock market stimulates information about the innovative activity of entrepreneurs or the aggregate state of technology. For example, stock markets evaluate the potential innovative projects, finance the most promising ones and monitor the carrying out of the investment. This will stimulate the rate of productive investments in economy. This implies that a higher rate of successful innovations results in a higher growth rate of productivity. So, financial markets help

the functio n of efficient resou rce allo cation. Therefore, an econo my with well-functioning stock markets will experience a higher growth rate of productivity.

The paper of Bagehot (1873) and Hick s (1969), Schumpeter (1912), King and Levine (1993b), Greenwood and Jovanovic (1990), Bencivenga, Sm ith and Starr (1995), Demetriades and Hussein (1996) signified the role of innovation as the engine of growth.

iv) Savings Mobilization

In principle, a well-developed stock market is supposed to increase saving and efficiently allocate capital to productive investments, which leads to an increase in the rate of econ omic growth. Stock m arkets c ontribute to th e mobilisa tion of dom estic savings by enhancing the set of financial inst ruments available to savers to diversif y their portfolios. In terms of raising capital, efficient stock m arkets can ease sav ings mobilization. By agglo merating sa vings, s tock m arkets en large the se t of f easible investment projects. Since so me worthy pro jects require large capital injections an d some enjoy econom ies of scale, s tock m arkets that ease resource m obilization can boost econo mic e fficiency and accelerate long -run growth. Still disagreem ent exists, however, over the im portance of stock m arkets for raising capital. Mayer (1988), for example, argues that new equity issues acc ount for a very sm all fraction of corporate investment.

The paper of Dailam i a nd Aktin (1990), Saint-Paul (1992), Greenwood and Smith (1996), Balckburn a nd Hung (1996), Levine and Z ervos (1998), Tsuru (2000 illustrated how stock market mobilizes resources to enhance economic growth.

V) Risk Diversification

Risk diversification thr ough internationally integrated stock m arkets is a vehicle through which stock market development may influence economic growth. These m odels also sho w that g reater risk diversification can influence growth by shifting investment into higher-return projects. Intuitively, since high expected- return projects also tend to be com paratively ri sky, better risk dive rsification through internationally integrated stock m arkets will f oster investm ent in higher re turn projects. On the other hand, theory suggests circumstances when greater risk sharing slows growth because it is m entionable th at reduced risk through internationally

integrated stock markets can depress saving rates, slow growth, and reduce economic welfare.

The study done by Saint-Paul (1992), Devereux and Smith (1994), and Obstfeld (1994), Rajan and Zingales (1996) demonstrated that stock markets provide a vehicle for diversifying risk and contributes to economic growth.

vi) Corporate Governance

How stock markets influence economic development through affecting (a) the savings rate, and the rate of investment can be interpreted in terms of the impact on the role of corporate governance. This is the concept at micro level. However, it is also important to consider on a macroeconomic level whether the overall level of savings has been affected. Otherwise, for example, it could be that the introduction and promotion of stock markets simply causes a substitution by savers toward s holding shares instead of bank deposits, while the overall level of investment funds remains constant. This, of course, is not to say that such a substitution could not impact on economic development, such as in the case where financial institutions or stock markets mobilize and allocate funds relatively more efficiently than the other.

There are two distinct models through which the corporate governance role of stock market can be discussed: the first model is labeled the outsider, stock market-based approach (OS) and the second model labeled the insider, bank-based model (IB). Under the stock market-based model, firm ownership is typically diffuse and individual shareholders are outsiders in the sense that they only have arms length input into the firm's decision-making through a board of directors. Corporate governance in this model is performed primarily through a market for corporate control. Therefore, the stock market plays a central role in corporate governance via the takeover mechanism.

The study of Mayer (1994), Singh (1997), of Maurice Obstfled (1994), Corbett (1994), and Rowstowsi (1995) signified this role of corporate governance to influence the economic growth.

On the other hand, in the bank-based model, firm ownership is concentrated in the hands of a few key shareholders that rarely trade their shares. Corporate governance is exercised from within the firm by these insiders rather than through a

market for corporate control. Banks, rather than stock markets, feature predominantly in this model. Their influence is through several channels, including being important suppliers of external finance, holders of firm equity and holding seats on the firm's management board.

The study of Corbett (1994), Aoki (1995) Popov 1999), and Scholtens (2000) highlighted the corporate governance role as stock market vehicle to affect economic growth.

According the above analysis it could be observed that there are theoretical motivations, which provide a conceptual basis for believing that larger, more liquid, more efficient stock markets boost economic growth. It is also to be noted here that all the vehicles described above can influence the economic through two channels: capital accumulation and technological innovation.

The paper of Roma (1986), Locus (1988) and Rebela(1991), Romar(1990), Grossman- Helpman(1991), Aghion-Howitt(1992) have been represented how different stock market vehicles influence the economic growth through these two channels.

The following diagram demonstrates, in essence, how the stock market- in presence of market frictions (transaction cost and information cost) performing its different functions affects the economic growth in terms of capital accumulation and technological innovation.

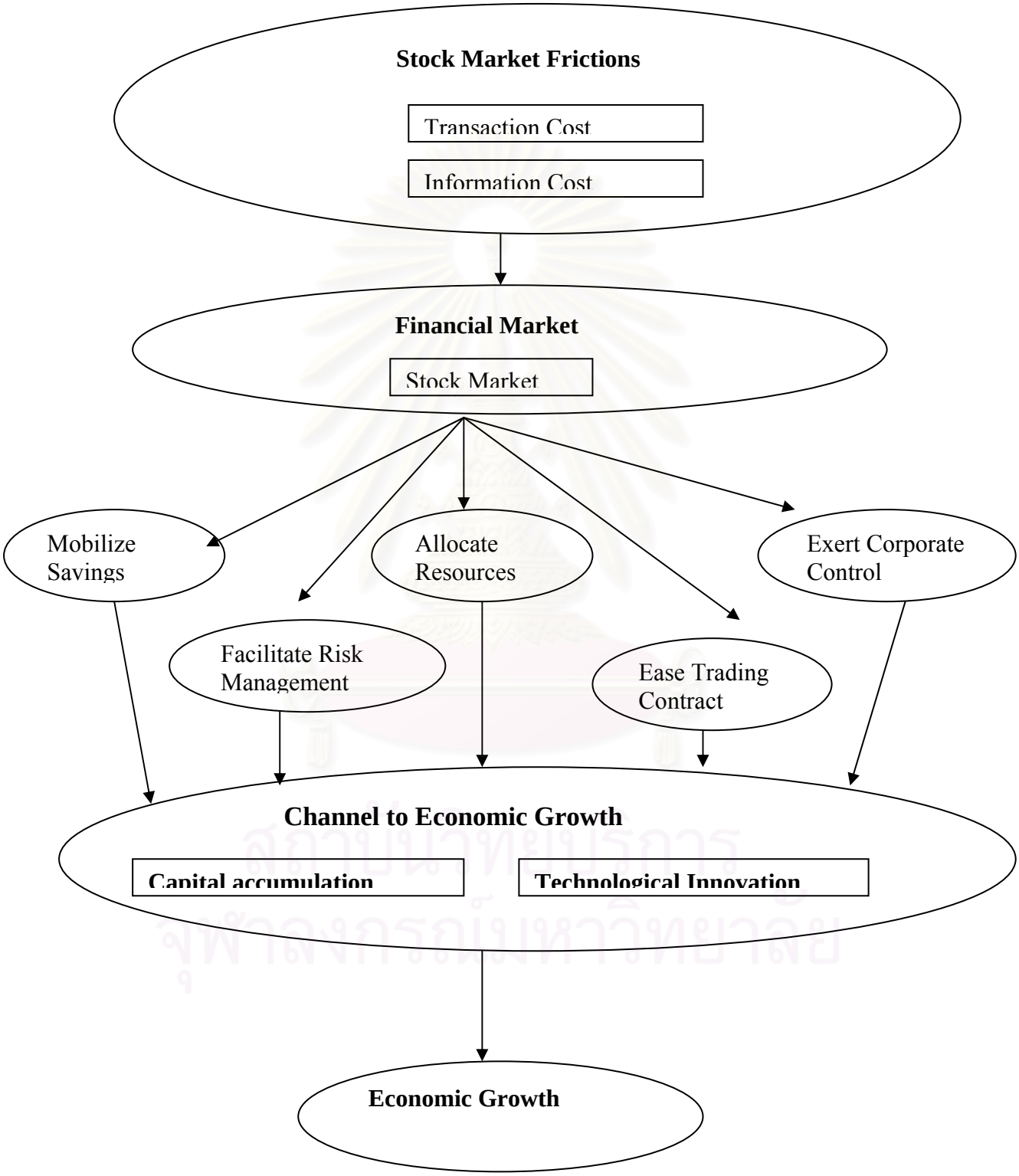


Figure: 2.1 Framework to Link to Growth

2.2 Literature Review

This part is devoted to underline the literature review which focuses on the empirical studies to shed light into the research. First part of this section represents empirical studies made on financial sector development indicators to link the economic growth. Second part focuses on the stock market development indicators. Gurley and Shaw (1955) were the first to study the relationship between financial markets and real activity. They argued that one of the differences between developed and a developing country is that the financial system is more developed in the former. The argument was that financial markets could extend a borrower's financial capacity and improve the efficiency of trade. With well-developed financial markets investors can be provided with the necessary funds for their projects. They concluded that financial markets contribute to economic development through enhancing physical capital accumulation. Much of the literature on the relationship between financial markets and real output suffered a lack of evidence until the 1970s when studies by Goldsmith (1969), Shaw (1973) and McKinnon (1973) found that development of financial markets was significantly correlated with the level of per capita income.

More recently, the emphasis has increasingly shifted to stock market indicators and the effect of stock markets on real economies. In the past decade, the world stock markets surged, and emerging markets accounted for a large amount of this boom . So the researchers have motivated to, therefore, focus on the linkages between the stock markets and economic development.

2.2.1 Empirical Evidence: Linking the Role Financial Sector to Economic Activity

The researches have highlighted, at empirical level, the significance of having a developed financial system to support economic growth. The study of Jung (1986),Rousseau and Wachtel (1998), and Thorsten Leo Beck and Rahman(2005) identified the role of the Private Credit to GDP ratio on Economic Growth.

The paper of Levine, Loayza & Beck (2000), Caroline Waqabaca(2004) identified the Role of liquid assets to GDP Ratio on economic growth.

King and Levine (1993b), Beck, Demirguc-Kunt and Levine (1999), Levine (1998), Guglielmo Maria Caporale, Peter G. A Howells, and Alaa M. Solimman(2000)

found in their studies that total deposits as a percent of GDP Ratio has the most significant impact on economic growth.

The following table summarizes the above mentioned empirical studies with the findings of financial sector variables and models.

Table: 2.1 Empirical Findings of Financial Sector Variables

SL No.	Studies	Model	Country & Period	Results
The Private Credit to GDP Ratio				
1	Jung (1986)	VARs	56 developed developing	Positive
2	Rousseau and Wachtel (1998)	Causality Test	5 OECD countries (1871-1929)	Positive
3	Thorsten Leo Beck and Rahman(2005)	Structural Vector autoregressions (SVARs)	Bangladesh	Positive
The Liquid Assets to GDP Ratio				
1	Levine, Loayza & Beck (2000)	cross sectional OLS regression, cross sectional GMM estimation	69 (1960-2000)	Positive
2	Waqabaca(2004)	Time Series Model	Fiji (1970-2000)	Positive
The Total Deposit as a Percent of GDP Ratio				
1	King and Levine (1993b)	Cross Country Regression	77 developing countries (1960-1989)	Positive
2	Beck,Demirguc-Kunt and Levine (1999)	Bivrate Vector Autoregressive	Fiji	Positive
3	Levine (1998)	VAR	44 Developed &Less Developed(1975-1993)	Positive
4	Guglielmo,Maria Caporale, Peter G. A Howells, and Alaa M. Soliman(2000)	Causality Test	(Chile, Portugal, Korea, Philippines,and Greece)	Positive

2.2.2 Empirical Evidence: Linking the Impact of Stock Market to Economic Growth

In recent tim es there was a growing con cern of the role of stock m arket on economic growth. The stock m arket, in today's liberalized open m arket areana, is the center focus of the res earchers and policy makers because of the perceiv ed benefits it provides for the economy. The stock m arket provides the fulcrum for capital m arket activities an d it is of ten cited as a barom eter of business direc tion An activ e stock market m ay be relied upon to m easure ch anges in the general econom ic activities using the stock market index.

The paper of Levine and Zervos (1996), Nyong (1997), Rousseau and W achtel (2000), Tokunbo Simbowale Osinubi (2002) identified that market capitalization ratio is most significant stock market indiocator to contribute to growth.

Levine and Zervos{1996), Michael B. Devereux and Gregor W. Smith (1996) and Maurice Obstfeld (1996), Murinde (1996) , Levine and Zervos (1998) found in their study that turnover ratio has the crucial influence on economic growth.

The paper of Atje and Jovanovic (1993), Raja M. Albqami Michael Applegate (1996), Tokunbo Si mbowale Osinubi and Edo(2000), Ham id Mohta di and Sum it Agarwal(2000) highlighted the role of value traded ratio that has significant impact on growth.

The table in the following page summarizes the studies with em pirical findings of stock market development indicators along with study models and period.

Table: 2.2 Empirical Findings of Stock Market Variables

SL No.	Studies	Model	Country & Period	Results
The Market Capitalisation Ratio				
1	Levine and Zervos (1996)	Cross section country Regression	41 countries(1976-1993)	Positive
2	Nyong (1997)	Time series model	Nigeria (1970-1994)	
3	Rousseau and Wachtel (2000)	Time series model	48 countries (1976-1996)	Positive
4	Tokunbo Simbowale Osinubi (2002)	OLS	Nigeria (1980-2000)	Positive
The Turnover Ratio				
1	Levine and Zervos{1996)	Pooled cross country regression	48 countries (1976-1993)	Positive
2	B. Devereux and Gregor W. Smith (1996), Maurice Obstfeld (1996)	Cross country regression	49 (1976-1993)	Positive
3	Murinde (1996)	Panel Data model	7 Pacific Basin countries	Positive
4	Levine and Zervos(1998)	Cross sectional OLS regression	47 countries(1976-1993)	Positive
The Total Value Traded Ratio				
1	Atje and Jovanovic (1993)	Cross section regression	72 countries (1980-1988)	Positive
2	Raja M. Albqami Michael Applegate (1996)	Cross country regression	Saudia Arabia	Positive
3	Tokunbo Simbowale Osinubi and Edo (2000)	OLS	Nigeria (19890-2000)	Positive
4	Hamid Mohtadi and Sumit Agarwal(2000)	Dynamic panel model	21 developing countries	Positive

2.3 Summary

In this chapter an attempt has clearly been made to review the empirical studies on both the financial and stock market developments. In reviewing the empirical studies it was revealed that divergent views about the possible impacts of both financial and stock market variables on economic growth have been found. Among the identified financial sector variables, the liquid assets to GDP ratio, total deposits to GDP ratio and private credit to GDP ratio are significant. On the other hand, market capitalization ratio, turnover ratio and value traded ratio are the most significant stock market development indicators that influence the economic growth.

CHAPTER III

METHODOLOGY, DATA AND VARIABLES SPECIFICATIONS

3.1 Introduction

This chapter is devoted to go through the methodology to be followed to investigate the impact of stock market development on economic growth for each of the SAARC member countries considered for the study. The current section represents the research methodology followed for the study, section 3.2 represents the data sources and section 3.3 represents the specifications of the variables used for estimating the model.

3.2 Research Methodology

The study aims at investigating the impact of stock market development on economic growth among the SAARC member countries by focusing on exploring both qualitative and quantitative approaches to examine this stock market impact.

3.1.1 Descriptive/Qualitative Approaches

The descriptive and other qualitative information investigates the characteristics of South Asian stock markets and to identify the key stock market development indicators for each country that have significant impact on their economic activities. It also focuses on significance of the stock market in its role to mobilize the resources to productive investment relative to other area of economy for each of the country.

3.1.2 Quantitative Approach

The study examines the impact of stock market development on economic growth for four South Asian countries: Bangladersh, India, Pakistan, and SriLanka over the sample period of 1980-2004. To investigate the stock market impact, dynamic panel data approach is considered for the study. Two alternative models for

estimating the long-run effects of stock markets development on economic growth are used in this regard.

Model One (Direct Effect of Stock Market on Growth Rate)

This model examines the relationship between stock market development and economic growth directly, rather than through investment behavior. Thus, the level of investments is used as a control variable. Since we focus on growth, the model is in the form of a dynamic panel estimate of growth following such works as Islam (1995) and Lee, Pesaran, and Smith (1997), as follows:

$$Growth_{it}=\alpha_i+\gamma_t+\rho Growth_{it-1}$$
$$\theta_1(MCR_{it})+\theta_2(STR_{it})+\theta_3(TR_{it})+$$
$$\phi_1(INV_{it})+\phi_2(FDI_{it})+\phi_3(SE_{it})+\phi_4(OR_{it})+\phi_5(PC_{it})+\varepsilon_{it} \quad (\ldots\ldots\ldots\ldots 3.1)$$

Model Two (Indirect Effect of Stock Market on Growth Rate)

This model is a two-stage test of the hypothesis of whether the stock market affects economic growth. This is motivated by the well known theoretical study of Levine[1](1991) who proposes that investing in the stock market alleviates both the liquidity shock and the productivity shock that firms would otherwise face. Firms not facing liquidity shocks will have a higher level of investment leading to a higher growth rate. In order to test the above theoretical hypothesis we regress investment on three measures of the stock market and then we regress growth on value of investments as shown below:

[1]Levine and Zevros regress the growth rate of GDP per capita on a variety of control variables (to control for initial conditions) and a conglomerated index of stock market development, following the theoretical work of Atje and Jovanovic (1993). Though they find a positive and significant correlation between stock market development and long run economic growth, their approach entails possible measurement problems (use of two different sources: IFC and IFS), statistical problems (cross-sectional approach), and conceptual problems (combining several measures into a single measure) which may affect their results. The present paper is an attempt to address these shortcomings.

First Equation

$$INV_{it}=\alpha_i+\gamma_t+\theta_1(MCR_{it-1})+\theta_2(STR_{it-1})+\theta_3(TR_{it-1})+\varepsilon_{it} \quad (\ldots 3.2)$$

Equation Two:

$$Growth_{it}=\alpha_i+\gamma_t+\phi_1 Growth_{it-1}+\phi_2(INV_{it-1})+$$

$$\phi_3(FDI_{it-1})+\phi_4(SE_{it-1})\phi_5(OR_{it-1})+\phi_6(PC_{it-1)}+\varepsilon_{it} \quad (\ldots\ldots\ldots 3.3)$$

Where,

$Growth_{it}$ refers to the per capita growth rate of gross dom estic products of ith country for t period

MCR_{it} refers to the market capitalization ratio of ith country for t period

STR_{it} refers to the value traded ratio of ith country for t period

TR_{it} refers to the turnover ratio of ith country for t period

INV_{it} refers to domestic investment to GDP ratio of ith country for t period

FDI_{it} refers to foreign direct investment to GDP ratio of ith country for t period

SE_{it} refers to secondary school enrollment as percent of school population

OR_{it} refers to the openness ratio of ith country for t period

PC_{it} refers to domestic credits to GDP ratio of ith country for t period

ε_{it} refers to independent disturbances of ith country for t period

α_i refers to the country-specific effects

γt refers to the any common period-specific effects

Specifically, in such models the pr esence of lagged dependent variable (dynamic panel) im plies correlation between the error term and the lagged dependent variable, rendering the OLS estimator biased and inconsistent. Instead, we use an instrumental variable approach that yields consistent estimators. The coefficient of the

lagged growth variable would then capture any convergence effects of growth (e.g., see Islam, 1995; and Lee, Pesaran, and Smith, 1997).

The both these dynamic panel models can be estimated in several different ways: by using the grouped OLS, fixed effects, and random effects approach. The model one of the dynamic panel approaches includes only the lag of dependent variable and second model includes lag variable not only for the stock market development indicators but also for the other control variables. The first model attempts to assess the stock market development impact on per capita growth directly where as the second model considers to assess the impact of stock market indirectly through its effect on investment.

The first model may experience estimation problems with regression equation like multicollinearity and heteroscedasticity issues. In this situation second model will give the best estimation. Because the second model at first regresses the investment on stock market development indicators. This statistical technique will give the average or fitted value of investment which can be used to find out the confidence interval or prediction interval of investment level. This process will remove, to some extent, the estimation problems that may be aroused in case of first model Then put this fitted value of investment in the second equation to estimate the impact of stock market development on per capita GDP growth rate. Thus in case of second model it is possible to reduce the error term of the regression equation. The standard error and heteroscedasticity problem may also be reduced compared to first model. So, the above analysis vividly clarifies the basic difference between the two dynamic panel models used in the study to investigate the impact of stock market development variables on per capita growth for the member of SAARC countries.

3.3 Data Sources

The various data sources have been used for all the variables considered for the study. The data for the stock market development indicators: market capitalization, and total value traded have been taken from the various issues of annual reports of Stock Exchanges, and Securities & Exchange Commission of respective countries and from CEIC data base. Other sources include: World Development Indicators (Various issues), web site of South Asian Federation of Exchanges and World Federation of Exchanges. The data regarding the control

variables considered for the paper have been taken from the various issues of International Financial Statistics, Asian Development Outlook Reports, World Bank Reports, web site of the Ministry of Education, web site of Central Banks, various issues of World Development Indicators etc.

3.4 Specifications of Variables and Hypothesis

In order to maximize the use of information extracted from the data, the study uses several different measures of stock market development, as opposed to a single composite measure that is used in Levine and Zevros(1998). Although theory does not provide us with a foundation for any unique indicator of stock market development, it does suggest that stock market size, liquidity, activity and integration with the world capital markets may affect economic growth (Demirguc_Kunt and Levine, 1996).Using a variety of measures provides a richer picture of the potential links between stock market and growth than if a single measure is used.

Three variables are used as proxy for measuring the stock market development in the study:

i) market capitalization ratio

ii) the value traded ratio, and

iii) turnover ratio.

i) Market Capitalization Ratio (MCR)

The hypothesis is that there is positive impact of stock market capitalization ratio on economic growth**.** This measure equals the value of listed shares on domestic exchanges divided by gross domestic products (GDP). The ratio measures the size of the stock market relative to economy. The assumption behind this measure is that overall market size is positively correlated with the ability to mobilize capital and diversify risk on an economy-wide basis. Both Bekaert and Harvey (1997) and Levine and Zervos (1998), Rousseau and Wachtel (2000) used the ratio of the equity market capitalization to gross domestic product as a measure of the size of the local equity market in their studies.

ii) Total Value of Shares Traded Ratio (STR)

It is hypothesized that the value traded ratio of stock market has significant influence on the economic growth. This measure equals total value of shares traded on

the stock market exchange divided by GDP. The total value traded ratio measures the organized trading of firm equity as a share of national output and therefore should positively reflect liquidity on an economy-wide basis. It measures the trading relative to the size of the economy. Atje and Jovanovic (1993) and Levine and Zervos (1998) study considered value traded ratio as a measure of stock market activity to test the stock market influence on GDP growth.

iii) Turnover Ratio (TR)

The hypothesis is that turnover ratio has a positive association with GDP per capita growth rate.This ratio equals the value of total shares traded on domestic exchanges divided by market capitalization of the stock market. This ratio measures the size of the liquidity of the stock market. The turnover ratio measures the volume of domestic equities traded relative to the size of the market. The higher the ratio, the higher will be the liquidity of the stock market. Levine(1991), and Bencivenga, Demirguc & Levine (1996), Murinde (1996) used in their studies turnover ratio as one of the explanatory variable for assessing the stock market impact opn GDP growth rate.

Control Variables:

The set of variables that control for variation in economic growth rates across countries not accounted for by equity market development fall in to two categories: macroeconomic influences, banking development. The set of variables are linked to the condition and stability of the macro economy: the size of the trade sector divided by GDP, and foreign direct investment. The study also includes a human capital variable, secondary school enrollment.

Foreign Direct Investment (FDI)

Several empirical studies identified the FDI as control variable in the models. So the hypothesis is that FDI has direct impact on the economic growth of the country. Foreign direct investment as percentage of GDP is used as a control variable since it is presumed that FDI has become the largest component of capital inflow to developing countries over the past two decades. The relationship between FDI and economic growth has received significant attention in the current economic literature. The traditional view is that an inflow of FDI promotes economic growth by increasing the host country's capital stock. This implies that FDI has a distinct characteristic in

that it represents an equity investment that is directly related to the creation of new real capacity and the organizational skill to manage that capacity which ultimately promotes growth. The study of Sen (1995), Obstfeld (1994), Levine & Zervos (1998) and Khan & Senhadji (2000), Demirguc & Levine (1996) used in their studies foreign direct investment as control variable to assess economic growth.

Openness Ratio

The relationship between trade openness and growth is a highly debated topic in the growth and development literature. In economic literature, the openness of a country is usually measured using data on its international trade.

The hypothesis is openness ratio is positively associated with GDP growth rate.

The openness ratio can be referred to as the sum of exports and imports of goods and services measured as a share of gross domestic product. It is worth mentioning the fact that most macroeconomic texts pay too little attention to the effect of the openness of a country on its macroeconomic policy ignoring its importance for the economy as a whole. Rodrik(1999), Bekaert and Harvey (1995, 1997, 2000) and Levine and Zervos (1998) employed the size of the trade sector as imports plus exports divided by GDP. This variable is employed as a measure of control variable in their study to assess the stock market impact on growth.

Private Credit to GDP Ratio

As a banking sector representation the private credit has been included in many studies as control variable. The hypothesis is that private credit to GDP ratio has direct link to GDP growth rate. This represents the private credit provided to corporate sectors divided by gross domestic product. Credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable that establish a claim for repayment. This ratio reflects the financial sector depth of the economy because it assesses the extent of the involvement of the deposit money banks in extending credit to the private sector which foster the economic growth of the country through increasing the higher rate of private investment. The study of Jung (1986), King and Levine (1993), Thorsten Leo Beck and Rahman(2005) used private credit to GDP ratio to measure the economic growth.

Secondary School Enrollment (SE)

Many empirical studies also identified secondary school enrollment as a control variable representing the social sector variable. Hypothesis is that secondary school has impact on GDP growth rate. The relevance of human capital accumulation to the process of economic development stems from its potential beneficial impact on macroeconomic productivity and on the long-run distribution of incomes once some basic conditions are met. Several studies Hanson, and Benavot (1989), Barro and Sala-i- Martin (1995) Easterlin and Gordon (2001) used the secondary school enrollment as a control variable to contribute to growth of economy. The sequence can be identified as follows: Schooling tends to modernity, which tends to growth. Secondary school enrollment refers to the enrollment of secondary age expressed as a percentage of the secondary school age population. A high ratio denotes the high degree of participation of official school age population.

Gross Domestic Investment

Investment refers to the gross domestic investment as percentage of the gross domestic products (GDP). Hypothesis: Gross domestic investment has a positive link to GDP growth rate. This measures the size of the domestic investment relative to size of national output. The higher the domestic investment, the higher would be the economic output of the country. Jensen and Murphy (1990), Levine (1991), Thornton (1995), Greenwood and Smith (1996) considered domestic investment as the control variable in their studies.

3.5 Summary

This chapter at the outset makes attempt to demonstrate the research methodology used in the study. Two alternative dynamic panel models have been considered for the study. The first model tries to assess the stock market impact directly where as the second one focuses to explain the stock market effect on growth rate indirectly through the investment. The final part of the section identifies the data sources and the hypothesis of all the variables along with the variable specifications considered in the study.

CHAPTER IV

SIGNIFICANCE OF STOCK MARKET IN SOUTH ASIA

4.1 A Brief Background of SAARC Countries

The South-Asian Association for Regional Cooperation (SAARC) was established on December 8 1985, when its Charter was for mally adopted by the Governm ents of Bangladesh, Bhutan, India, Maldives, Ne pal, Pakistan and Sri Lanka. The SAARC region comprises of a population of about 1.43 billion, a total area of 4.1 m illion square kilometers.

Table: 4.1 Establishment and Systems of Governance – SAARC Countries

Country	Independence		Government	
	Date	From	Name	Nature
Bangladesh	16-Dec-71	West Pakistan	People's Republic of Bangladesh	Parliamentary democracy
India	8-Aug-49	United Kingdom	Republic of India	Federal republic
Pakistan	14-Aug-47	United Kingdom	Islamic Republic of Pakistan	Federal republic
SriLanka	4-Feb-48	United Kingdom	Democratic Socialist Republic of Sri Lanka	Republic
Maldives	26-Jul-65	United Kingdom	Republic of Maldives	Republic
Nepal			Kingdom of Nepal	Parliamentary democracy and constitutional monarchy
Bhutan	8-Aug-49	India	Kingdom of Bhutan	Monarchy; special treaty with India

Data Source: http://www.cia.gov/cia/publications/factbook/index.html

Some of the main objectives of the association as defined in the charter are:

a) to accelerate economic growth, social progress and cultural development in the region and to provide all individuals the opportunity to live in dignity and to realize their full potential, and

b) to promote active collaboration and mutual assistance in the economic, social, cultural, technical and scientific fields. Regional cooperation serves to promote the bilateral and multilateral relations of the SAARC Member States.

The South Asian economies are now becoming giant region in Asia for its ample opportunities for investment, trade and geographic characteristics. The table above characterizes the establishment and systems of governance of SAARC countries. Having the backround of SAARC country it is interesting to explore the significance of stock market in South Asia for the economic development in the region in the following part.

4.2 Characteristics of South Asian Stock Market

Understanding the role of stock market in mobilizing the resources efficiently (which causes the higher rate of investment and ultimately promotes the economic growth of the country) has been an undebatable issue in modern financial theory. To know about the stock market contribution to economic development, it is arguably required to demonstrate the qualitative and quantitative characteristics of stock market.

4.2.1 Qualitative Attributes of Stock Market

i) Institutional Infrastructure

South Asian stock markets characteristics can be assessed with regard to the degree of information efficiency and institutional infrastructure. A stock market's institutional infrastructure is generally characterized by the taxation of dividends and capital gains, the restriction of capital flow and the quality of information providing.

ii) Discriminatorial Taxation

The taxation of capital gains may lead to a misallocation of resources, because investors will try to avoid realizing profits and therefore reducing the effective tax

burden respectively the present value of tax. Especially in less developed countries a discriminatory taxation effects the capital allocation in a negative way, because foreign investors suffer more or less directly from disadvantages compared to domestic investors. Consequently, necessary capital inflows for real growth are missing and portfolio selection may be inefficient[*2].

The impact of taxes on the dividends and capital gains play vital role in developing the equity market.

Table: 4.2 Tax Rates on Long-Term Capital gains of Major Asian Countries

[

Countries	1995	2004
SAARC		
Bangladesh	10.2	15.7
India	29.9	38.0
Pakistan	24.3	27.5
SriLanka	14.5	17.0
ASEAN		
Thailand	24.0	36.4
Malaysia	46.3	63.9
Philippines	35.8	45.4
Vietnam	19.4	32.0
Singapore	41.5	51.7
Myanmar	34.4	40.5

Source: WDI, Various Issues

The table shows that taxes on long-term capital gains in South Asian countries are relatively low compared to the other Asian countries. For example, in Bangladesh the rate is 10.2 percent in 1995 and 15.7 percent in 2004 respectively. On the other hand, for Malaysia the tax rate on capital gains is 46.3 percent in 1995 and 63.9 percent in 2004. For Singapore it was 41.5 percent in 1995 and 51.7 percent in 2003, followed by Philippines 35 & 45 percent in 1995 and 2003 respectively.

[2]See *Jandura* (2000), p. 85.

Myanmar has 34 percent capital gain tax ra te in 1995 and it m oved to 40 percent in 2004. The conclusion can be m ade that the l ong-term capital gain tax rates for stock market in SAARC m ember countries are lo wer com pared to other Asian countries which im plies that SAARC stock m arkets are becom ing m ore attractive to tho se investors who are interested to achieve capital gains benefits from the market.

iii) Capital Flow Restrictions and Market Regulation

Regulatory issues that prohibit the f ree market entry and e xit re strict c apital mobility in equity m arkets, especially in less d eveloping countries because foreign investors are rarely allowed or on ly allowed to transact investments in a ce rtain kind or extent in the dom estic m arket. The develo pment of equity m arket to som e extent depends on the less restricted criteria so that th e capital flows can easily be floated globally. These kind of regul atory issues are h ardly p laying significant role now-a-days in most industrial countries, but are still relevant in less developed countries. It is to be noted that India, Bangladesh, Pakistan and SriLanka have liberalized their equity markets i n a lmost t he s ame t ime a nd ma de their m arkets more f lexible in term s of regulation. For Exa mple, stock m arket liberalise date for Bangladesh is 1991, for India 1992, for Pakistan it is 1990, and for SriLanka the date is 1991.

iv) Information Diffusion

Differences in econom ic culture and la nguage barriers, which should not be underestimated, generate asymmetric inform ation between dom estic and foreign investors. The resulting inform ation di sadvantages for fore ign investors m ake international investments seem more risky and can only be overcom e with additional information costs. A m ajor contribu tion to overc ome asymmetr ic inf ormation is the public dissem ination of stock exchange and com pany inform ation, especially for foreign investors.

All of the equity m arkets in SAARC have at least m ore than one daily disclosed stock m arket index. The reports and news of all exch anges are distributed electronically, the inform ation regarding t op trading firm , top perform ing and m arket losers and the repo rt r egarding th e vita l market ind icators (price-earnings ratio , dividend yield, NAV val ue etc,) of listed com panies are disclosed periodically. All of the stock m arkets of South Asian countr ies eva luated in th is paper require consolidated and exam ined annual reports fr om listed com panies. Further, som etimes

semi-annual or quarterly reports are required by the regulatory body of the respective stock market. In 1994 the accounting standards in these four South Asian countries were found to meet an international level.

v) Information Efficiency and Market Microstructure

The free access of all market participants to information is a necessary condition for market efficiency. It is best supported by an institutional infrastructure having the characteristics mentioned above. As stated from FAMA, a stock market is informationally efficient, if all the available information is directly reflected in current stock prices [*3]. An unlimited availability of market information and distribution as well as the immediate stock price reactions related with a change in these two are typical for efficient markets. Market transparency, which means the possibility of market participants to monitor relevant information for trading, is an essential criterion for the market microstructure of South Asian markets, as having this information on hand is substantial for trading strategies of individual market participants. Order information of other market participants like order volume, kind of order, price and time limits belong to this kind of information. Changes in trading strategies of the market participants affect the market equilibrium and the corresponding stock prices. If the amount of market endogenous information which investors view increases (for e.g. the orders of individual investors) market transparency will also increase.

The valuation of the market organization is dependent not only on information efficiency, but also on the market liquidity and market risk. Due to the increasing market capitalization over the last decade, the liquidity of SAARC equity markets has increased significantly. In 1993 the value traded was $24023 million for the South Asian equity market and $352496 million in 2003.This means the liquidity of the equity market in the region has been increased over the last decade.

[*3] See Fama (1970), P 383

4.2.2 Quantitative Attributes of Stock Market

This section attempts to identify the financial characteristics of the equity markets using the approach from Kumar and Tsetsekos based on the three factors of trade activity, market volume and pricing.

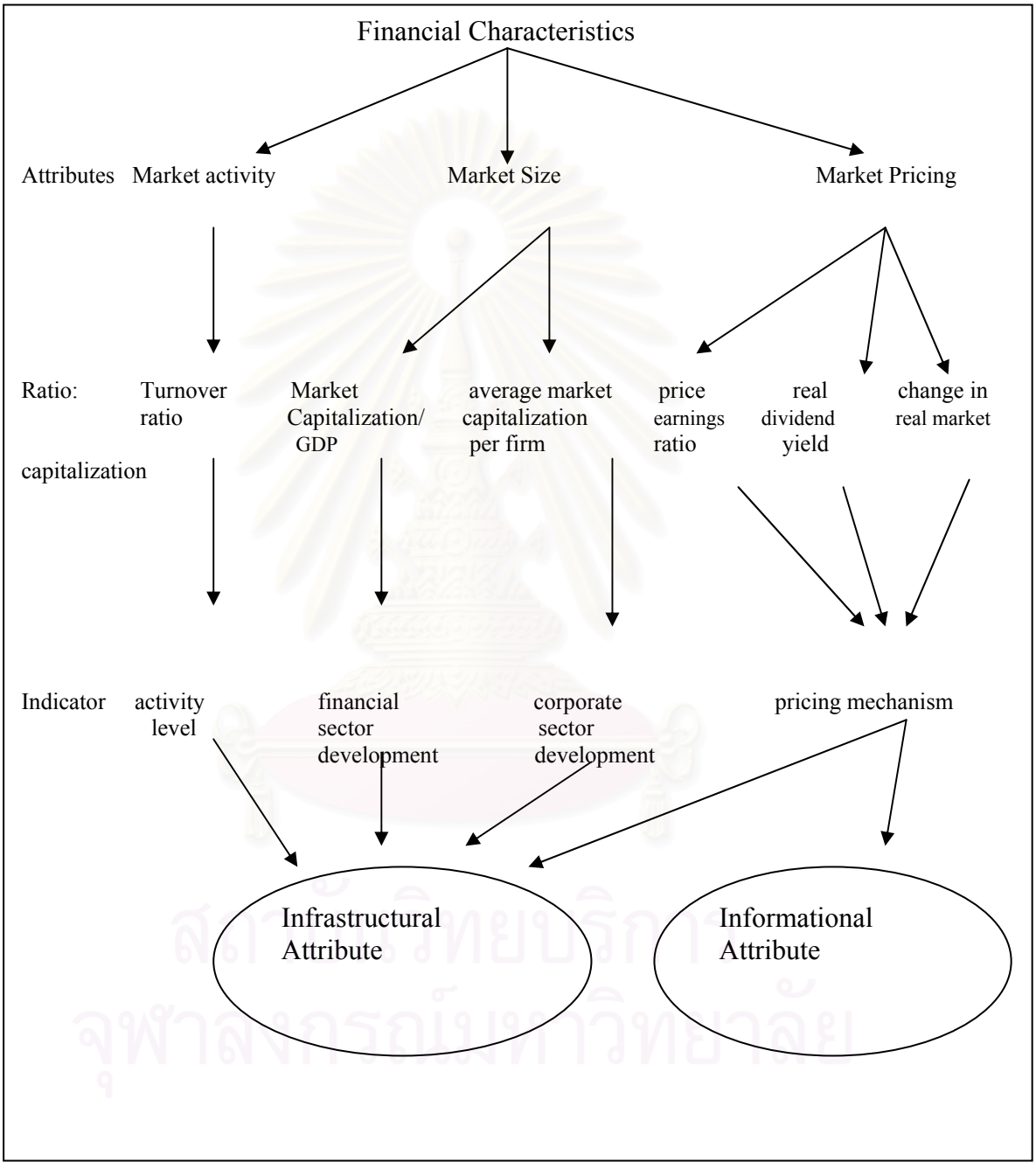


Figure: 4.1 Financial Characteristics of Equity Markets

The figure demonstrated above reinforce the strategies can be followed to identify the financial characteristics of the stock markets by segregating the market size, activity and market pricing mechanism and arriving at the infrastructural and informational attributes of the market.

I. Market Activity

The turnover ratio (TR) is an indicator which describes the relationship between the quality of the institutional infrastructure and the level of market activity. It is calculated as the annual value traded (VT) divided by the average market capitalization of the last two consecutive years:

$$TR = \frac{VT_t}{1/2.(MC_t - MC_{t-1})}$$

The value of 100% means that statistically seen every stock changed its holder at least once during the evaluated time period. So the turnover ratio is above all a ratio for market liquidity. In addition, extreme values indicate a highly speculative character of a market. The following table describes the liquidity position of SAARC and ASEAN countries.

Table: 4.3 Average Turnover Ratio for SAARC and ASEAN Member Countries

Region	Year 2000	Year 2005
SAARC Member Countries	168 Percent	120.6 Percent
ASEAN Member Countries	125.2 Percent	50 Percent

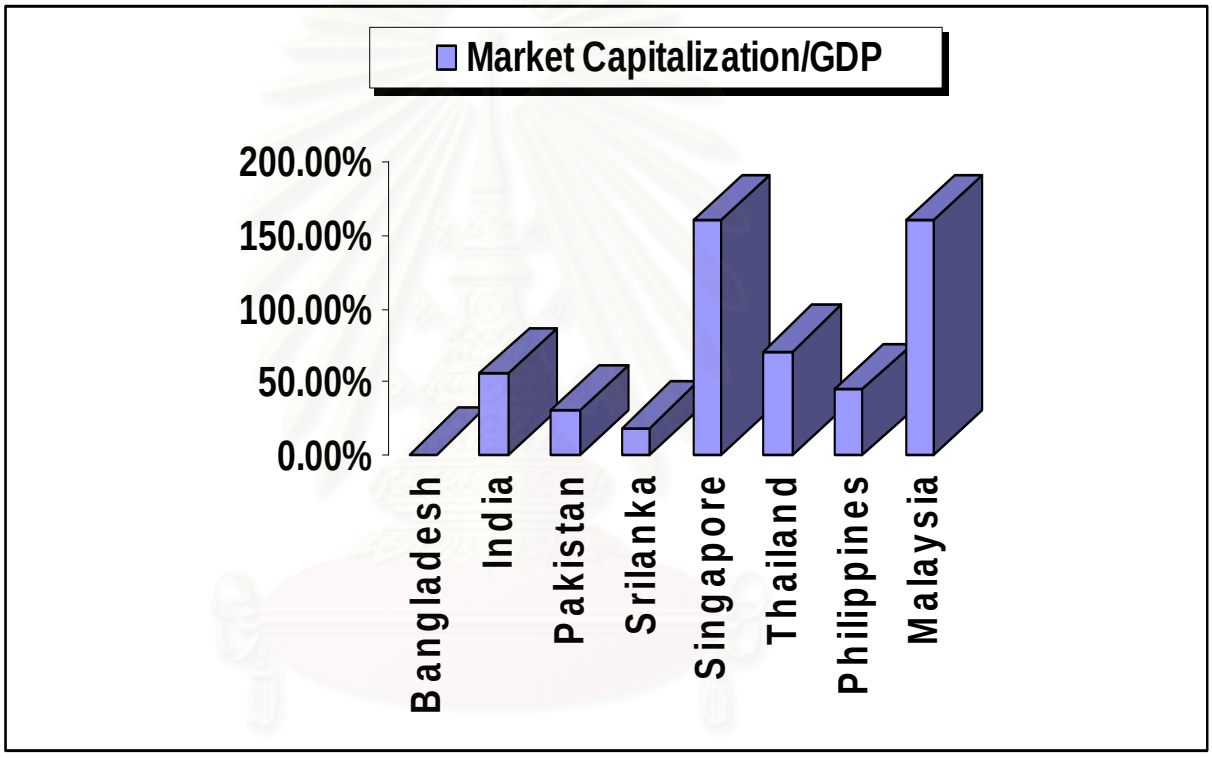
Source: Estimated from World Development Indicators

The turnover ratio, on average, for SAARC countries was 168 percent in 2000.For ASEAN countries it was only 125 per cent. This ratio has declined in 2005 for both regions with a 60 percent decline for SAARC member countries and 28 percent negative growth for the members of ASEAN countries compared to 2000. This appears to be understandable to the fact that how liquidity in SAARC and ASEAN stock markets is represented for interested investors to evaluate their portfolios.

II. Market Size

The stock market volume is an ind icator for its age and development level. In general it can be said that older markets have a better institutional infrastructure. The ratio of market capitalization to Gross Domestic Product (MCGDP*)* shows the portion of the stock m arket on the total national product of an econom y and indicates the market variety respectively the development stage of a financial market sector.

Figure:**4.2 Market Capitalisation to GDP Ratio for Major Asian Countries (2005)**



Source: World Development Indicators, 2006

In 2005 the m arket capitalization/GDP ratio for SAARC equity markets summed up to 48 percent, where solely India accounted for 56.1 percent, Pakistan 30.2 percent, SriLanka 18.2 pe rcent and Bangladesh 0.60 perc ent. On the other hand, for m embers of ASEAN countries this ra tio is added up to 41 percent where the Malaysia accounted for 160.6 percent a nd Thailand 71.4 per cent, Singapore 160 percent and Philippines 45 percent. This reflects that the size of the equity markets as reflected by the m arket capitalization to gr oss domestic product in SAARC region is small relative to other members of ASEAN Asian countries.

The company size which is represented by the number of listed company on stock exchange is also an indicator for the magnitude of the company sector in an economy.

Table:4.4 Average Size of the Company for Selected Asian Countries (Million $ US)

Countries	1990		2004		1990	2004
	Market Capitalization	No of listed Company	Market Capitalization	No of listed Company	Average Size of Company	Average Size of Company
SAARC						
Bangladesh	321	134	3317	250	2.39	13.27
India	38600	2435	387851	4730	15.85	82.00
Pakistan	2850	601	29002	781	4.74	37.13
Sri Lanka	917	245	3657	239	3.74	15.30
ASEAN						
Thailand	23900	214	115090	439	111.68	262.16
Malaysia	48600	282	190011	962	172.34	197.52
Philippines	5930	153	28948	233	38.75	124.24
Singapore	34300	150	145117	475	228.66	305.51
Indonesia	8080	125	73251	331	64.64	221.30

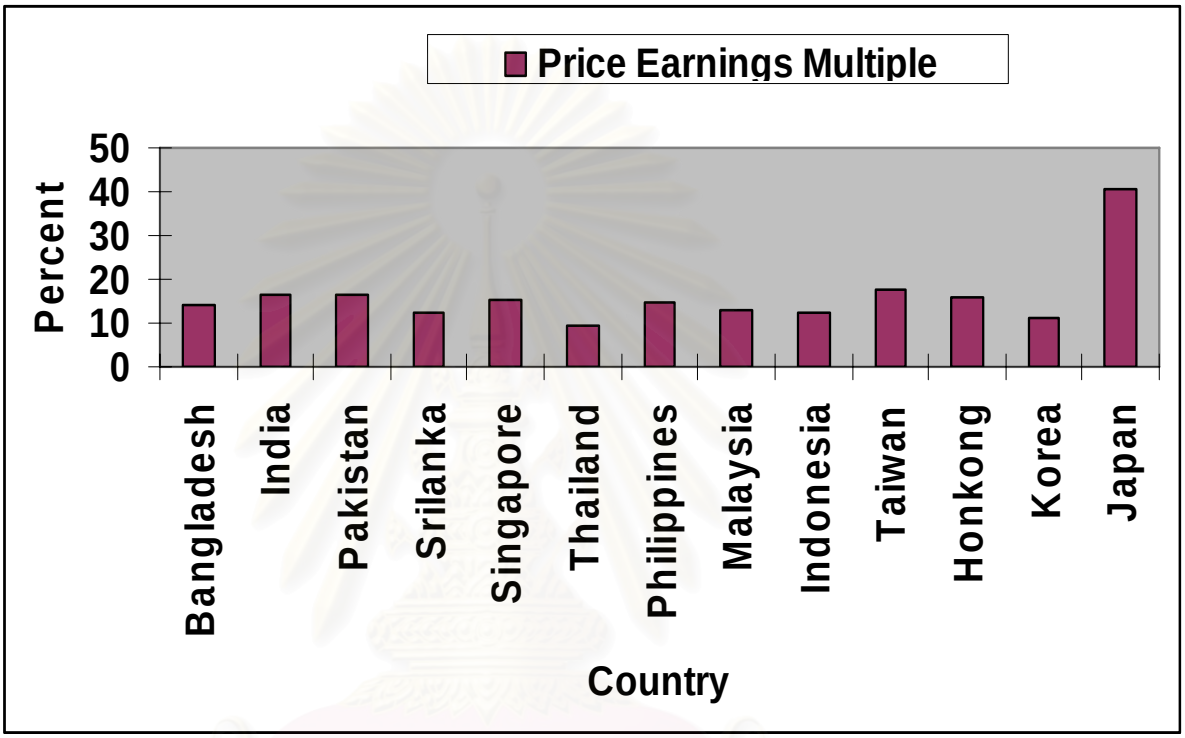
Source: Estimated from World Development Indicators, Various Issues

The information of stock market in terms of the average size of the company among the major Asian countries indicate that in 2004 the size of the company for Bangladesh is $13.27 million where for India it is $82 million compared to the 1990 figure of $2.39 million for Bangladesh and $15.85 million for India. On the other hand, the average size of the company in 2004 for Singapore is $305.51 million, for Thailand $262.16 million, and for Indonesia $221.30 million. This represents that the size of the company for SAARC equity markets is relatively small compared to the members of ASEAN countries.

III. Market Pricing

The valuation of m arket profits is dependent on dividend payout ratio, potential profit growth, and risk of return. All these factors are included into the price-earnings-ratio (P/E).

Figure:4.3 Price Earnings Multiple for Major Asian Countries (2005)



Source: Web site of World Federation of Exchanges

The price earnings multiple for Bangladesh in 2005 is 13.85 percent compared to 16.2 for India, 12.4 for SriLanka and 16.3 percent for Pakistan. Among the other Asian Countries this ratio is 14.8 percent for Philippines and 15.4 fo r Singapore, 9.4 percent for Thailand, 12.5 for Indonesia, 15.6 percent for Hong Kong, and for Japan it is 40.7 percent. This characteristic implies how the SAARC equity markets indicate the bullish sentiments of investors th at are willing to pay higher prices for the sam e dollar earnings generated by fir ms com pared to the other Asian m arkets excep t for Japan which has highest price-earnings ratio among all Asian countries in 2005.

4.3 History of Stock Markets in SAARC Region

The stock exchange in Bangladesh was incorporated in April 1954 as the East

Pakistan Stock Exchange Ltd. However, formal trading in the Exchange did not commence until 1956. The Exchange remained suspended from 1971 to 1975 due to the liberation war. After the separation of Eastern wing and the establishment of Bangladesh as an independent country in 1971, the Dhaka Stock Exchange resumed its operation in 1976 with only 9 listed companies. In 1977, the ICB was established in order to give institutional support to the stock exchange. In 1979, the first ICB Unit Fund came to the market. From early eighties, some banks were listed and started trading at the exchange. During the period of 1979-85, trading at Dhaka Stock Exchange, however, remained negligible. Continuous attempts were made by the Government to improve the trading activities for the next few years. Listing of the exchange crossed 100 in 1988 along with an increase in trading. In early 1990s, Foreign Exchange Regulations were revised and certain control regarding the transfer of shares and flow of foreign exchange were relaxed and the first international investor came to the market in 1993. As in most other developing countries, the capital market in Bangladesh has a relatively recent beginning. It is gradually evolving as an economic institution in response to the internal requirements of a fledgling modern economy, which has emerged as a result of economic development and industrialization efforts. Bangladesh is still a predominantly agricultural economy.

However, the industrialization process over the last three decades since independence has diversified the economic base of the country at least to some degree. Bangladesh has currently two stock exchanges (Dhaka and Chittagong) with Dhaka Stock Exchange as the main stock market. In June 1991 foreign investment laws related to listed securities in Bangladesh were relaxed that had a favorable impact on the market. In spite of some degree of industrialization and in spite of the fact that the equity market has existed since 1954, it still displays features of a developing equity market.

India is a big country and capital market is a very large one among the 53 emerging markets in the world. It has a long history for its stock markets where more than 20 stock exchanges exist. However, the main market is Mumbai Stock Exchange that accounts for about two-third of the trading volume in India. The exchange was established in 1875 when India was under British rule. After gaining independence in 1947, India pursued a highly regulated economy for a long time. In 1985, piecemeal

reforms were initiated in industry policy, trade, and finance. The period 1985-91 was the period of partial deregulation in Indi a. In 1991 India m oved to m arket based economy [Vaidya (2003)]. Recent good perfor mance provid es important descriptiv e statistics on the Indian equity m arkets. India's stock m arket ranks am ong the top 10 with a capitalization of US$150 bi llion in 200 2. This high capitalization to GDP makes the share m arket a far deeper m arket than m ost of the em erging m arkets. Indian equity m arkets m ay be counted as being a mong the top six following South Korea, Taiwan, Mexico, Thailand and Mala ysia. The stock m arket has provided an average yield of about 38 per cent over the last 15 year

There are currently th ree stock excha nges (Karachi, Lahore, and Islam abad) operating in Pakistan. However, the main stock market is the Karachi Stock Exchange which was established soon after the creation of Pakistan in 1947. The slow growth of the Pakistan stock market relates to events in 1970s when massive nationalization led to a negativ e effect on stock m arket performance. During the next two decades, th e market was functioning without any re gulatory structure and had very poor performance records. Individuals or a group of families retained most of the equity. The investors had evidence of insider trading and market manipulations. Virtually, the equity m arkets in Pakistan rem ained inactive until the beginning o f 1991 when liberalisation m easures, particula rly the opening of the m arket to inte rnational investors, were announced. The announcem ent put a new life in the m arket and unprecedented bullish trends were observed in the first year. Thereafter, the sto ck market reacted positively to these p olicies, and began to attract dom estic and foreign capital. In terms of its performance, the market is rated as one of the best perform ing stock markets in the region.

The equity market in Sri Lanka has also a long history. T he Colombo Stock Exchange has been in operation for more than a century. H owever, the develop m ent of its stock market has not played a significant role for a long time. The period before the economy was opened for private enterprise the development was very slow, where a few stock brokers engaged in these low- scale activities. Th e decade of 1980 was filled with terrorist activities which brought the economy to a near stand still in all the activities including investment. With the dawn of the next decade share market started its progress particularly the real develop m ent of its equity m arkets has been found

after the liberaliz ation period. In 1991 m easures were taken to develop the equity market and liberalized its m arket, which le d to a boom in the stock m arket. In 1990 and 1991 the Colom bo Stock Exchange was considered to be one of the best performing in the region [Ariff and Khalid (2000).

4.3.1 Overview of Stock Market Development in SAARC Region

Although the stock m arkets in SA ARC c ountries have diffe rent history of establishment and regulation s trategies the stock markets in reality started developing after the 19 90s when these coun tries took in itiative to libe ralise their m arkets. The following part describes the stock m arkets in dicators for each of the individual countries. Among the indicators, the size of the stock market is m easured by the market capitalization as percentage of GDP. The liquidity position is m easured by the turnover ratio for the study. The trading volum e of the stock exchange itself is also considered to m easure the frequency of the trading transaction. The study starts by looking at the indicators for Bangladesh equity market.

I. Bangladesh

Bangladesh has sm all stock m arket rela tive to the other m ember of SAARC countries in the region. Bu t it has the potentiality to m obilize the resources for investment funding. The following table will give different sort of infor mation regarding the stock market indicators considered for Bangladesh stock market**.**

Table: 4.5 Stock Market Development of Bangladesh

Year	Market Capitalization % of GDP	Value Traded (million Tk.)	Value Traded % Change	Turnover Ratio	No. of Listed Companies	% Change in Index
1981	0.19	6		0.10	25	10
1986	0.91	48	700	1.1	78	90
1990	1.14	195	306	1.4	134	25.01
1994	3.08	4284	2096	14.3	170	115.02
1996	11.66	29958	600	24.2	186	175.56
2000	2.71	40287	39	74.4	221	31.75
2003	3.18	19102	(51)	23.2	247	14.09
2004	3.2	24980	30	32.5	250	12
2005	3.1	32675	30.80	36.76	262	21

Source: Estimated from WDI and SEC Annual Reports Various Issues

The table contains information highlighting some periods covering both the pre and post liberalisation periods. The market capitalization ratio was only 0.19 percent in 1981 and 3.18 per cent in 2004. Significant differences can be found in indicators between periods before and after liberalisation. Prior to liberalisation the market showed significant increase in 1986 by registering a gain of 90 percent in local index. Moreover, the trading value increased by 700 percent. However after that the market went on a falling trend. The trend continued even in the year of liberalization (1991). It seems that the real response to liberalisation measures came after three years in 1994. In particular the trading activity increased by 2096 percent causing the turnover ratio to increase from 1.4 to 14.3 percent. Then the market reacted extraordinary in 1996 by registering a gain of 176 percent in local index.

In particular, the market capitalization ratio increased from 3.5 in 1990 to 11.7 in 1996 and trading ratio increased by 600 percent in 1996 compared to 1994 period. However, the market immediately reverted back in the following periods. The number of listed companies has gradually increased over the last two decades . increased from 25 in 1981 to 250 in 2004. There was a 900 percent increase observed in listing over the last two decades. One can see a marked difference in turnover ratio between the pre and post liberalization periods although it went down from 74.4 in 2000 to 32.2 in 2004. The ratio of market capitalisation ranges between 2 percent to 3 percent indicating a marginal role of stock market in Bangladesh economy.

The above analysis illustrated the stock market for Bangladesh in terms of size, activity, and liquidity of the market. The following part highlights the performance of these stock markets on the basis of other stock market indicators in particular, the general index, price-earnings ratio, and the dividend yields for each of the four countries. All these three variables are treated as the signals to investors about how equity market is performing. As a result it would be interesting to point out the behavior of Bangladesh stock markets for the recent period in terms of all these three indicators. The price earnings ratio is measured by dividing the market capitalization of the stock market by the total earnings and dividend yield is measured by dividing the total dividend distributed by all the companies by the market capitalization.

Table: 4.6 Other Stock Market Indicators in Bangladesh

Year	General Index	Price-Earnings Ratio	Dividend Yield
2001	716	11.2	2.3
2002	819.74	14	4.1
2003	832.13	15.16	3.1
2004	1971.31	15.51	3.41
2005	1677.35	13.85	4.02
% Change	134	23.66	74.82

Source: Dhaka Stock Exchange Annual Reports various issues

At the end of 2005, the all share price index for Bangladesh stock market stood at 1677.35 in comparison to 716 of 2001, up by around 134 percent over the five year period. Price earnings ratio has also experienced 11 percent increase where as dividend yield has jumped up by 75 percent over the last five years.

Trends in Developments of Stock Market in Bangladesh

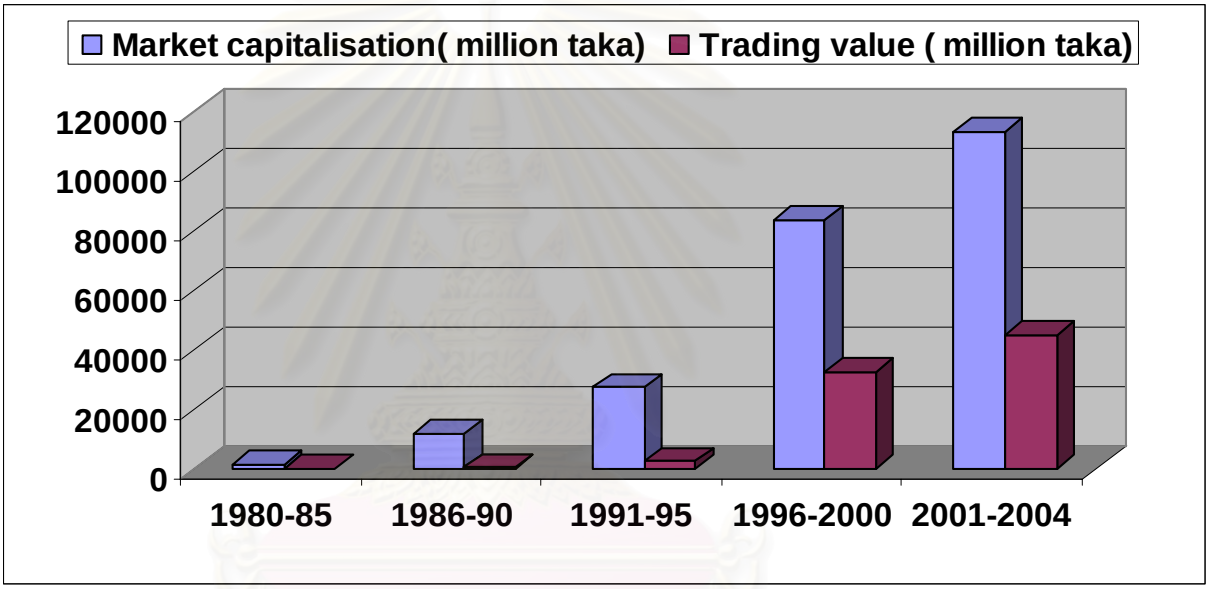
This part focuses on the stock market indicators of Bangladesh to gauge the overall development patterns of its equity markets covering both the pre and post liberalistion period. Before the study tests the impact of stock market developments on per capita economic growth in SAARC region, it is imperative to have a look at development history of each of its equity markets. This part considers the average value of the stock market indicators for the five time interval: 1980 to 1985, 1986 to 1990, 1991 to 1995, 1996 to 2000, and 2001 to 2004 to understand how stock market moves over the interval.

Financial sector reform in Bangladesh has been successful in bringing significant improvements in various market segments by effecting regulatory and legal changes, building up institutional infrastructure, and upgrading technological infrastructure. One of the aims of these changes was to provide necessary impetus to the development of stock market functioning in Bangladesh. Economies without a well-functioning stock make may suffer from three types of imperfections. First, if there is no stock market, opportunities for risk diversification are limited for investors and entrepreneurs. Second, in the absence of a well-functioning stock market, firms are unable to optimally structure their packages. Third, stock markets play an

important informational role. By improving the flow of information about firms, well-functioning stock market may promote investment and efficiency.

How the stock m arket in Bangladesh develops over the years can be understood by observing the patterns of the volume of m arket capitalization and the value of total shares trad ed on the s tock exchange (the two inexorable variables used by different research studies for assessing the developm ents of equ ity m arkets). The following c hart h ighlights the inf ormation reg arding these two variab les ove r the years.

Figure: 4.4 Average Market Capitalisation & Traded Value



Source: Estimated from Dhaka Stock Exchange Annual Reports various issues

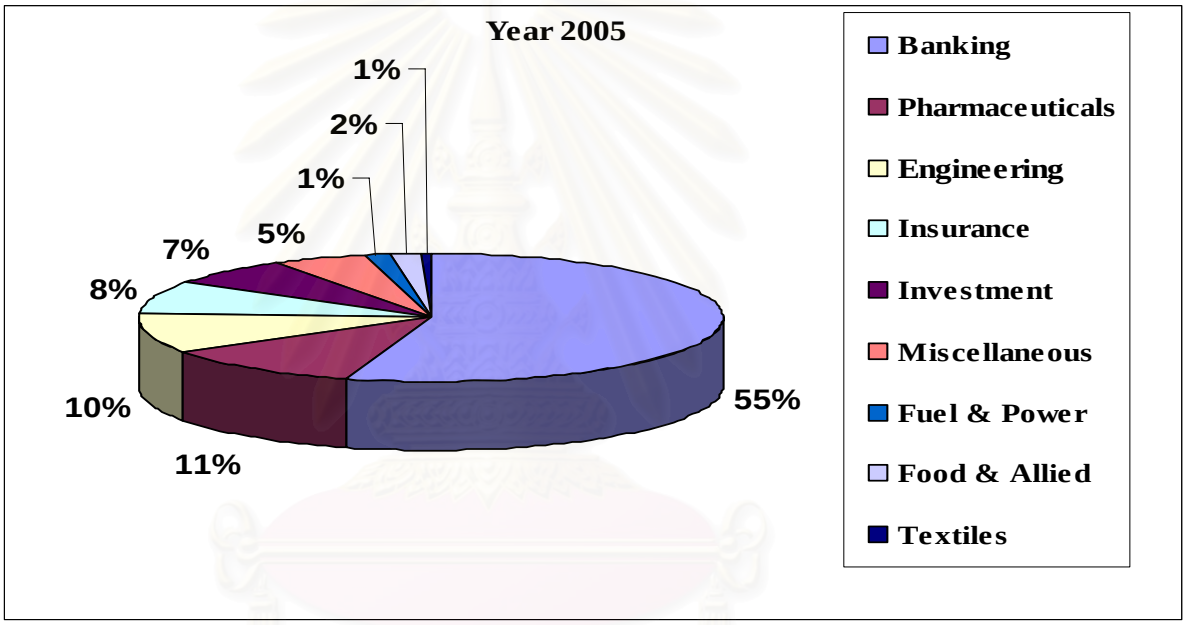
The above diagram clearly depicts that over the 1980-90 peri od, the volume of market capitalization an d total share s trad ed value on stock exchange in Bangladesh are exceptio nally sm all as there were no pillar standing in th e chart d uring th ese periods. The average volum e of market capitalization during the 1980-1985 period was taka 1469 m illion and taka 113660 m illion during the 2 001-2004 period. In case of average v alue traded, the volum e increased to taka 45121 m illion during the 2001 - 2004 period from the only taka 15 million during the 1980-1985. It clarifies that from the early 90s the market capitalization starts rising but total shares traded value is still insignificant. Af ter that period b oth thes e variables have significantly showed increasing pattern com pared to the previous period. This trend represents that stock market underwent tremendous changes from 1991 for Bangladesh stock market.

Sectoral Decomposition of Stock Market in Bangladesh

The analysis discussed above tried to find out the overall position of stock market indicators for Bangladesh. Sector-wise influence can be understood by analysing the size of the respective industry in stock market. One common approach to measure the size of the industry is to identify the market capitalization of each of the industry relative to total market.

The diagram below makes the inference regarding the individual position of each industry in the stock market of Bangladesh

Figure: 4.5 Sector –Wise Market Capitalisation for Bangladesh (in 2005)



Source: Dhaka Stock Exchange Annual report, 2005

Sector-wise stock market data for Bangladesh depicts that banking sector dominates the stock market in terms of market capitalization in 2005. The banking sector accounts for market capitalization of Taka 121 billion out of taka 224.92 billion market capitalization of the stock market with 34 listed companies out of a total 277 listings. Pharmaceuticals and engineering sectors holding together almost 22 percent market capitalization, followed by insurance, and investment industry with 8.3 and 6.4 percent respectively. Other industries are contributing nothing compared to the top five industries in Bangladesh stock market. The conclusion can be drawn that banking sector explicitly dominating the stock market in Bangladesh with possessing the half

of the market capitalization and rendered the nature of how dominant this industry is in the stock market.

II. India

Indian equity market is the largest among the SAARC countries. It is interesting to note that India ranks first in the world in terms of listed companies. In terms of market capitalization and trading activity equity market of India rated one of the best performers in the world. Under this backdrop, have a look at the indicators of Indian stock market. India liberalized its equity market in 1991.

Table: 4.7 Stock Market Development of India

Year	Market Capitalization % of GDP	Value Traded (million Rupees)	Value Traded% Change	Turnover Ratio	No. of Listed Companies	% Change in Index
1981	6.37	107389		76.3	1031	41.75
1986	5.73	178300	66	77	1912	7.16
1990	12.31	700000	292	65.9	2435	24.80
1996	32.10	4392310	527	21.2	5999	0.81
2000	33.08	6911619	57	135.8	5853	20.65
2003	45.93	12733610	84	45.1	5644	72.89
2004	46.5	14645450	15	93.6	4730	68
2005	56.1	15437654	5.24	95.42	4763	84

Source: Securities & Exchange Board of India, World Development Indicators various issues

The statistics regarding market capitalization ratio shows that for 1981 it was 0nly 6.37 percent and for 1990 it was 32 percent. A significant change has been found before and after liberalization period. In 2004 the size of the stock market in terms of gross domestic product is 46 percent which points out the role of Indian equity market for overall economic perspective. In 1986, the year after first deregulation, trading value changed by 66 percent by registering the small change in the index value. The change in index has been volatile in the last one decade. But the turnover ratio came up with a highest value of 77 before the liberalization period. The1990 period registered a 25 percent change in market index with the decline in turnover ratio. Trading activity changes significantly in 1996. The real impact of liberalization

appeared to be in the tur nover ratio which was alm ost below 80 percent over the last 20 years, increased to 135 percent in 2000. Another impact relates to the deepening of the market in term s of l isting which wa s m ore than doubled from 1990 to 1996 and reached to alm ost 6,000. However the listing started falling after that and ended at 4730 in 2004. . A 350 percent change in the li stings of the com panies was observed over the last two decades for Indian equity market. The overall inform ation regarding major indicators of Ind ian stock m arket dem onstrates th e positiv e impact af ter th e liberalization of its m arket. Indian stock m arket, the larg est one in SAARC countries known acceptably to the reg ion, has also to be reflected with respect to its performance in share price index, price earnings multiple, and dividend yield category during the recent years.

Table: 4.8 Other Stock Market Indicators in India

Year	General Index	Price-Earnings Ratio	Dividend Yield
2001	1005	17.6	1.8
2002	1176.73	15.2	2.1
2003	2366.36	15	2.1
2004	6602.69	17.3	3.2
2005	9397	16.2	1.6
% Change	835.02	(7.95)	(11.11)

Source: Web site of WFE

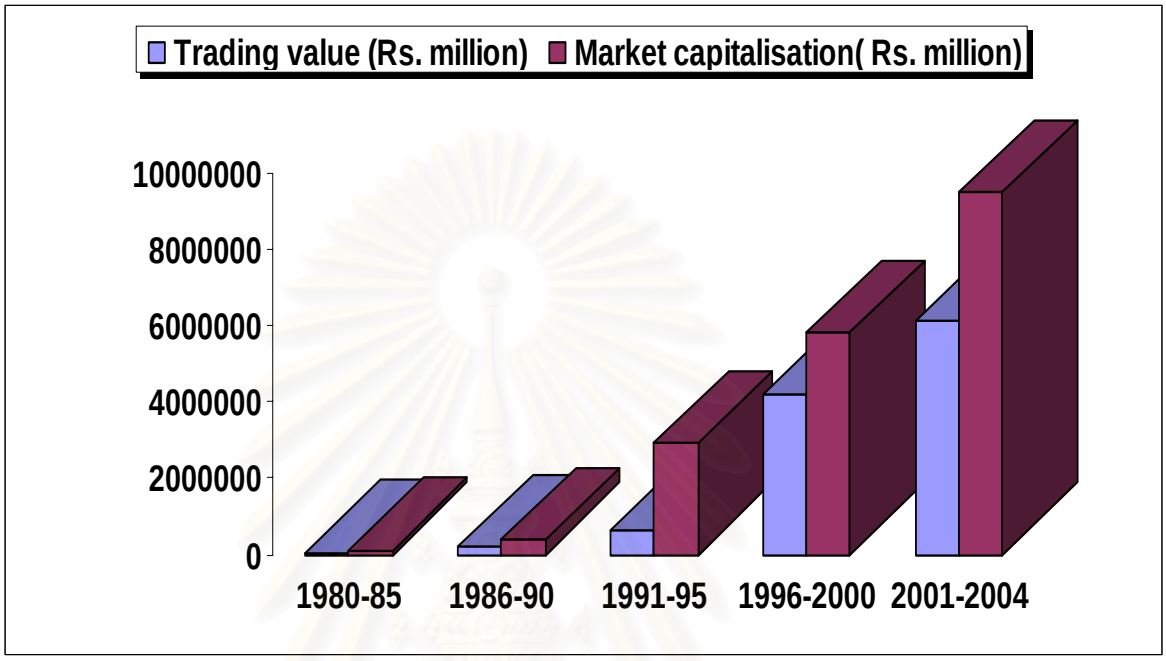
The information regarding the Indian st ock market index over the last five year period expectedly registered a si gnificant improvement. Index was 1005 in 2001 and 9397 in 2005 reflecting 835 percent abnorm al growth over the last five years. This implies how the Indian equity market gr ows faster in the regi on in recent period. In case of price earnings ratio, the Indian market dem onstrates a range of 15 to 17.6 percent, not m uch fluctuation observed dur ing the period. Where as, dividend yield accounted for an ups and down trend during the period. It was 1.8 percent in 2001 and 1.6 percent in 2005 indicating an 11 percent decline.

Trends in Developments of Stock Market in India

Financial markets, especially stock m arkets, have grown considerably in India over the last two decades. Better fundam entals (higher economic growth, more macro stability, structural reform s) and specific policy changes have aided in their growth.

Indian equity m arket, like any other markets of developing countries, underwent tremendous changes from 1991, when the government has adopted liberalization policies more seriously than ever before.

Figure: 4.6 Average Market Capitalisation & Traded Value



Source: Estimated from Securities & Exchange Board of India & WFE

In fact, India has oldest and largest form of equity m arket among the SAARC countries. It is demanding that the stock market operational indicators in India need to be examined to measure the size an d development pattern of its m arket. The diag ram shows an upward trend of the equity m arket indicato rs for India. But the averag e volume of both m arket capitalizatio n and tota l shares traded are sign ificantly larg er compared to other markets in SAARC countries.

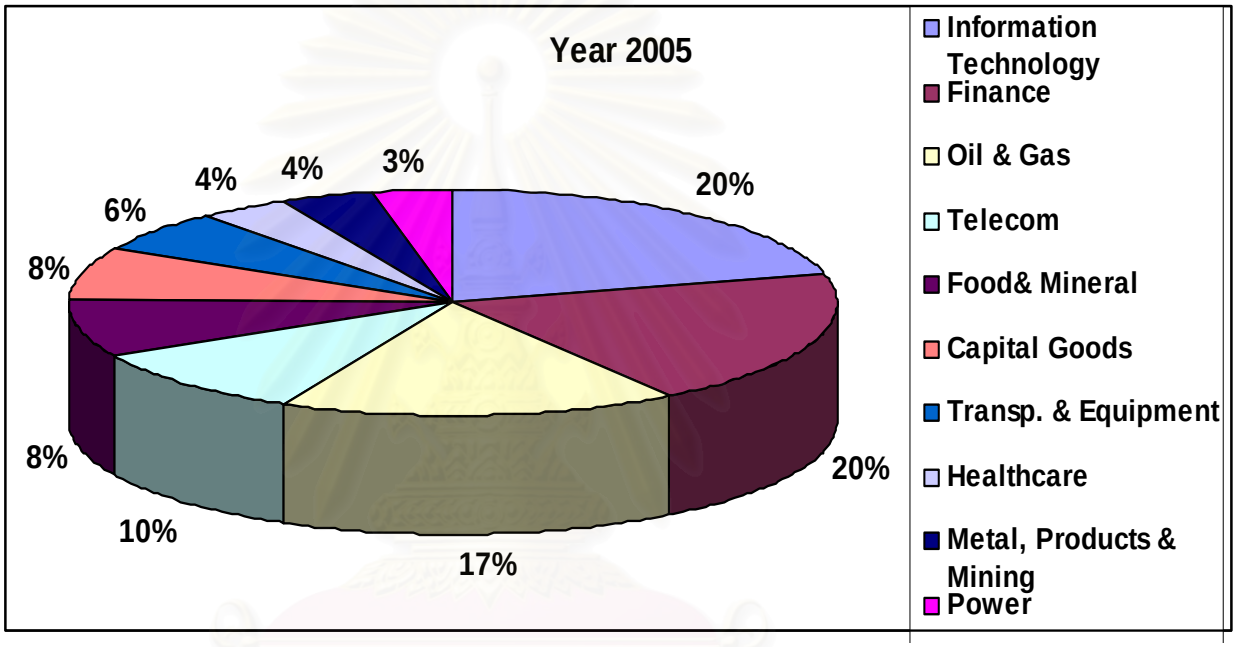
The volume of both these indicators is sp ectacularly high in post-liberalization period than that of the pre-lib eralization stage. For example, the average value of market capitalisation was Rs.107031 m illion during the 1980-85 period and increased to Rs.9495657 million during the 2001-2004 period. In case of trading value, averag e value increased to Rs.61 30316 million during the 2001-04 from the average valu e of only Rs.43843 million during the 1980-85 period. It can be said from the analysis that how Indian stock m arket experienced spectacu lar growth of its indicato rs af ter th e

stock market liberalization period. Indian st ock market especially now is com parable to many developed markets in terms a number of parameters.

Sectoral Decomposition of Stock Market in India

Now take a look at th e indus try positio n of the Ind ia stock m arket. The following figure highlights the sector-wise position of Indian stock market in terms of market size as reflected by market capitalization for the year 2005.

Figure: 4.7 Sectors –Wise Market Capitalisation for India (in 2005)



Source: Bombay Stock Exchange Reports

Information technology and Finance sectors are at the top of stock market with respect to size of the market as reflected by m arket capitalization in 2005. Togethe r they are holding around 20 pe rcent of market cap italization of Indian stock m arket. Each of these two sectors has m arket capitalisation of over Rs.150 billion. Oil & gas industry possesses the third pos ition with 17 percent m arket capitalisation of total stock m arket. Actually, these three sector capturing 57 percent of the m arket capitalisation of Indian stock m arket. The re st of the seven industries like telecom , capital goods, transport & equipment, healthcare, m etal products & m ining, and power possess the only 32 per cent of the m arket capitalisation. Others secto r are holding very negligible proportion of the m arket capitalization com pared to the to p ten industries in the stock market

III. Pakistan

Pakistan, second largest equity market in South Asian region, has tremendous sort of track records in recent years. Particularly, during the last five years, Pakistan stock market has became competitive with some of major Asian countries in terms of its size and liquidity position. Under this circumstance, it is necessary to address the stock market indicators of Pakistan market.

Table: 4.9 Stock Market Development of Pakistan

Year	Market Capitalization % of GDP	Value Traded (mill Rs.)	Value Traded % Change	Turnover Ratio	No. of Listed Companies	% Change in Index
1981	3.07	875		5.2	311	5.74
1986	5.73	2583	195	10	361	20.06
1990	7.23	4979	92	8.7	487	11.25
1991	17.73	15232	205	12.6	542	132.80
1996	20.11	218210	1330	58.6	782	27.40
2000	12.05	1760090	706	475.5	762	5.77
2003	23.68	3846378	118	497.5	701	60.92
2004	20.1	4120654	7.2	375.7	661	64.86
2005	30.2	5675776	37.7	410	667	72

Source: Securities & Exchange Commission Reports, WDI various issues

The table indicates that market capitalisation ratio ranges from 3 to 7 percent between 1981 and 1990 period. The trading activity ratio also ranges between 5 to 10 percent. Pakistan liberalized it market in 1990. The capitalization to GDP ratio ranges from 17 to around 25 percent. Although this range is not larger, it is much better compared to the pre-liberalisation period. The change of the index was also not found reasonable before the 1990 period. There was not much movement in the market in terms of all its indicators before opening in early 1991. The market responded positively to liberalisation measure and unprecedented trends were observed in the first year of the opening of the market. In 1991, the market index registered a record increase of 135 percent. The trading activity increased by 205 percent. The market moved significantly in terms of size and liquidity in the first year of liberalisation. As a result, the capitalization ratio moved from 7 to 17 percent and turnover ratio increased from 8 to 12. More or less the growth trend continues after the 1990s except

few marginal years. The most unprecedented improvement of Pakistan equity market was observed from 2000 onwards where the turnover ratio moved to 475 from the previous ratio of 7 in 1991(the year of liberalization). This phenomenal change took Pakistan equity market as one of the world top ranking markets in terms of turnover ratio and this process continued in recent years. Nevertheless, the market deepened in terms of listing after the 1990 despite the fact that it goes down in recent year.

The above part describes the Pakistan stock market in terms of its size and activity. The following table documents how the Pakistan stock market experiences its development in terms of the share price index, price earnings ratio and dividend yield variables during the 2001 to 2005 period.

Table: 4.10 Other Stock Market Indicators in Pakistan

Year	General Index	Price-Earnings Ratio	Dividend Yield
2001	1366.4	11.3	2.4
2002	1770.1	14.2	2.3
2003	3402.5	13.2	3.3
2004	4104.86	15.3	4.4
2005	6444.64	16.3	5.4
% Change	377	43.34	125

Source: Karachi Stock Exchange web site

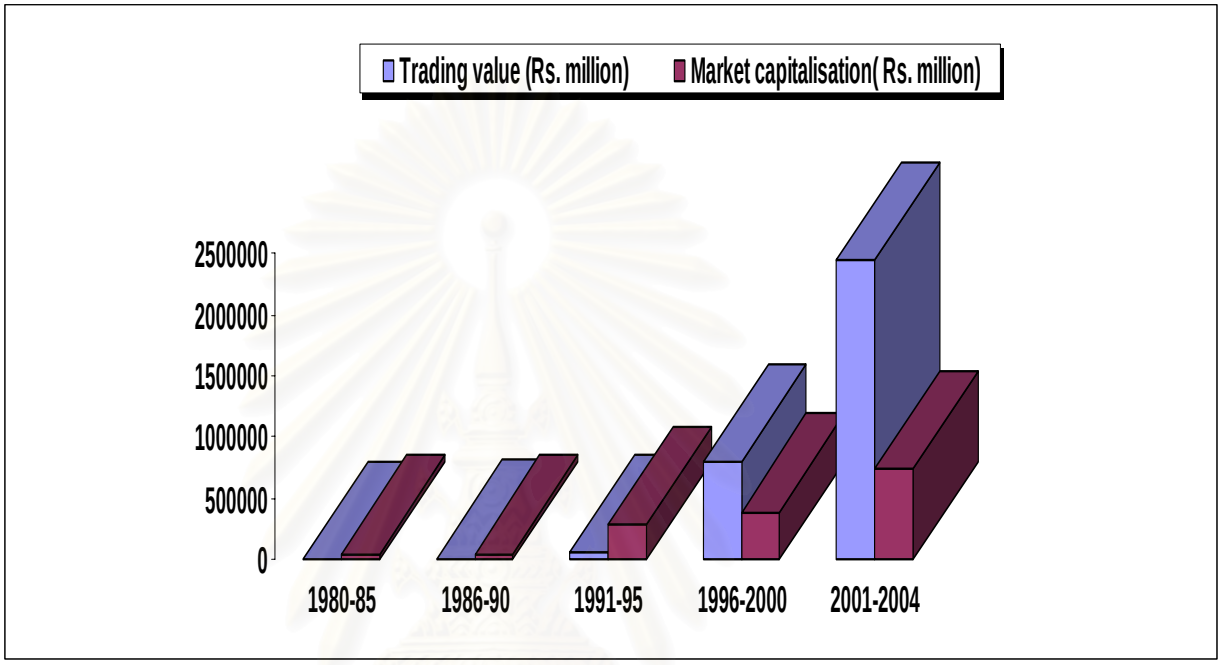
The trend of all share price index for Pakistan stock market through the period of 2001 to 2005 has been positively improved. The index was 1366.4 in 2001 and increased to 6444.64 with up by 377 percent. The price earnings multiple and dividend yield increased by 43 percent and 125 percent respectively. Pakistan stock market seems to be reasonably performed well in terms of all these three indicators during the last five years among the SAARC countries.

Trends in Developments of Stock Market in Pakistan

Equity marketing Pakistan has considerably grown over the last two decades. Realising the multi-pronged benefits that could be derived from stock market, steps were taken to reform the Pakistan equity market. As a consequence, Pakistan started liberalizing its equity market during the early 1990s.This liberalization added much-

needed tempo to the developm ent of Pakist an stock m arket. It also brought about a series of changes, both quantitative and qualitative, in oper ational ac tivities, whic h was not possible in the pre-liberalisation pe riod. A comparative an alysis of indicators confirms the development patterns of Pakistan equity market.

Figure: 4.8 Average Market Capitalisation & Traded Value



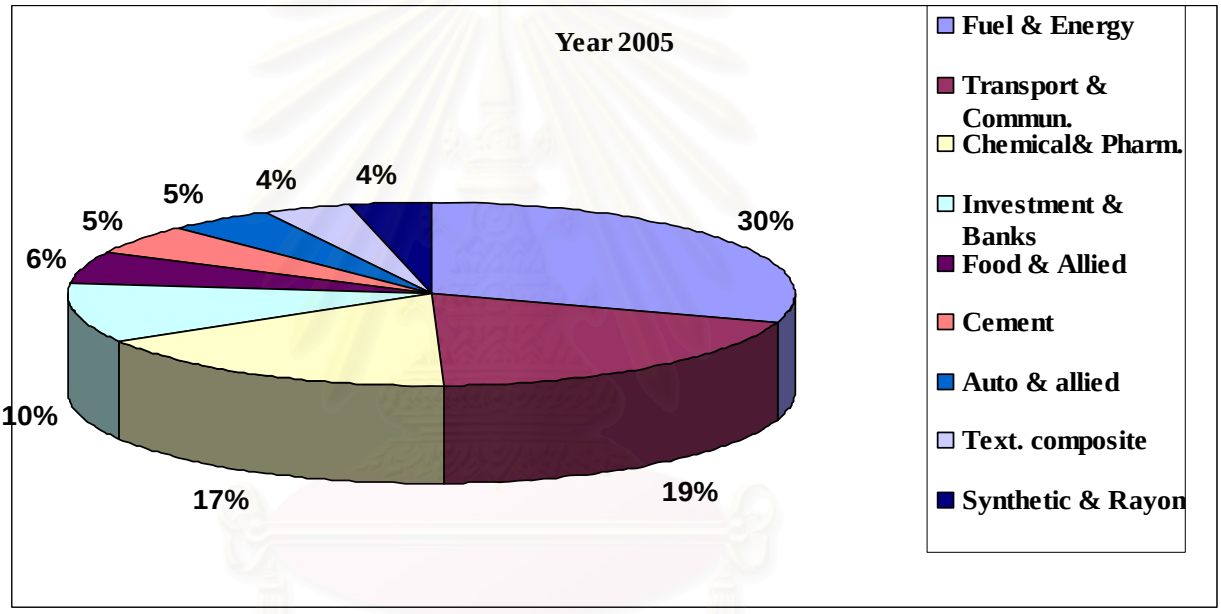
Source: Estimated from Karachi Stock Exchange Reports various issues

It is observable from the above diagra m that before and after-liberalisation period showed significant differences in te rms of the volu me of market capitalization and traded value for the Pakistan equ ity market. During the 1980-85, and 1986-90 the average value of m arket capitalization fo r Pakistan stock m arket were Rs.46536 & 44681 m illion. But during the 200 1-04, the average v alue reached to Rs.742341 million. In com parison, the trad ed value showed a s pectacular rise in pos t-liberalisation era es pecially from 1996 onwards. Th is value increased to Rs.2445630 million during the 2001-04 from the Rs .2001 m illion during the 1980-85. A clear separation can be found for Pakistan stock m arket development indicators in case of before and after liberalisation.

Sectoral Decomposition of Stock Market in Pakistan

Let consider the role of individual industry in Pakistan stock market. There are three large sectors found dom inating Pakist an stock m arket in term s of market capitalisation are fuel & energy, transport & communication, and chem icals & pharmaceuticals. Each o ne of these sector s has m arket capitalization of over Rs.100 billion. Together they account for 55 percen t of the total m arket capitalization of the Pakistan equity m arket in 2005. This finding can be observed in the following diagram indicating each of the indus try position in Pakistan stock m arket for the year 2005.

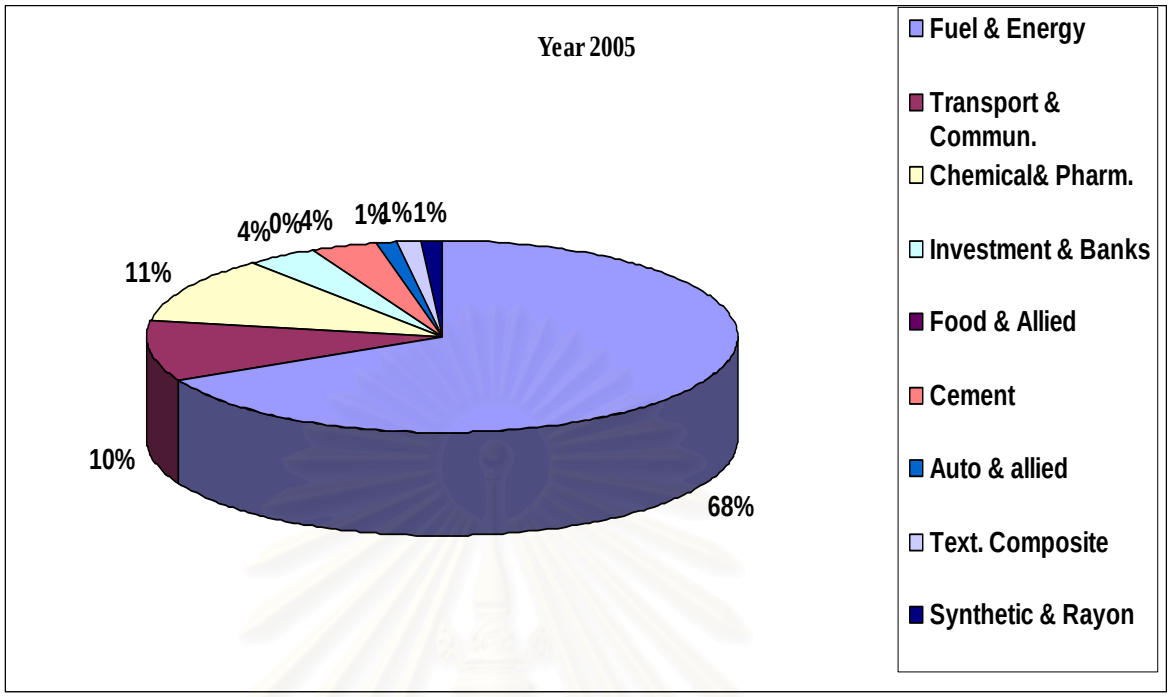
Figure: 4.9 Sectors–Wise Market Capitalisation for Pakistan (in 2005)



Source: Karachi Stock Exchange Reports

The picture clearly dem onstrate the fact that inv estment companies & banks , food & allied and cem ent sectors holding the only 10 , 6, and 5 percent m arket capitalization in Pakistan equity m arket, f ollowed by auto &allied , and textile composite and synthetic & rayon with together of only 9 percent market capitalization in 2005. In term s of traded value, however, fuel and energy is unrivalled with two-third of to tal value tr aded. The f uel & en ergy sector clearly out performed all other sectors both in term s of m arket activity as depicted by its traded value as well as in terms of the market size as reflected by the market capitalization (described above).

Figure: 4.10 Sectors –Wise Traded Value for Pakistan (in 2005)



Source: Karachi Stock Exchange Reports, 2005

It can be inferred from the diagram that the fuel & energy, transport & communication, chemicals & pharmaceuticals, and investment & banks, all these four industries retained the top four position in the stock market in terms of trading activity like the m arket size as reflected by the m arket capitalisation in 2005.This gives the idea that these four sectors are really dominating the Pakistan stock market in the year 2005.

IV. Sri Lanka

Finally, take into consideration of the indicators of SriLankan equity market in the region. Sri Lanka has one of the oldest stock exchan ges in the world. However, SriLanka stock m arket virtually remained dormant until the yea r of its libera lization. Like Bangladesh and India the m arket size of the SriLanka stock m arket as measured by m arket capitalization as a p ercentage of GDP and the liquidity position reflected by the turno ver r atio as well a s th e change in trading value have been given in the following table to assess how these indi cators are perform ing for the observation period.

Table: 4.11 Stock Market Development of SriLanka

Year	Market Capitalization % of GDP	Value Traded (mill Rs.)	Value Traded % Change	Turnover Ratio	No. of Listed Companies	% Change in Index
1981	2.1	32		0.22	112	8,45
1986	6.69	144	350	1.2	171	15.80
1990	11.46	1563	985	5.8	175	113.80
1996	13.65	7403	373	7.0	235	9.15
2000	7.06	11049	49	11	239	21.82
2003	14.93	73838	568	34.7	244	30.30
2004	14.90	78432	6.22	23.7	245	32.14
2005	18.2	83654	6.66	32.44	239	36.55

Source: Colombo Stock Exchange Annual Reports, WDI various issues

The data from above table signifies the fact that the market capitalization ratio was lower before the 1990. After that period ratio reaches to double digit figure and continues in recent years. The change in market index was 113 percent in 1990. The trading value has increased by 900 percent. In 2003 the increase was registered up to 568 percent SriLankan equity market has not comparable with other South Asian equity markets in terms of liquidity until the recent years even though its market experienced liberalization almost at the same time. It is apparent that the equity markets here developed gradually in recent years. With respect to the deepening the market, growth of listing was also not satisfactory. As one of the oldest forms of trading bourse in the region, the movement of the SriLankan equity market is relatively small compared to its economy.

It is now necessary to look at the other stock market indicators of SriLanka on the basis of the three indicators as described for other SAARC member countries in order to generalize the investors' perspective in the market during last five year.

Table: 4.12 Stock Market Performances in SriLanka

Year	General Index	Price-Earnings Ratio	Dividend Yield
2001	621	7.5	6.8
2002	815	12.1	4.3
2003	1062.10	11.1	3.1
2004	1506.9	10.8	3.2
2005	1922.21	12.4	2.7
% Change	209	65.33	(60.29)

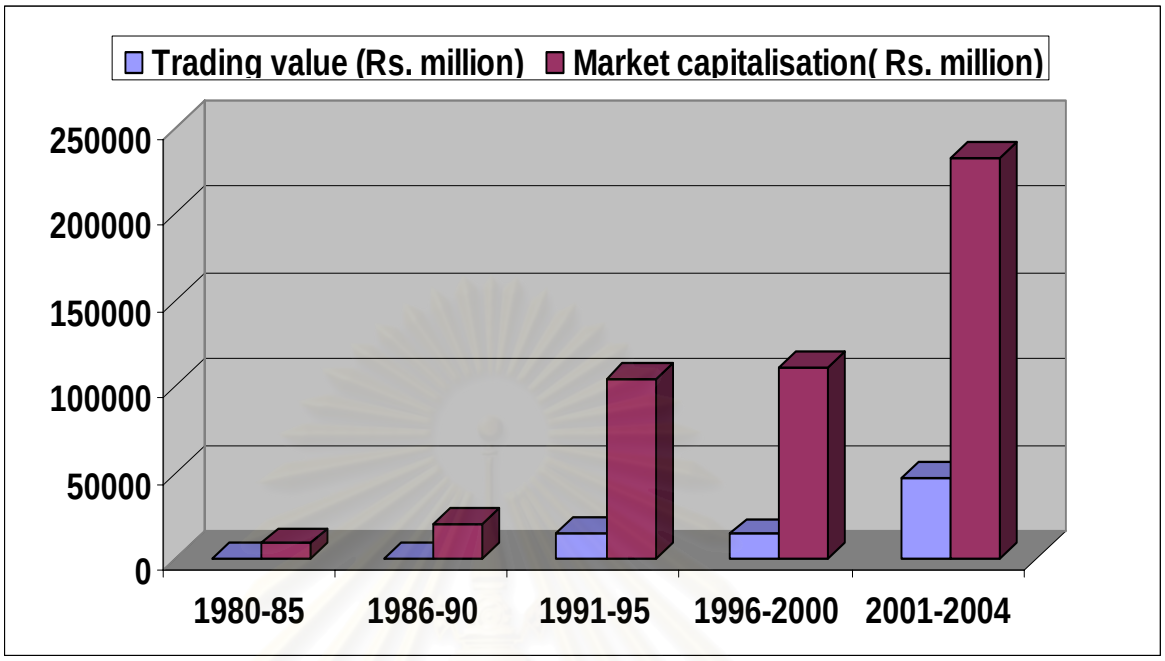
Source: WFE web site

All share price index for SriLanka stoc k m arket increased over the last five years. The index was 621 in 2001 and m oved to valu e of 1922.21 in 2005 with an increase of 209 percent. The price-earnings ratio has also a rising trend except year 2004. The change of this ratio was 65 percent over the five years period. But the dividend-yield has moved to 2.7 percent in 2005 from the value of 6.8 percent in 2001 with 60 p ercent d ecline in v alue. SriL ankan stock m arket regis tered a po sitive movement in terms of all share price index and price-earnings ratio but did not exhibit same signal with respect to dividend yield.

Trends in Developments of Stock Market in SriLanka

It's need less to assess the development asp ects of Sri Lankan equity m arket. Sri Lanka has gone passed trem endous changes over the last two decades which lead to the deepening and widening its equity m arkets. It is m andatory to exam ine t he stock m arket indicators that financial ec onomists favor to m easure the growth and development of the m arket. As m entioned ea rlier the two sam e indicators of stock market have also been exam ined in case of Sri Lanka. The following chart shows the pattern of changes of the Sri Lankan stock market in terms of these indicators.

Figure: 4.11 Average Market Capitalisation & Traded Value



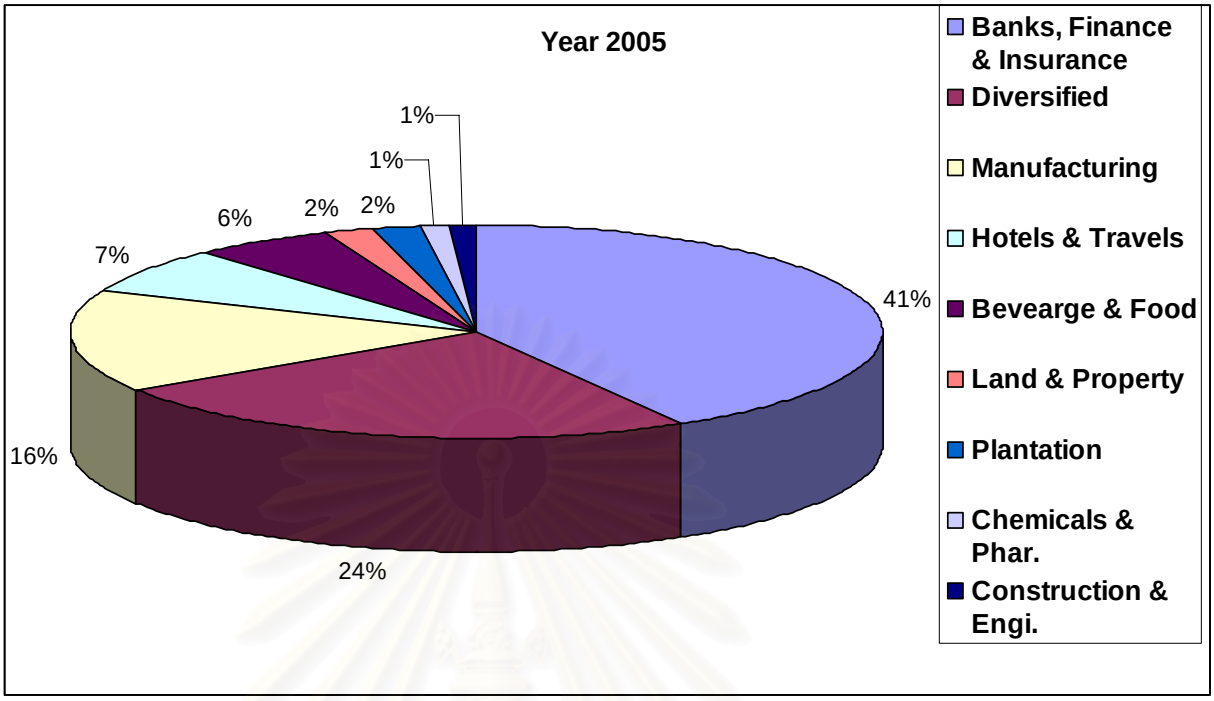
Source: Estimated from Sri Lanka Stock Exchange Reports various issues

The above graph reveals some glaring facts regarding developments of Sri Lankan stock market. It is observed that the value of total shares traded on stock exchanges is not mentionable during the 1980-90 periods. For example, during the 1980-1985, and 1986-1990 the average value were only Rs.63 million and Rs.535 million respectively. But it increased to Rs.47 181 million during the 2001-2004 periods. It was on the rising track after the 90s but insignificantly low in volume. On the other hand, there was clearly an upward trend on part of market capitalization to exhibit a growth pattern of the Sri Lankan equity market. But this rise in market capitalization was found abnormally significant after the 1990s in comparison to the previous decade. The average value of market capitalization increased to Rs.232892 million during the 2001-2004 from the average value of only Rs.8877 million during the 1980-1985. This clearly demonstrates that equity market of Sri Lanka started behaving well after its financial liberalization.

Sectoral Decomposition of Stock Market in Sri Lanka

Sri Lankan stock market also experiences a growth of market capitalisation by a few industries in 2005. The sector-wise stock market capitalization as treated to measure the size of the stock market is illustrated in the following figure.

Figure: 4.12 Sectors –Wise Value Traded for Sri Lanka (in 2005)



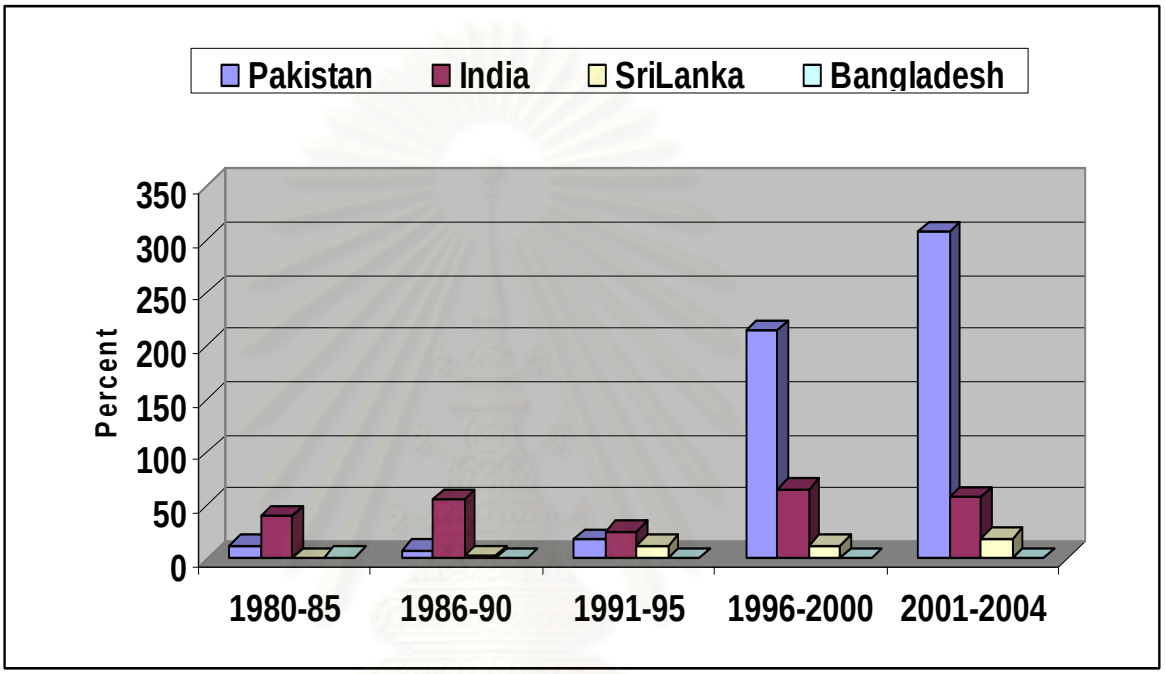
Source: Colombo Stock Exchange web site

Sri Lanka stock market reiterates the fact that a few industries are holding the market position in terms of value traded in year 2005. For example, banks, finance,& insurance sector holding 41 percent of the market while diversified and manufacturing sectors together controlling 40 percent of total value traded in SriLanka stock market in 2005. Where as, the rest of the six industries are possessing together only 20 percent market position in terms of value traded in the market. This indicates that how only three sectors i) banks, finance, & insurance ii) diversified, and iii) manufacturing in SriLanka stock market are alive in controlling the whole market. A straight conclusion may be drawn from the above analysis regarding the development of equity markets in South Asia is that the movement of the market was not found significantly before the 90s. This finding indicates that the South Asian equity market growth was observed clearly after it underwent for liberalization.

The above analysis focused on the volume of equity market indicators for South Asian countries to measure the development of its market. It is usual phenomenon to demonstrate the fact that market capitalization and the value traded ratio represent the size and the liquidity of the equity market, respectively, on an

economy-wide basis. Another dominating indicator used to measure the stock market development is turnover ratio which describes liquidity of stock market truly. This means the volume of domestic equities traded on domestic exchanges relative to the size of the market. Levine(1996) argued that countries may be able to garner big growth dividends by enhancing the liquidity in their stock markets.

Figure: 4.13 Average Turnover Ratio for SAARC Member Countries



Source: Estimated from Stock Exchange Reports of Individual Countries

It is understandable that the turnover ratio represents the liquidity of a particular equity market. Comparison of this ratio among the South Asian countries will reflect how these markets enhance liquidity relative to each other. The above chart shows that there is no spike for Bangladesh turnover ratio. The presence of this variable for other three equity markets in this region is very low up to the 1995. From the 1996 onwards the comparison of this ratio across the SAARC region shows that Pakistan equity market has the highest degree of liquidity relative to other markets followed by India and SriLanka.

4.3.2 Conclusion

The inference may be drawn from the above analysis that the equity markets in SAARC region exhibited the growing pattern after the 1990s. All the development indicators considered for the study exerted a spectacular rise over the last decade.

After analy zing the in dicators ov er th e last two & half decades, stock m arket development in SAARC countries can be di vided into two tim e zones: before and after liberaslisation period. The all four South Asian stock m arkets developed tremendously after the post-liberalisation era in terms of market size, market activity, and m arket liquidity. T herefore, the above analysis signifies the fact that financial liberalization has a gra ter inf luence on th e way the equity m arkets in South Asia developed over the last decade.

4.4 Comparison of Stock Market Development between SAARC and ASEAN Countries

The analysis so far has been made to identify the select stock market indicators of individual SAARC c ountry. SAARC and ASAEAN are the tw o emerging association in Asia having differe nt sets of history, developm ent pattern, and efficien cy of the s tock m arkets. U nderstanding the developm ent of the stock markets of these two associations are to be taken into account by m aking a comparative analysis of the select in dicators of the equity markets cons idered for the study.

Table: 4.13 Market Capitalisation ($ US million)

Country	1990	1998	2000	2004	2005
SAARC					
Bangladsh	321	876	1186	3317	3035
India	38600	105188	148064	387851	553074
Pakistan	2850	5418	6581	29002	45937
SriLanka	917	1705	1074	3657	5720
ASEAN					
Singapore	39300	106317	152827	145117	171555
Malaysia	48600	107104	116935	190011	180346
Indonesia	8080	21224	26834	73251	81428
Thailand	23900	34903	29489	115090	123539
Philippines	5930	35314	25957	28948	40153

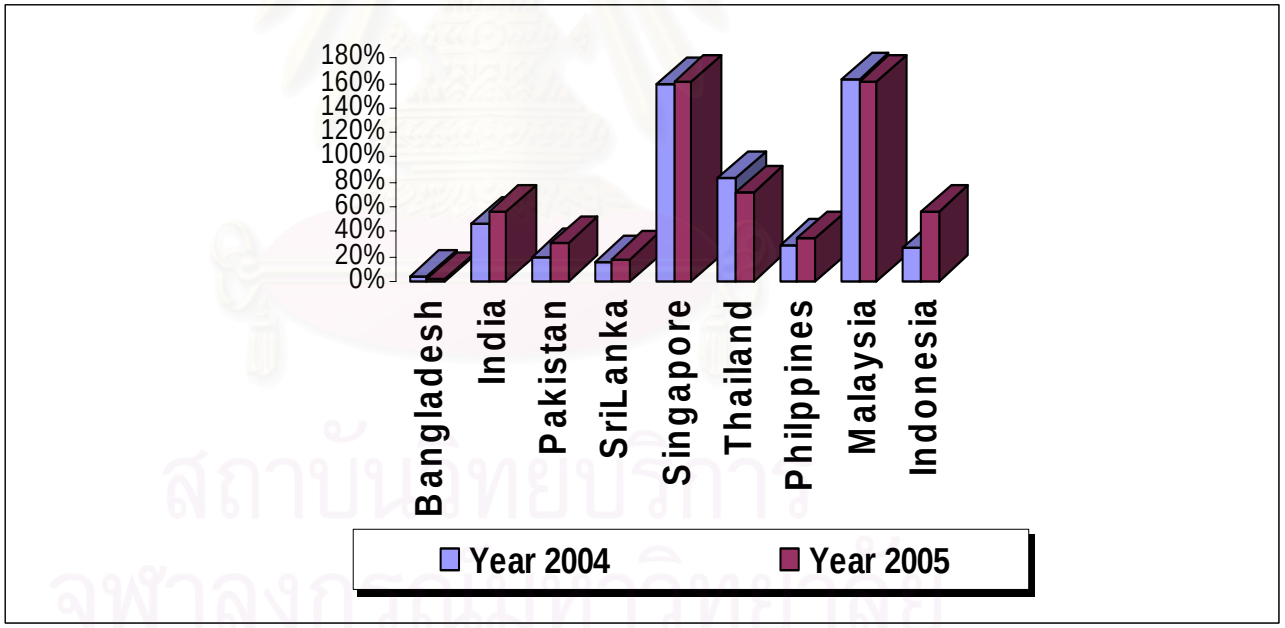
Source: SAARC Federation of Stock Exchange Reports various issues

The size of the equity m arket can be measured by the m arket capitalisation. The market capitalisation of the SAARC a nd ASEAN countries has been presented in the table over the period of 1990 to 2005. It is vividly observed from the inform ation that percent change in market capitalisation in SAARC countries is, on average, larger

compared to the ASEAN countries. For Exam ple, market capitalization increased by 170 percent in 1998 for India com pared to 1990 period followed by 90 percent for Pakistan, and 65 percent for SriLanka. W here as the change for Malaysia is 120 percent, for Singapore 170 percent, and fo r Thailand 46 percent for the sam e period. In 2004, m arket capitalization in creased by 160 percent f or India, 340 percent f or Pakistan, and 240 percent for SriLanka. On the other hand, m arket capitalization increased by -5 percent, 290 percent, a nd 62 percent for Singapore, Thailand, and Malaysia respectively. In 2005, m arket capi talization increased, on average, by 40 percent for SAARC countries and by 20 percent for select ASEAN countries

The size of the stock m arket positi on of the SAARC and m ajor ASEAN countries can also be explained in terms of their stock market capitalization as percent of GDP. The diagram below depicts the si ze of the m ajor As ian countries stock markets relative to economy for the year 2005.

Figure: 4.14 Market Capitalisation as Percentage of GDP

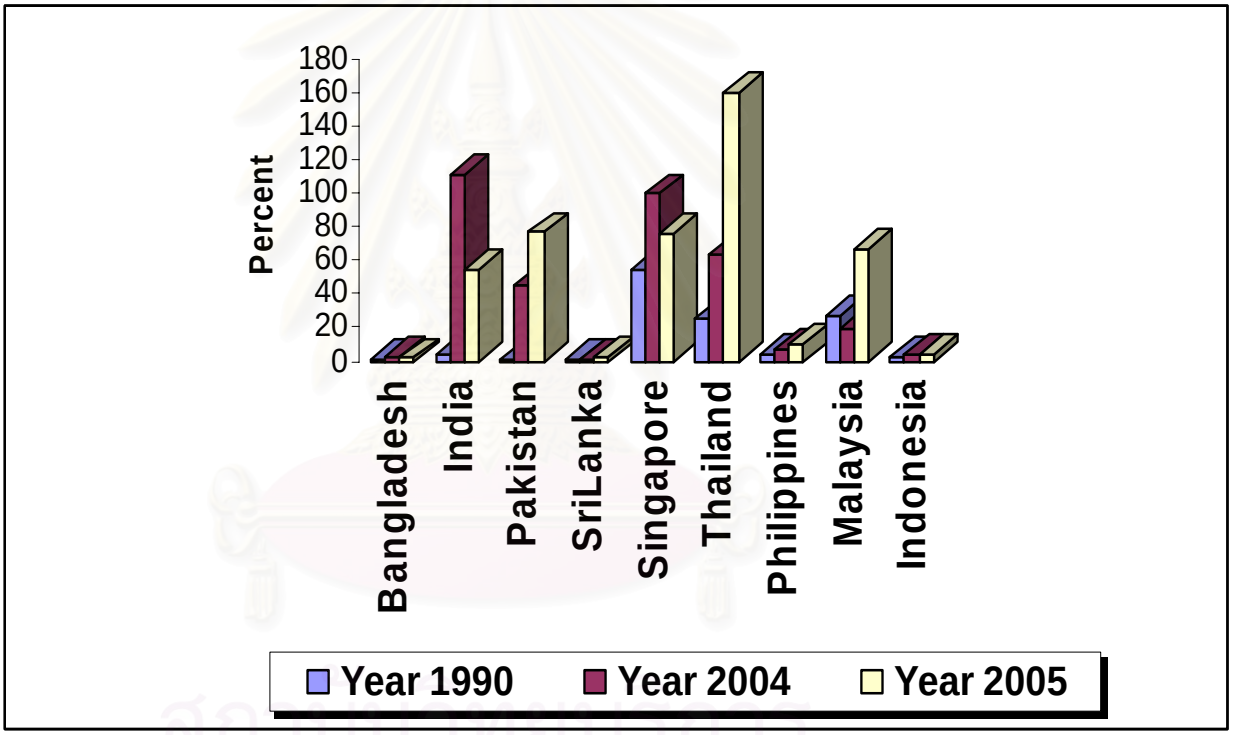


Source: World Development indicators,2004 & 2005

The rec ent position reg arding the s ize of the equity m arkets dicta tes the f act that m arket capitali zation as percent of GDP is sm aller in S AARC countries against the ASEAN countries. For exam ple, this ra tio is close to 1 percent for Bangladesh against the 18 percent f or SriLanka, 30 percen t for Pakistan, 56 percent for India, 71 percent for Thailand, 160 per cent both for Singapore and Malaysia. The value traded

to GDP ratio and turnover ratio are two crucial stock m arket indicators m easured now-a-days to assess the developm ent patterns of the m arkets. Comparing these two ratios across the SAARC and ASEAN countries will lead to understand the activity and liquidity characteristics of the equity markets of these two associations. First take a snapshot of the trading act ivity of the m arket followed by the turno ver ratio. The trading activity of stock m arket as percen t of GDP for Bangladesh, India, Pakistan, and SriLanka in 1990 was remarkably low com pared to the som e m embers of ASEAN countries. This can be realized fr om the following figure of trading activity of the major Asian countries.

Figure: 4.15 The Value Traded as Percentage of GDP

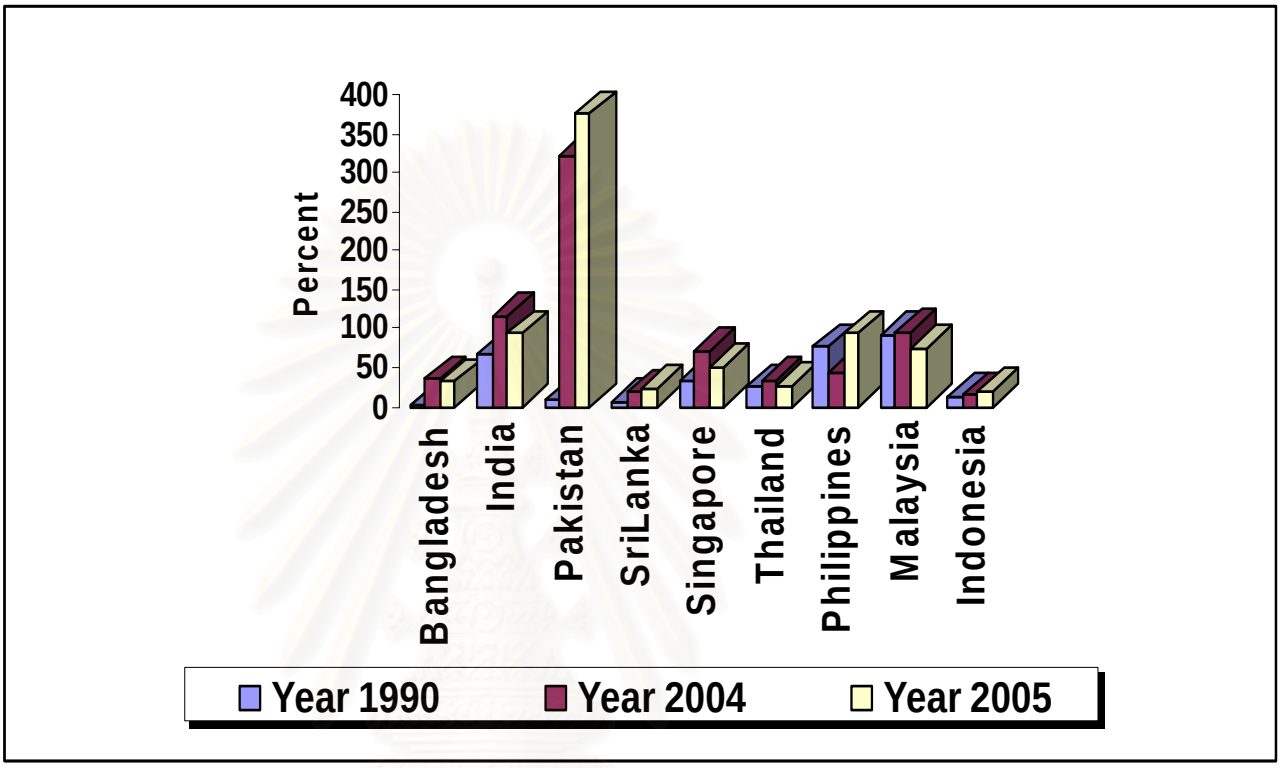


Source: World Development indicators, 2004 & 2005

It is observed that in 2005 India and Pakistan value traded ratio as a percent of GDP are 56 and 77 percent against Banglad esh 1.6 percent, SriLanka 2.9 percent Singapore 76 percent, Malaysia 160 percent, and Thailand 67 percent. It is interesting to note that Bangladesh, and SriLanka in SAARC countries and Philippines, and Malaysia in ASEAN countries have the negligible tr ading activ ity r elative to GDP since the 1990. This im plies a sm all position of their equity m arkets in the regions in comparison to other member countries.

Another import indicator of stock m arket is the turnover ratio. Now take a look at the liquid ity po sition as m easured by the turnover ratio of the SAARC and ASEAN member countries.

Figure: 4.16 Turnover Ratio in Percent



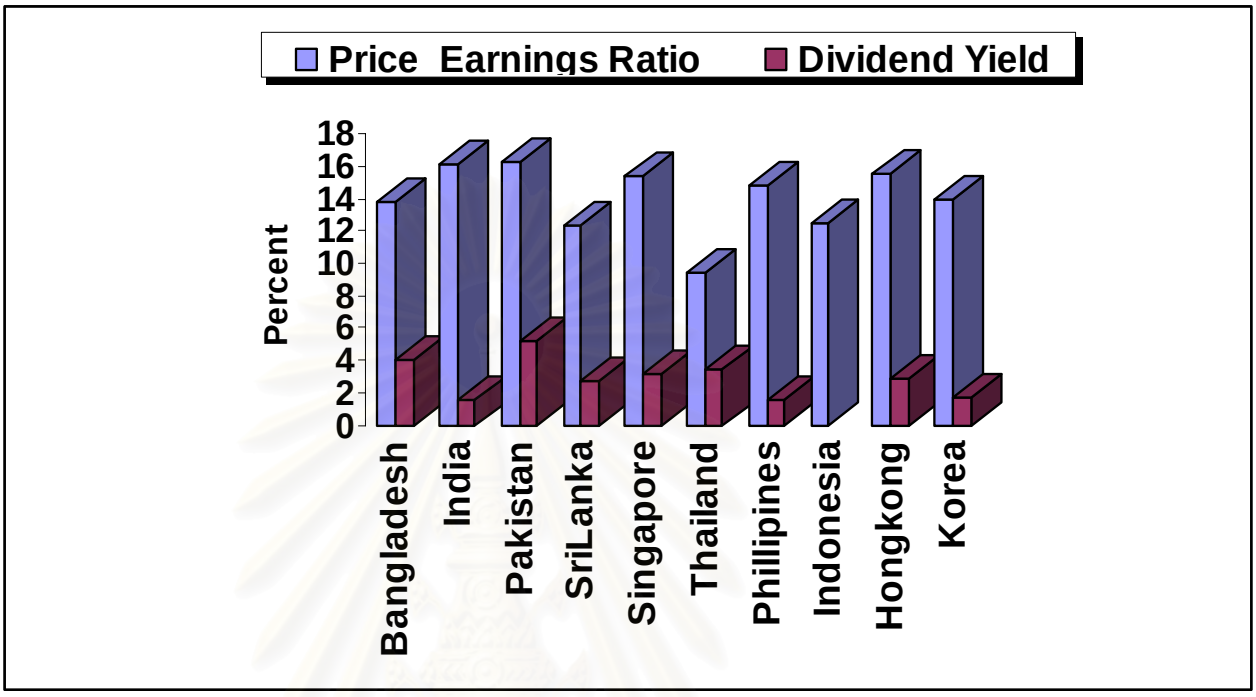
Source: Estimated from World Development indicators, 2004 & 2005

The figure shows that this ratio for Bangladesh has increased to 32.3 in 2005 from the value of 1.5 in 1990. SriLanka ha s the lowest turnover ratio in 2005 am ong the all countries in two regions. Among the ASEAN countries, turnover ratio in 2005 for Malaysia, Singapore, Thailand, and Indonesia are 26.9, 51.2, 75.2, 93 tim es respectively. Interestingly, the India and Pa kistan have the highest turnover ratio in recent years am ong SAARC and ASEAN c ountries. Particularly, P akistan has phenomenal record in achieving the tur nover ratio in 2004 and 2005 that were 322 and 375 times respectively. This im plies that P akistan equity m arket has im proved tremendously and rated one of the best liquid markets in the world in recent years.

The above part made comparison of the SAARC stock markets with the major ASEAN countries in terms of size, activity, and liquidity of the stock market. Through

the following diagrammatic presentation major Asian stock markets can be evaluated in terms of price-earnings, and dividend yield indicators.

Figure: 4.17 Price-Earnings Ratio & Dividend Yield (2005)



Source: World Federation of Exchanges web site

In case of price-earnings ratio, the stock markets in SAARC are competing reasonably well in line with other major Asian countries in 2005. For Example, this ratio was 13.85 percent for Bangladesh against the 16 percent each for India and Pakistan, 12.4 percent for SriLanka, 15.4 per cent for Singapore, Thailand 9.4 percent, Hong Kong 15.6 and Indonesia 12.5 percent. On the other hand, dividend yield percent for SAARC countries, on average, are higher compared to other major Asian countries. This result reflects the fact that how stock markets in South Asian region are attracting the international investors for diversifying their portfolio investments and assuming, in turn, higher returns.

4.4.1 Conclusion

The conclusion can be drawn that an effort has been made in the above section to demonstrate the developments of stock markets in SAARC countries along with some members of ASEAN countries. The discussion signifies that size of the equity markets in ASEAN countries is relatively larger than the members of South Asian countries in 2005. In terms of trading activity Pakistan and Indian equity markets are

moving in line with the major ASEAN countries. Whereas, in terms of liquidity, India and Pakistan are growing ahead of the ASEAN members countries. The conclusion can be made that Bangladesh and SriLanka are still behind the other two member countries of SAARC in the development race of the equity markets and need to be concentrated to promote their equity markets to cope up with the neighboring countries.

4.5 Significance of Stock Market in the Growth of economy

It is inexorable to say that the financial markets (banks and the securities markets) finance economic growth. They channelise savings to investments and thereby decouple these two activities. As a result, savers and investors are not constrained by their individual abilities, but by the economy's ability to invest and save respectively, which inevitably enhances savings and investment in the economy. To the extent the growth of an economy depends on the rate of savings and investment, financial markets promote economic growth. The banks and securities markets are two competing mechanisms to channel savings to investment. The securities markets score over banks in the allocational efficiency, as it allocates savings to those investments which have potential to yield higher returns. This inevitably leads to higher returns to savers on their savings and higher productivity on investments to enterprises. Hence to the extent economic growth depends on the rate of return on investments, securities market promotes economic growth.

The securities market allows people to do more with their savings than they would otherwise. It also allows people to do more with their ideas and talents than would otherwise be possible. The people's savings are matched with the best ideas and talents inthe economy. Stated formally, the securities market provides a linkage between the savings and the preferred investment across the entities, time and space. It mobilizes savings and channelises them through securities in to preferred enterprises.

The securities market enables all individuals, irrespective of their means, to share the increased wealth provided by competitive enterprises. It allows individuals who can not carry an activity in its entirety within their resources to invest whatever is individually possible and preferred in that activity carried on by an enterprise. Conversely, individuals who can not begin an enterprise they like can attract enough

investment form others to make a start and continue to progress and prosper. In either case, individuals who contribute to the investment share the fruits.

The securities market also provides a market place for purchase and sale of securities and thereby ensures transferability of securities, which is the basis for the joint stock enterprise system. The liquidity available to investors does not inconvenience the enterprises that originally issued the securities to raise funds. The existence of the securities market makes it possible to satisfy simultaneously the needs of the enterprises for capital and of investors for liquidity.

The liquidity the market confers and the yield promised or anticipated on security encourages people to make additional savings out of current income. In the absence of the securities market, the additional savings would have been consumed otherwise. Thus the provision of securities market results in net savings. It is presumed that a well functioning securities market is conducive to sustained economic growth. it avoids the allocation of scarce savings to low yielding enterprises and forces the enterprises to focus on their performance which is being continuously evaluated through share prices in the market and which faces the threat of takeover. Thus securities market converts a given stock of investible resources to a larger flow of goods and services. The securities market fosters economic growth to the extent that it- (a) augments the quantities of real savings and capital formation from any given level of national income, (b) increases net capital inflow from abroad, (c) raises the productivity of investment by improving allocation of investible funds, and (d) reduces the cost of capital.

It is reasonable to expect savings and capital accumulation and formation to respond favourably to developments in securities market. The provision of even simple securities decouples individual acts of saving from those of investment over both time and space and thus allows savings to occur without the need for a concomitant act of investment. If economic units rely entirely on self-finance, investment is constrained in two ways: by the ability and willingness of any unit to save, and by its ability and willingness to invest. The unequal distribution of entrepreneurial talents and risk taking proclivities in any economy means that at one extreme there are some whose investment plans may be frustrated for want of enough savings, while at the other end, there are those who do not need to consume all their

incomes but who are too inert to save or too cautious to invest the surplus productively. For the economy as a whole, productive investment may thus fall short of its potential level. In these circumstances, the securities market provides a bridge between ultimate savers and ultimate investors and creates the opportunity to put the savings of the cautious at the disposal of the enterprising, thus promising to raise the total level of investment and hence of growth. The indivisibility or lumpiness of many potentially profitable but large investments reinforces this argument. These are commonly beyond the financing capacity of any single economic unit but may be supported if the investor can gather and combine the savings of many. Moreover, the availability of yield bearing securities makes present consumption more expensive relative to future consumption and, therefore, people might be induced to consume less today. The composition of savings may also change with fewer saving being held in the form of idle money or unproductive durable assets, simply because more divisible and liquid assets are available.

The securities market facilitates the internationalisation of an economy by linking it with the rest of the world. This linkage assists through the inflow of capital in the form of portfolio investment. Moreover, a strong domestic stock market performance forms the basis for well performing domestic corporate to raise capital in the international market. This implies that the domestic economy is opened up to international competitive pressures, which help to raise efficiency. It is also very likely that existence of a domestic securities market will deter capital outflow by providing attractive investment opportunities within domestic economy. Any financial development that causes investment alternatives to be compared with one another produces allocational improvement over a system of segregated investment opportunities.

The benefits of improved investment allocation is such that Mc Kinnon defines economic development as reduction of the great dispersion in social rate of return to existing and new investments under domestic entrepreneurial control. Instead of emphasizing scarcity of capital, he focuses on the extra-ordinary distortions commonly found in the domestic securities markets of the developing countries. The distortions in the real sectors such as monopoly power, tariff protection, import quotas, credit rationing and so forth add salt to injury. In the face of great

discrepancies in rate of return, the accumulation of capital does not contribute much to development. A developed securities market successfully monitors the efficiency with which the existing capital stock is deployed and thereby significantly increases the average return.

4.6 Liberalised Securities Market and Economic Growth

This part traces out that how a liberalized securities market helps promote economic growth. The more liberalized a securities market is, the better is its impact on economic growth. Interventions in the securities market were originally designed to help governments expropriate much of the seigniorage and control and direct the flow of funds for favoured uses. These helped governments to tap savings on a low or even no-cost basis. In some economies governments used to allocate funds from the securities market to competing enterprises and decide the terms of allocation. The result was channelisation of resources to favoured uses rather than sound projects.

In such circumstances accumulation of capital *per se* meant little, where rate of return on some investments were negative while extremely remunerative investment opportunities were foregone. This kept the average rate of return from investment lower than it would otherwise have been and, given the cost of savings, the resulting investment was less than optimum. This led mainstream development economists to argue that liberalization of securities market is the road to higher levels of domestic savings/investment and more efficient allocation of capital.

The concept of liberalized markets of major Asian countries can be understood from the table below by observing the restrictions on cross-border effects on portfolio investments for these countries. The above table shows how the Asian equity markets are opened for international investors by liberalizing their markets. Controls on foreign investor participation in equity markets have been loosened over time. Since the late 1980s and early 1990s, economies for Pakistan, Bangladesh SriLanka, Thailand, and Korea, Singapore, Malaysia are relatively open to cross-border equity flows by nonresidents.

Table: 4.14 Restrictions on Cross-Border Portfolio Investment in Asia, 2005

Country	Official Liberalisation Date	Restrictions on Cross-border Portfolio Investment
Bangladesh	July 1991	Nonresidents are free to purchase equity securities.
India	November 1992	Foreign investors are allowed to invest in equity securities. No foreigners are allowed to hold more then 10 percent of listed company.
SriLanka	August 1991	Nonresidents can invest in up to 100 percent of the equity capital of li sted and unlisted public companies without prior approval, subject to certain exclusions and limitations.
Pakistan	September 1990	Nonresidents are free to purchase equity securities.
Indonesia	September 1989	Nonresidents are free to purchase equity securities, except for financial com panies. Nonresidents m ay not hold m ore than 1 percent of any investment fund.
Malaysia	December 1988	Nonresidents are free to pu rchase equ ity securities. Investment in banks by nonresidents is generally limited to 30 percent.
Thailand	September 1987	Equity investment by foreign participants subject to various restrictions.
Singapore		No restrictions
Philippines		Nonresidents are free to pu rchase equ ity securities.
Korea	January 1992	Nonresidents are free to purchase equity securities but investm ents in bank by nonresidents exceeding 10 percent requires regulatory approvals.
Vietnam		Foreign individuals and organizations are allowed to hold, in aggregate up to 30 percent of an issuer's listed current shares.

Source: *Asia Bond Monitor* , 2005; and IMF *Annual Report on Exchange Arrangements and Exchange Restrictions* , 2005.

This concep t of liberalised m arket can be explained by the im plication of intervention and is illustra ted in f igure in following figure. The vertical axis

represents cost of capital and rate of return on investment and the horizontal axis represents the amount of capital raised from the securities market. With intervention, the demand for investment is represented by DdD, which indicates lower average rate of return corresponding to suboptimal resource allocation. As the level of investment increases to OD, the maximum permitted by the authorities, the average rate of return decreases as relatively less remunerative investments are approved. SS represents the supply of capital.

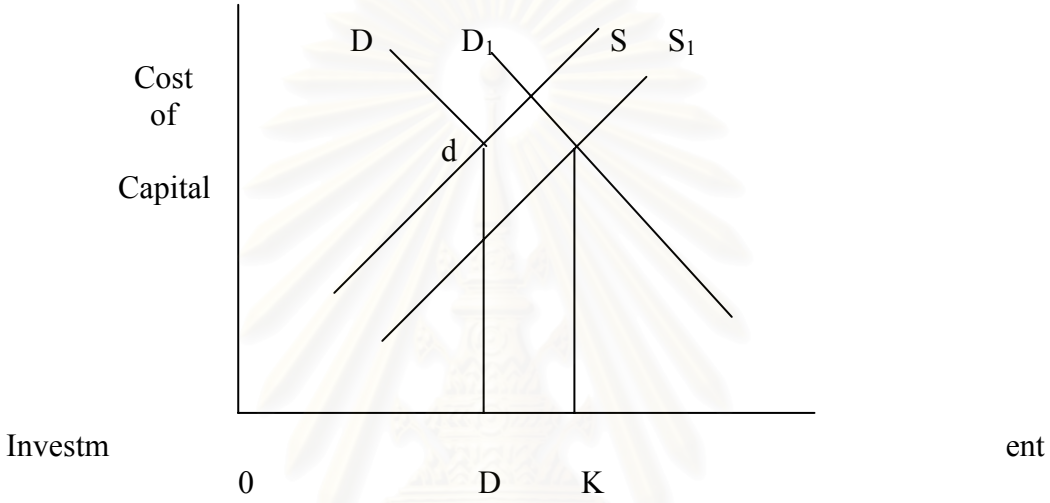


Figure: 4.18 Effect of Liberalisation on Securities Market

This results in an investment of K. If, however, intervention is withdrawn, rate of return will go up causing a shift in demand for investment schedule to D1D1, which will be down ward sloping through out. This would result in higher investment and consequently income which would shift supply schedule of capital to S1S1. The investment would further increase to K* and rate of return would improve to r*. Rate of return improves because removal of intervention rations out low yielding investments. As the cost of capital goes up, the entrepreneurs are likely to switch to less capital-intensive technologies.

Such technologies may not only raise the average productivity of capital, but also represent appropriate technology provided by relative availability and cost of labour and capital in the economy. Letting rate of return be determined by the market mechanism would reduce or even eliminate the costs involved in credit rationing arrangements and thereby enhance the efficiency of the economy as a whole. High rate of return would stimulate demand for financial assets and expand financial sector.

One of the bitter fruits of intervention has been the shrinkage of the securities market. When subject to effective expropriation through suppressed return on investment, people naturally seek a proper reward elsewhere, either through capital flight, through a retreat to underground or through the hoarding of goods. People keep their savings out of the markets. The underground sector allocates the resources, but relatively inefficiently. Another major consequence has been insulation of developing countries from international capital markets. The domestic market is shielded from competition.

4.6.1. Significance of Stock Market in Bangladesh

An understanding of the role of equity market may be conceived by examining its relative contribution in resource mobilisation. The following table presents the share of corporate security issues to funds mobilised by other investment opportunities available in Bangladesh. This higher share of corporate securities is attributed to different tax incentives offered in equity markets and reduction of interest rate on government saving schemes and bank deposits. In addition, though the corporate bond market had come into being as a new investment vehicle in 1987, this market has not yet been broad-based. Only ten companies have outstanding corporate debentures (partly redeemable and partly convertible) listed with DSE in June 2000. Government bonds are not traded on the Dhaka Stock Exchange/Chittagolng Stock Exchange. Rather the government regulates its markets through certain specified bank counters. The exclusion of these bonds from the trading of the stock exchanges deprives them of these businesses. The physical separation of the two markets does not encourage investors to make direct comparisons between government bonds as risk less assets and equities as risky assets. This segmentation of the markets is unlikely to be conducive to securities market development.

Table: 4.15 Resource Mobilised by Stock Market in Bangladesh (in million Taka)

Year	Corporate Securities	Time Deposits	Govt. saving instruments	Total of col. 3 and 4	Ratio (col. 2 as a % of col. 5)
1	**2**	**3**	**4**	**5**	**6**
1991	6020	202686	13206	215892	2.78
1992	8201	224730	26925	251655	3.25
1993	11673	252359	25822	278181	4.19
1994	1943	290330	27822	318152	6
1995	23052	312310	34614	346924	6.6
2000	25436	423407	31265	456572	5.5
2001	28765	603882	33654	637536	4.5
2002	31980	701196	35246	736442	4.3
2003	36100	834965	39654	874619	4.1
2004	49000	1043257	42376	1085633	4.6

Source: Bangladesh SEC, Various Issues

As can be seen from above table that the proportion of funds raised via the stock markets has increased to 4.6 per cent in 2004 from 2.78 per cent in 1991 registering the growth rate of 65 percent over the last 14 years although the contribution of stock market measured by the ratio of new issues to gross investment as well as national savings was increased to 6.6 in 1995. The performance of stock market relative to banking systems and government savings of economy has not been significant for Bangladesh. Many of the constraints associated with equity markets are concerned with the overall development of the country and hence investment in equities is likely to continue to be some highly risky affairs for a great many potential investors with pronounced risk aversion attitudes.

4.6.2. India

Three main sets of entities depend on securities market. While the corporates and governments raise resources from the securities market to meet their obligations, the households invest their savings in the securities.

Table:4.16 Dependence on Securities Market

	Share(%) of Security Market in		
Year	**External Finance of Corporates**	**Fiscal Deficit of Central & State Government**	**Financial Savings of Households**
1991	19.35	30	14.4
1992	19.17	37.5	22.9
1993	33.38	26.5	17.2
1994	53.23	65.7	14
1995	44.16	50.7	12
2000	33	74.4	5
2001	31	80.3	7.5
2002	34	75	10.2
2003	38	85.2	11
2004	39.6	88.2	12.4

Source: RBI. (Copied from Indian Securities Market Review, a publication of NSEIL

A growing number of companies are accessing the securities market rather than depending on loans from FIs/banks. The corporate sector is increasingly depending on external sources for meeting its funding requirements. There appears to be growing preference for direct financing (equity and debt) to indirect financing (bank loan) within the external sources. According to above stated information, the share of capital market based instruments in resources raised externally increased to 53 percent in 1994, but declined thereafter and reached to 39 percent in 2004. Along with increase in fiscal deficits of the central and state governments, the dependence on market borrowings to finance fiscal deficits has increased over the years. During the year 1991, the state governments and the central government financed nearly 30 percent their fiscal deficit by market borrowing. Their financing has increased to 88 percent in 2004. On the other

hand, the households invested only 14 percent of their savings in securities, including government securities and units of mutual funds during in 1991. The share of financial savings of the household sector in securities has gone down to 12.4 percent in 2004.

Table: 4.17 Resource Mobilised by Stock Market in India (Rs. Million)

Year	Corporate Securities	Time Deposits	Govt. saving instruments	Total of col. 3 and 4	Ratio (col. 2 as a % of col. 5)
1	2	3	4	5	6
1991	14219	181900	11558	193485	7.34
1992	16366	223901	12284	236185	6.92
1993	23537	260102	17690	277792	8.4
1994	44498	303425	54533	357958	12.4
1995	72450	336624	113336	449960	16.1
2000	78396	699155	128483	827638	9.5
2001	74400	819755	152500	972255	7.6
2002	75250	952206	158425	1110631	6.77
2003	82420	1062405	160285	1222690	7.34
2004	86543	1154762	161453	1316315	7.76

Source: RBI. (Copied from Indian Securitie s Market Review , a publication of NSEI L), IFS,2005, January Vol.

The relative contribution of stock m arket in India to financial developm ent measured by the ratio of new issues of m arket to gross investm ent and national savings was 7.34 percent in 1990 and it recorded 7.74 pe rcent in 2004. Stock market contribution relative to banking system s and governm ent savings was 16 percent in 1995 and it went down after that period**.**

4.6.3. Pakistan

Pakistan stock market, the second largest in SAARC member countries, has been growing sin ce 1990.In mobilizing resources, stoc k m arket playing crucial role ov er the last decad es. How the stock m arket in Pakis tan m obilizes resou rces through prim ary issues in comparison to ba nking system s and governm ent sa vings can be assessed from the following statistical breakdown:

Table: 4.18 Resource Mobilised by Stock Market in Pakistan (Rs. Million)

Year	Corporate Securities	Time Deposits	Govt. saving instruments	Total of col. 3 and 4	Ratio (col. 2 as a % of col. 5)
1	2	3	4	5	6
1991	7040	34543	96372	104915	5.3
1992	7234	26766	92475	109241	6.4
1993	14345	20432	143406	163838	8.75
1994	22008	65332	230515	295847	7.43
1995	26567	70111	278960	349071	7.6
2000	55432	98272	621619	719891	7.7
2001	60890	135777	700662	836439	7.2
2002	64987	163212	685205	848417	7.6
2003	78445	189665	973224	1162889	6.7
2004	96543	215543	1223675	1439218	6.71

Source: Securities & Exchange Commission Reports of Pakistan

The funds raised through the stock m arket by issuing new securi ties in Pakistan was 5.3 percent in 1991 and increased to 6.71 percent in 2004 with growth of onl y 21 percent during the last 14 years. It was observable that the contribution of stock market in mobilising the resources had been moved in between 5 to 9 percent over the one and half decade. This finding signifies that stock market has not been remarkably contributed well in financing the corporate issues relative to other sectors of the economy. It is noted that whatever strategies that exchange of Pakistan implements to cha nnelise the funds would at best be describ ed as catalysts th at would accelerate the p rocess and n ot be substitutes for a dynam ic investm ent clim ate, the one necessary condition that would m otivate companies to list and would ultimately promote the stock market funding.

4.6.4 Sri Lanka

Despite the fact that SriLankan stoc k m arket has a long history of its establishment, stock market here, in real sense, was inactive up to the 1990s. It plays a marginal ro le in m obilizing th e r esources co mpared to th e other financial sectors of economy. The contribution of stock m arket to channelise the funds can be assessed by comparing the funds raised through stock m arket as percent of total private sector investment.

Table: 4.19 Private Sector Investment and Stock Market Funding

Year	Private Investment as a % of GDP	Funds Raised Through the Stock Market as a % of Private Sector Investment	Market Capitalization as a % of GDP
1996	18.0	4.2	13.7
1997	18.1	2.3	13.1
1998	18.7	2.5	12.1
1999	20.6	1.4	10.4
2000	21.5	1.5	8.0
2001	16.2	1.2	7.5
2002	16.7	1.5	9.1
2003	16.8	5.1	12.1
2004	19.8	3.1	15.9
2005	19.6	5.7	20.4

Source: CSE and Central Bank of SriLanka

The table signifies the role of SriLanka stock market to raise funding as percent of private investment for the 1996 to 2005 period. Funds raised through the stock market as a percentage of private sector investment has improved over the last five years from an average of 1.2 percent in 2001 to 5.7 percent in 2005. The range of stock market funding for 1996-2005 was 1.2 to 5.7 percent with a growth of 35 percent. In comparison, private investment as a percentage of GDP has increased marginally from 18.1 percent in 1996 to to 19.6 percent in 2005 with growth of only 9 percent during the period concerned. On the other hand, market capitalization as a percentage of GDP which averaged 8.2 percent during the period 2000 to 2002 has averaged 16.1 percent during the 2003 to 2005. This gives the idea how SriLanka stock market is gradually improving in funding the investment in recent years. Stock market performance is a cause for concern. The challenge facing the exchange is how to accelerate primary market by making listings attractive to mobilize the resources efficiently.

4.6.5 Summary

The implications of stock markets in channelising the funds to productive investments of economy have been an unquestionable issue in finance theory. The above section made the efforts to segregate the significance of stock markets in SAARC countries. Despite the fact that the stock markets in India and Pakistan are lager compared to other two member of the SAARC and have the tremendous potential to develop, the stock markets are still in transitional period for the economy of this region. No country satisfies the double digit category in terms of stock market fundings in its respective economy relative to other sectors of the country.

4.7 Overview of South Asian Federation of Exchanges

South Asian Federation of Exchanges (SAFE) is a forum launched by bourses in South Asia to promote the development of securities markets in the region. The inception of SAFE marks an important milestone in the march of South Asian capital markets towards regional and global integration. In the end of the year 1999, Chittagong Stock Exchange invited all the bourses of the region - in Sri Lanka, Pakistan, Nepal, India, Bhutan and Bangladesh to gather for a dialogue on January 15. The call was quick. And the responses were even quicker. After two days of cordial discussion in a great spirits of co-operation and teamwork, the bourses signed a declaration giving birth of the South Asian Federation of Exchanges. The Declaration narrates the reasons of formation of the Federation, its objectives and also provides a guideline to the path of progress.

The imperatives of globalization necessitate increasing interdependence among nations in terms of business, politics and cross-cultural activities. Consequently, capital markets in South Asia can no longer afford to remain insulated from each other or from the rest of the world. The markets have overlapping concerns and interests which need to be recognized and addressed. South Asian Federation of Exchanges is the logical culmination of this realization.

4.7.1 Declaration

Our era is characterised with the attitude of cross border co-operation round the world. The era observed an increasing respect for democracy, human right and secularism. The last half of the century has been the time to join hands for peace and for mutual economic benefits. Creation of major unnatural borders in the region of South Asia does not date too long back in the history. Theses are why so-called differences in the cultures in the countries are characterised with lots of similarities. These likeness catalysed the south Asian Federation of Exchanges - the SAFE - to be inexistence.

In the spirit of mutual cooperation and understanding among the participants recognizing the need for common platform for the stock exchanges in South Asia region, the following stock exchanges present in Chittagong on 15 and 16 January, 2000,agree to form the South Asian Federation of Exchanges in the region.

- Chittagong Stcok Exchange
- Colombo Stcok Exchange
- Karachi Stock Exchange
- National Stock Exchange of India
- Nepal Stock Exchange
- Royal Securities Exchange of Bhutan
- The stock Exchange, Mumbai
- Pune Stcok Exchange

Globalisation has increased the interdependence among nations and simultaneously regional cooperation forums have emerged or are emerging. Therefore stock exchanges around the world are co-ordinating their various initiatives and forming regional federations on the regional cooperation philosophy. The immediate objectives of such federations are to enhance communication and to standardise operation procedure.

4.7.2 The Objectives of South Asian Federation of Exchanges

i) To encourage cooperation among the members in order to promote the development of their respective securities market.

ii) To work towards common standards including international accounting standards and best business practices in securities markets

iii)To represent the members in related international forums.

iv) To encourage cross border listing and trade in the region.

v)To co-operate in human resource development and the transfer of technology.

vi) Other issues of common interest as and when they arise. Services to the members

Business Research is a core requirem ent of the capital m arket participants. Cross border information will be the prerequisite for any cross border operation. The federation shall take the responsibility to gather data from the members and process the data in to a standardised for mat so that th ey are com parable to a desired level. Informatio n dissemination The Federation shall publish routinely compiled inform ation on the member countries' capital m arkets and also qualitative evaluation of the business in the region. Organisation of conferences The Federation will organise regular conferences and seminars on relevant topics in the regional and world m arkets. The developm ent of the capital market is a continuous process. To keep pace with th e growth, regular ex change of knowledge and views becom e necessary. Th e federation will act as a catalys t for introduction of standa rdised procedures and for the expans ion of the markets. Human Resource D evelopment The Mem ber stock Exch ange will cooperate to develop their human resources.

4.7.3 Events of South Asian Federation of Exchanges

SAFE has initiated various events on diversified areas including education training with regard to the stock market operations and investment procedures, which can broadly be classified into the following categories:

1. Educational and Informational Sessions for Professionals
2. Informational Sessions for Students
3. Training Programmes for Students in collaboration with Islamabad Stock Exchange
4. Informational Sessions for Small Investors

Primary aim and objectives of arranging such sessions is to create awareness amongst the general public, in particularly, the small investors, students and professionals from various fields regarding the basics of the stock exchange operations, procedures of investing in stocks and the deterrents to be kept in mind while investing in stocks. At present, unlike developed countries, as per rough estimates, only one percent of adult population in Pakistan invests in stocks. The said percentage is somewhere between 80-90% in developed countries. Therefore, our endeavors for educating our general public would greatly help in building the investor base in Pakistan and would go a long way in developing our stock markets.

4.7.4 South Asian Index (SAI)

The proposal for launching a South Asian Index was promoted by SAFE in its Executive Committee of 2006 and the same was approved in the Annual General Meeting of 2006, both held in Colombo Sri Lanka on 16th and 17th November, 2006 respectively. The proposal detailed that the SAI would be aimed at measuring and reflecting performance of leading stocks of the prominent market sectors, listed at the SAFE Member Exchanges. SAI, by providing an overview of the performance of the SAFE equity markets as a regional grouping, would highlight its investment potential. It would also serve as an underlying tool for developing new investment products in the region. The South Asian Index was proposed to be launched in partnership with Dow Jones

Indexes Inc, New York. Dow Jones Indexes, a unit of Dow Jones & Company, is a leading global full-service index provider that develops, maintains and licenses indexes for use as benchmarks and as the basis of investment products.

The draft Memorandum of Understanding (MoU) was circulated for the acceptance of all member Exchanges to authorize SAFE EC to finalize the agreement for the launch of South Asian Index with Dow Jones Indexes Inc. The MoU signing ceremony was witnessed by electronic and print media and the Chairman Securities and Exchange Commission of Pakistan. The EC meeting of SAFE shall prove to be a milestone in the history of the capital markets of the South Asian region by achieving to bring together the representatives of various capital markets of the region and obtain their consent for extending required cooperation for the launch of the South Asian Index.

The above section highlights the emergence of South Asian Federation of exchanges and its importance for the development of the stock market in the region. This part focuses the objectives of the federation, its declaration, events and other initiative that have been made by the SAFE.

CHAPTER V

ANALYSIS AND INTERPRETATION OF RESULTS

5.1 Introduction

Before analyzing the and interpreting the models used for the study to ascertain the impact of stock market development in contributing the per capita GDP growth, the section starts with the implications of the descriptive statistics of the stock market data variables for the Bangladesh, India, SriLanka, and Pakistan.

5.2 Descriptive Statistics

Descriptive statistics measure the whole characteristics of the data series considered for any empirical study. It focuses on the mean and standard deviation as well as others summary measures of data series that can provide useful descriptive devices generally and which can be particularly effective when one wishes to evaluate whether the data series approximates a particular probability distribution such as normal.

The normal distribution of the data series can be evaluated informally by checking to see whether the mean and median are nearly equal, whether the skewness is approximately zero, and whether the kurtosis is close to 3. The more formal test of normality is given by the Jarque-Bera statistic. The JB statistic follows a chi distribution with 2 degrees of freedom. If JB is grater than the critical value of chi square, then the null hypothesis of normality is rejected.

Table: 5.1 Descriptive Statistics of Stock Market Variables

Total Value Traded Ratio				
	Bangladesh	**India**	**SriLanka**	**Pakistan**
Mean	0.599534	9.804528	1.264673	14.88822
Median	0.034824	6.796980	0.937494	1.762816
Maximum	2.738083	47.89564	5.961484	81.16453
Minimum	0.001865	1.156580	0.044342	0.448684
Std. Dev	0.833776	10.92242	1.531800	24.03732
Skewness	1.072761	2.158070	1.524197	1.762013
Kurtosis	2.787241	7.360995	4.799532	4.918023
Jarque Bera	5.035911	40.78462	13.57528	17.43904
No. of Observation	26	26	26	26
Turnover Ratio				
	Bangladesh	**India**	**SriLanka**	**Pakistan**
Mean	18.71308	49.03115	8.366538	97.73077
Median	2.595000	43.73500	6.130000	16.00000
Maximum	87.97000	144.6900	28.09000	464.3000
Minimum	0.300000	9.970000	0.630000	1.720000
Std. Dev	27.12268	28.09315	8.112544	141.4136
Skewness	1.384899	1.624375	0.791744	1.378543
Kurtosis	3.472024	6.321147	2.628968	3.468869
Jarque Bera	8.552476	23.38309	2.865523	8.473136
No. of Observation	26	26	26	26
Market Capitalisation Ratio				
	Bangladesh	**India**	**SriLanka**	**Pakistan**
Mean	2.052692	20.80846	11.15231	11.84308
Median	1.705000	21.09000	10.23500	9.285000
Maximum	11.66000	46.50000	24.78000	26.09000
Minimum	0.140000	3.230000	2.200000	1.900000
Std. Dev	2.271818	15.06155	6.317804	7.974443
Skewness	2.978582	0.267462	0.663729	0.471380
Kurtosis	13.45139	1.567378	2.743856	1.821562
Jarque Bera	156.7792	2.533429	1.980070	2.467306
No. of Observation	26	26	26	26

The mean and median are the measure of the central tendency but median is more robust to errors or unusually extreme data points than is mean. The above table shows that for total value traded to GDP ratio the mean and median of Bangladesh, India, SriLanka differ significantly but for Pakistan it is very much close. The standard deviation of this stock market variable for Bangladesh, India, and SriLanka

are close to mean value but for Pakistan it differs significantly. The skewness is lower for Bangladesh than the other three countries but not close to zero. Kurtosis is close to 3 for Bangladesh but for other countries it is above the 3. The JB statistic is greater than the critical value chi distribution with 2 degrees of freedom at the 5 percent level of significance for all countries except Bangladesh. By considering all the summary measures of total value traded to GDP ratio for all the SAARC member countries, it can be observed that for no country data series does not fully exhibit the normal distribution or symmetric. Moreover, the data series of Bangladesh can be treated as normal distribution one compared to other three countries series.

For the data series of turnover ratio, the median is significantly smaller for all the countries concerned except SriLanka. This gives a typical result for the series of these three countries with a long upper tail. In terms of all the summary measures of data like standard deviation, skewness, kurtosis and jarque bera the data series is not symmetric for Bangladesh, India and Pakistan. It is interesting to see that for SriLanka the data series approximates the normal distribution because the standard deviation is almost equal to mean, skewness is close to zero, and kurtosis is close to 3. For other three countries the turnover ratio data series does not approximate the symmetrical distribution.

The mean and median of the data series of market capitalization to GDP ratio for all the countries Bangladesh, India, SriLanka, and Pakistan are roughly equal to each other. The Skewness statistic for all the countries is close to zero except Bangladesh which is 2.98. The kurtosis of 13.45 for Bangladesh is substantially greater than 3, a typical result for thicker than normal tails. It is close to 3 for SriLanka but less than 2 for India and Pakistan. The analysis shows that data series can be identified as symmetrical distribution only for SriLanka in terms of almost all the properties of the data series.

Other Control Variables

Table: 5.2 Descriptive Statistics of All the Control Variables

Foreign Direct Investment				
	Bangladesh	India	Sri Lanka	Pakistan
Mean	0.196378	0.419590	1.464231	0.981912
Median	0.013370	0.298131	1.380000	0.625997
Gross Domestic Investment				
	Bangladesh	India	Sri Lanka	Pakistan
Mean	18.92462	22.53520	17.94192	24.65385
Median	17.70000	22.60000	18.40000	24.25000
Openness Ratio				
	Bangladesh	India	Sri Lanka	Pakistan
Mean	47.40328	18.07731	75.87692	47.40328
Median	35.44125	16.81957	77.82000	35.44125
Private Credit to GDP Ratio				
	Bangladesh	India	Sri Lanka	Pakistan
Mean	19.01385	37.50006	24.76813	24.76813
Median	18.87500	27.58226	24.45797	24.45797
Per Capita GDP Grwoth Rate				
	Bangladesh	India	Sri Lanka	Pakistan
Mean	2.153846	3.484615	2.303846	3.173077
Median	2.550000	3.400000	2.300000	3.300000
Secondary School Enrollment as percent of Education				
	Bangladesh	India	Sri Lanka	Pakistan
Mean	25.42308	40.65385	24.88462	60.00000
Median	23.50000	43.50000	25.00000	64.00000

The above table represents the mean and median statistics of all the control variables besides the stock market development indicators. It is obvious from the above descriptive statistics that more or less all the variables like foreign direct investment, domestic investment, per capita growth rate, openness ratio, private credit to GDP ratio and secondary school enrollment have the median value very close to the mean of the data series.

5.3 Unit root Test

Before the study m akes attem pt to estim ate teh im pact of stock market development on economic growth rate am ong the SAARC countries, the unit root test has been m ade for all the variables for the study by using the Augm ented Dickey Fuller test.

The m arket capitalization ratio for Ba ngladesh, Pakistan, and India found staionary at the first difference form where as for Sri Lanka it is found at level form . The value traded ratio o f Bangladesh, India, and Pakistan has unit root at the level form but for SriLanka this variable has no unit root. The turnover ratio of Bangladesh, Pakistan and SriLanka has been found stationa ry at the first difference form while for India it is at the level form.

Now look at other control variables c onsidered for the study. For Bangladesh and India, FDI is stationary at the firs t di fference form whi le for Paki stan and SriLanka it is stationary at the level form. Private credit to GDP ratio of Bangladesh is stationary at fi rst di fference form but i t is stationary at the level form for India, SriLanka and Pakistan. The secondary school enrollm ent ratio of all the SAARC member countries is stationary at the firs t difference for m except for SriLanka which is found at the level form. The openness ratio of India and Srilanka is stationary at the first difference form where as it is sta tionary for Bangladesh and Pakistan at the level form. Finally, the per capita GDP growth ra te is station ary at the lev el f orm f or Bangladesh, India, and SriLanka w hile it is stationa ry at firs t di fference form fo r Pakistan.

Table: 5.3 Summary Results of Unit Root Test

	Order of Integration			
Variables	Bangladesh	India	Sri Lanka	Pakistan
Market Capitalisation Ratio	I(0)	I(0)	I(0)	I(0)
Total Value Traded Ratio	I(1)	I(1)	I(0)	I(1)
Turnover Ratio	I(1)	I(0)	I(1)	I(1)
FDI as % GDP	I(1)	I(1)	I(1)	I(0)
Domestic investment to GDP Ratio	I(1)	I(0)	I(1)	I(1)
Private Credit to GDP Ratio	I(1)	I(0)	I(0)	I(0)
Openness Ratio	I(0)	I(1)	I(1)	I(0)
Secondary School Enrollment % secondary age population	I(1)	I(1)	I(0)	I(1)

The table highlights the summary of unit root test for all the stock market development indicators as well as other control variables taken into account in the study. The results found that some of the variables stationary level form and some at first difference form. Therefore, in order to accurately estimate the regression equation all variables are expressed in difference form while running the models.

5.4 Interpretation of Dynamic Panel Model

The study uses two dynam ic panel models to ascertain the i mpact of stock market developm ent on econom ic growth. Model one attempts to assess the stock market impact directly and model two does it indirectly by having its effect through investment. Both these m odels have b een tested using the common coefficien t approach meaning that whether the stock market in the SAARC region has any impact or not on econom ic growth. The study also considers whether the stock m arket in each country has any influence on the per capita growth rate.

5.3.1 Direct Effect of Stock Market on Per Capita Growth Rate (Model One)

Table: 5.4 Results of Regression on Per Capita GDP Growth Rate

	Common Coefficient	**Cross Section Coefficient**			
Variables	SAARC	Bangladesh	India	Sri Lanka	Pakistan
D[Per Capita GDP Growth(-1)]	-0.561 (-6.626)*	-0.5073 (-3.501)*	-0.686 (-3.113)*	-0.520 (-3.429)*	-0.386 (-2.640)*
D[Market Capitalisation Ratio]	0.019 (0.436)	-0.098 (-0.224)	-0.017 (-0.183)	0.080 (0.882)	-0.093 (-1.049)
D[Total Value Traded Ratio]	-0.018 (-0.564)	0.655 (0.247)	-0.242 (-1.435)	-0.529 (-0.609)	-0.018 (-0.503)
D[Turnover ratio]	0.011 (1.573)	-0.009 (-0.189)	0.035 (0.888)	0.264 (1.094)	0.013 (1.792)
D[FDI as % GDP]	-0.215 (-0.580)	2.595 (0.658)	-3.971 (-1.924)	-0.159 (-0.300)	3.513 (2.856)*
D[Domestic Investment % GDP]	0.311 (2.512)*	-0.584 (-1.796)	0.486 (1.891)	0.220 (1.137)	0.194 (0.590)
D[Private Credit to GDP Ratio]	0.003 (0.257)	-0.069 (-0.768)	0.481 (1.250)	0.312 (1.893)	0.0790 (1.097)
D[Openness Ratio]	-0.001 (-0..1)	-0.000 (-0.084)	0.525 (1.645)	0.016 (0.254)	-0.156 (-2.854)*
D[Secondary School Enrollment % secondary age population]	0.027 (0.304)	-0.302 (-2.244)*	-0.198 (-0.492)	0.157 (1.056)	0.318 (1.789)
R-squared	0.372	0.626271			
Adjusted R Square	0.277	0.345974			
No. of Observations 23 after adjustment					
Note: Value without parentheses represents coefficient and within parentheses represents t statistics. D refers to all variables are expressed in difference form.					

SAARC:

First consider the SAARC region results under both common and cross section coefficients. Lag of per Capita GDP growth rate has a negative sign with statistically significant coefficient. This means that lag value itself has negative effect on per capita GDP growth rate. Market capitalization ratio, turnover ratio, private credit to GDP ratio and secondary school enrollment percent of secondary age population all have the positive sign and not found significant. The results indicate that these variables do not have effect on the per capita GDP growth rate.

On the other hand, total value traded ratio, FDI to GDP ratio, and openness ratio have the negative sign and not statistically significant. This means that all these variables will not have any effect on per capita growth rate. Only the domestic investment to GDP ratio has positive sign with statistically significant coefficient, This implies that if this ratio changes by 1 percent then per capita growth rate will increase by 0.311 percent in SAARC region. The investment can affect teh growth rate in the region. The R square value is 0.37 meaning that 31 percent of per capita growth rate can be explained by the variables taken in the model.

Now look at the results of Each of the SAARC member countries:

Bangladesh:

For Bangladesh the lag value of per capita growth rate has negative sign and statistically significant coefficient. This means that lag value of growth has the inverse effect on per capita growth rate of Bangladesh. Market capitalization ratio, turnover ratio, investment to GDP ratio, Private credit to GDP ratio, openness ratio and secondary school enrollment have the negative sign and not statistically significant except for secondary enrollment which is found significant. This means that it has negative effect on per capita growth rate. The value trade ratio and FDI to GDP ratio have the positive sign and not significant. Domestic Investment to GDP Ratio has negative sign with statistically insignificant coefficient. This implies that domestic investment to GDP ratio has negative impact on per capita growth rate.

India:

In case of India, the lag value of per capita growth rate has negative sign and statistically significant coefficient. This means that lag value of growth has the inverse effect on per capita growth rate of India. Market capitalization ratio, total value traded ratio, FDI to GDP ratio, and secondary school enrollment ratio have the negative sign and not statistically significant indicating that these variables will not have any impact on per capita growth rate of India. The turnover ratio, domestic investment to GDP ratio, private credit to GDP ratio, and openness ratio have the positive sign and not statistically significant. They do not have impact on the growth rate.

SriLankla:

Look at the case of SriLanka, the lag value of per capita growth rate also has negative sign and statistically significant coefficient. This means that lag value of growth has the inverse effect on per capita growth rate of country. Market capitalization ratio, turnover ratio, domestic, investment to GDP ratio, private credit to GDP ratio, openness ratio, and secondary school enrollment have the positive sign but not found statistically significant. Results indicate that they do not have impact on the per capita growth rate of SriLanka.

Pakistan:

Finally consider the case of Pakistan. The lag value of per capita growth rate has negative sign and found statistically significant. This means that if the last year GDP growth is high then the per capita growth rate of this year will be lower. So the lag value has inverse effect on growth rate. Market capitalization ratio, value traded ratio, and openness ratio have the negative sign with statistically insignificant coefficients. Where as turnover ratio, investment to GDP ratio, private credit to GDP ratio have the positive sign and found statistically insignificant. But the FDI to GDP ratio and secondary school enrollment ratio have the statistically significant coefficient meaning that these two variables have positive impact on the per capita growth arte of Pakistan.

The conclusion can be drawn from the results described above that only the domestic investment has the significant impact on the per capita GDP growth rate in the SAARC region. No other control variables like FDI, openness ratio, private credit, secondary enrollment are statistically significant except the lag value of per capita GDP growth rate but it has a negative sign. Even the three stock market indicators: market capitalization, value traded and turnover ratios are found to be statistically insignificant. This means that stock market does not have any direct impact on per capita GDP growth rate in the region as a whole. On the other hand, in case of Bangladesh only secondary school enrollment ratio is statistically significant but sign is negative. In case of India, no variable has the positive effect on per capita growth rate. In case of SriLanka, no variable is statistically significant. Where as in case of Pakistan FDI to GDP and Openness ratio are statistically significant but only FDI to GDP ratio has the positive sign meaning that investment has the impact on the per capita growth rate. The final inference is that stock market variables do not have any impact on the economic growth rate in any of the SAARC member countries.

5.3.2 Indirect Effect of Stock Market through Investment (Second Model)

As mentioned in research methodology part that second model is a indirect one in which first equation regresses the stock market indicators on the domestic investment and in the second equation the fitted value of investment is regressed on per capital GDP growth rate to see whether this fitted value has any impact on the per capita growth rate. This means that this model attempts to ascertain the stock market impact on growth rate through its effect on investment. It is to mention here that this model has taken into account lag value for all of its variables considered. This indirect model also tested the by considering the impact of stock market on per capita growth rate in the SAARC region as a whole as well as the separate stock market impact for each of the SAARC member countries. The table below represents the indirect effect of stock market development by using both common and cross section specific coefficient.

Table: 5.5 Results of Regression under Indirect Effect

First Equation: Regression of Stock Market on Investment					
	Common Coefficient	**Cross Section Coefficient**			
	SAARC	Bangladesh	India	Sri Lanka	Pakistan
D[Market Capitalisation Ratio]	0.039 (1.393)	-0.013 (-0.083)	0.032 (0.381)	0.0559 (0.597)	0.070 (1.4511)
D[Total Value Traded Ratio]	0.0107 (0.360)	-0.000 (-0.01)	0.009 (0.345)	-0.054 (-0.198)	-0.002 (-0.425)
D[Turnover Ratio]	-0.002 (-0.48)	0.105 (0.097)	-0.033 (-0.393)	0.715 (0.708)	0.013 (0.329)
R-squared	0.1126	0.146			
Adjusted R Square	0.049	-0.021			
Second Equation: Regression of Fitted Value of Investment on Per Capita GDP Growth					
	SAARC	Bangladesh	India	Sri Lanka	Pakistan
D[Per Capita GDP Growth(-1)]	-0.538 (-5.724)	-0.401 (-2.141)*	-0.475 (-2.752)*	-0.460 (-2.389)*	-0.231 (-0.979)
D[Fitted Value of Investment(-1)]	-0.121 (-0.874)	0.7080 (1.846)	-0.106 (-0.445)	-0.190 (-0.906)	-0.1287 (-0.942)
D[FDI to GDP Ratio (-1)]	-0.064 (-0.151)	-2.898 (-1.065)	0.030 (0.016)	-0.264 (-0.437)	-2.533 (-1.460)
D[Private Credit t/GDP Ratio(-1)]	0.001 (0.117)	0.088 (0.857)	0.200 (0.801)	0.0265 (0.126)	-0.0435 (-0.442)
D[Openness Ratio(-1)]	-0.000 (-0.304)	0.001 (0.512)	-0.020 (-0.075)	-0.198 (-1.942)	0.096 (1.141)
D[Secondary School Enrollment % secondary age population(-1)]	0.001 (0.015)	0.1724 (1.075)	-0.193 (-0.512)	-0.198 (-1.042)	0.236 (0.825)
R-squared	0.288	0.401			
Adjusted R Square	0.205	0.132			
No. of observations 22 after adjustment					
Note: Value without parentheses represents coefficient and within parentheses represents t statistics. D refers to all variables are expressed in difference form.					

SAARC

Have a look at the first equation of the above table which indicates that all the stock market indicators in the SAARC region as a whole are not statistically significant. This can be interpreted in such a way that stock market does not have any positive impact on the investment ratio in the region. On the other hand, stock market indicators in Bangladesh, India, Sri Lanka, and Pakistan do not reflect the statistically significant coefficients meaning that stock market development variables considered

in the study will not have any positive direct effect on the investment rate for any one of the SAARC member countries. The R square value signifies the findings that only 28 percent of the domestic investment can be explained by the stock market indicators. Now look at the second equation of the model when fitted value of investment is regressed on per capita growth rate. The results indicate that FDI to GDP ratio, private credit and openness ratio all are not found significant meaning that they do not have any effect on per capita growth rate of SAARC region.

Now have a look at the second equation for measuring each of the SAARC member countries to assess whether each country has any effect on the growth rate.

Bangladesh:

For Bangladesh the fitted value of investment is not statistically significant. This means that stock market in Bangladesh does not have any indirect effect on per capita growth rate. No other control variables are statistically significant coefficients except the lag value of per capita GDP growth rate although it has negative sign.

India:

In case of India, lag of per capita growth rate and secondary school enrollment, openness ratio and the lag of fitted value of investment have the negative sign but FDI to GDP ratio and private credit to GDP ratios have the positive sign. None of the variable is statistically significant implying that no variable has any impact on the per capita growth rate of India.

SriLanka:

In case of SriLanka, fitted value of investment is not found significant. So stock market variables do not have any impact on the growth rate. Only the private credit to GDP ratio has the positive with all other variables have the negative sign. Again no variable is found statistically significant meaning that model can not predict the per capita GDP growth rate of Sri Lanka.

Pakistan:

Finally, for Pakistan the same conclusion can be made as like Sri Lanka. The fitted value of investment is found to statistically insignificant indicating that stock market does not have any indirect effect on per capita GDP growth rate. All

variables have the negative sign except the openness ratio and secondary school enrollment.

The finding can be explored from the second model is that stock market in SAARC region do not have any indirect impact on per capita GDP growth rate through its influence via investment. On the other hand, analysis demonstrated that stock market does not also have any indirect impact on per capita GDP growth rate for any of the SAARC member countries. Even no other control variables are found significant for the SAARC region as well as individual countries. The result is not consistent with other empirical studies that found significant effect of stock market on economic growth rate.

5.5 Summary

This chapter at outset attempts to present the descriptive statistics of the data series used in the model. Then the two dynamic models have been tested under both common and cross section coefficients. The results from both model under common and cross section coefficient state that stock market in the region as a whole as well as stock market individually do not have any influence on the per capita growth rate. Another interesting conclusion is found from the analysis is that no other control variable has any impact on the per capita GDP growth rate. These findings are not supportive with the theory and other empirical studies that concluded that stock market has the positive effect on the growth rate of the economy.

CHAPTER VI

CONCLUSION

This chapter is designed to get through the conclusion observed from the study using dynam ic panel data m odels to invest igate the im pact the of stock m arket development on the growth of economy for the SAARC region as well as for each of the SAARC m ember countries during the pe riod of 1980 to 2004. This paper m akes an attempt to em pirically explore the relationship between stock m arket development and long-run per capita growth rate for each of the SAARC m ember countries taken into account. The study uses the two dyna mic panel models to shed light on this issue using both common and cross section specific coefficients.

It is understandable to demonstrate the some findings derived from the chapter four about the overall developm ent of patter of SAARC stock m arket. The implications of stock market in channelis ing the funds to productive investm ent of economy have been the unquestionable issue in finance theory. The analysis finds out that funds mobilised b y the stock m arket in the region are very sm all relative to the economy and stock m arket still in the trans itional period. D espite this fact it can be stated that develop m ent of stock m arket in South Asia was obs erved after the 1990s when the co untries in the region liberalized their market. Even the grow th pattern of the stock market in SAARC region after 90s can be iden tified m ore or les s on th e same track as other m ajor ASEAN countries move forwa rd particul arly in term s of major indicators of market.

Before the study estim ates the two dyna mic models unit root test has been made for all the v ariables considered in the m odel. The resu lts indicate that som e of the variables stationary at the leve l form where as m ost of them are stationary at th e first difference form taken into account for all the SA ARC m ember countries. Therefore, in order to accurately estim ate the reg ression equation without any econometric bias the study considers the difference form for all the variables in running the model.

In case of first dynamic panel model which assumed that stock market will have a direct impact on the per capita growth using the common coefficient state that domestic investment has the significant influence on the per capita growth in the SAARC region. All the stock market indicators: market capitalization ratio, value traded ratio, and turnover ratio are not statistically significant for the region meaning that stock market does not have any contribution to the per capita growth rate in the region. No other control variables have found significant for the SAARC region except for the lag value of per capita GDP growth rate although it has the negative sign. This implies value of last year per capita growth rate has negative impact on this year growth rate.

On the other hand, second panel model is a two stage equation to measure the stock market impact on per capita growth rate. First equation measures the impact of stock market variables on domestic investment and then second equation measures the impact of fitted value of investment developed from the first equation on per capita GDP growth rate. The results reflect that stock market size, activity and liquidity do not have any effect on the investment. Therefore, the fitted value of investment in the second equation is not found statistically significant. The implication is that stock market in the SAARC region has no influence on the per capita GDP growth rate. It is also to be mentioned that no other control variables have any significant coefficient except for the lag value of per capita growth rate. But the sign is negative for this lag value meaning that last year per capita growth rate has inverse effect on this year growth rate of SAARC countries.

Now look at the both dynamic models under cross section specific coefficient indicating that whether the stock market for each country has any effect on per capita growth rate. The results from the first model pointed out that market capitalization, value traded and turnover ratio for all the SAARC member countries are not statistically significant. The finding is that stock market of Bangladesh, India, SriLanka, and Pakistan does not affect the per capita growth rate. Besides the stock market variables, no other control variables of any SAARC member countries have any contribution to per capita growth rate except for secondary school enrollment of Bangladesh, openness ratio of Pakistan and lag value of all the Member countries. Despite the fact that these variables are statistically significant the sign of the

coefficients is negative meaning their inverse impact on the growth rate. Only the FDI to GDP ratio of Pakistan has the positiv e sign and found si gnificant. This states th at foreign direct investment has the p ositive influence on the per capita g rowth rate of Pakistan.

In case of second m odel (indirect) the same conclusion can be drawn as from the first direct m odel. Stock market variables are not found signi ficant for any of the SAARC member countries in the first equa tion of the second m odel and then fitted value of investm ent is also found insignifi cant in the second equation m eaning that stock m arket variables actually can not in fluence the real econom ic activity of any SAARC countries. Among the control variab les only the lag value of per capita growth has significant coefficient for each countries except for Pakistan. But again the sign is negative implying that last year va lue of per capita growth rate of Bangladesh, India, and SriLanka can affect this per capita growth rate negatively.

Now consider th e some recommendations that may be for mulated in order to develop the stock m arket in the region. It is found from the study that the SAARC countries stock m arket got trem endous oppor tunities to expand due to som e m ajor reforms policy in their financial sectors pa rticularly for stock m arket over the last decade. It can be argued that an effec tive m eans of prom oting long-term econom ic development and preventing future crises is to develop regional stock m arkets as a source of financing for econom ic development. In this regard South Asian Federation of Exchanges has already been form ed in 2001. Despite the recen t development of stock market in the region, it does not have any impact on growth rate of economy. Some policies m ay be taken so th at th is m arket ca n be develop ed to the lev el compatible for the growth. A har monized stock m arket may be necessary in today's stock m arket to grow. Bond m arket in the SAARC region has not been flourished compared to other share instrum ent. In order to develop the bond m arket the government of the individual countries m ay take initiative to e nhance the regulatory measures, m arket infrastructure and to broaden the financial system. The newly formed South Asian Federation of Exchange s m ay also form ulate the strategies to promote the stock m arket in the region. For exam ple, strategy to im prove the regulatory fram ework, t o im prove c orporate disclosure requirem ent and to develop

the venture capital funds, they can promote the current stock market structure to grow further.

The benefit of stock market development for the economy is irreversible issue in modern economic theory. The importance of stock market is especially crucial for SAARC region because of recent reforms of financial markets taken by the respective countries to develop the stock market in the region. The current study finds out that stock market in the region still has no effect on the growth rate. It may be suggested for future study to overcome the methodological problems associated with the models used to assess the stock market impact for the economy. The current study considers the market capitalisation, turnover and value traded ratio. The other stock market indicators may be considered to estimate the stock market impact. In addition, other control variables besides the one used in the study may also be taken into account for this kind of study.

The conclusion can be drawn that both the dynamic models using common and cross section coefficients demonstrate that stock market in SAARC countries does not have any influence on per capita growth rate. The results did not lead support to empirical studies of Levive(1991), Levine & Zervos (1996, 1998), Islam (1998) as well as other studies and theory that stock market has direct association with per capita growth rate. The reasons may be due to the fact that fund mobilsed by stock market in the region is still in transitional period. That's why it is very small relative to its economy. The stock market in SAARC countries liberalised in the early 1990s and their effect has not yet been flourished. The stock market in SAARC region has not been developed like other sectors in economy. Different strategies are being taken in order to develop the stock market for the whole region in recent years. As its outcome South Asian Federation of Exchanges comes into existence to promote the stock market in the region.

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APPENDICES

Table: A1 (Second Model First equation using Common Coefficient)

Dependent Variable: D(GDI?)
Method: Pooled EGLS (Cross-section SUR)
Total pool (balanced) observations: 92

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.032826	0.100160	0.327738	0.7439
D(MCR?(-1))	0.039705	0.028492	1.393574	0.1671
D(TR?(-1))	-0.002359	0.004855	-0.486027	0.6282
D(TV?(-1))	0.010799	0.029980	0.360215	0.7196
Fixed Effects (Cross)				
_BAN--C	0.314094			
_IND--C	0.018330			
_SRI--C	-0.214770			
_PAK--C	-0.117654			
		Weighted Statistics		
R-squared	0.112608	Mean dependent var		0.011024
Adjusted R-squared	0.049969	S.D. dependent var		1.083399
S.E. of regression	1.034569	Sum squared resid		90.97827
F-statistic	1.797719	Durbin-Watson stat		1.946563
Prob(F-statistic)	0.109177			
		Unweighted Statistics		
R-squared	0.016537	Mean dependent var		0.052826
Sum squared resid	199.8503	Durbin-Watson stat		2.219492

Table: A2 (Second Model Second equation using Common Coefficient)

Dependent Variable: D(PGDP?)
Method: Pooled EGLS (Cross-section SUR)
Total pool (balanced) observations: 88

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.010807	0.207920	0.051975	0.9587
D(PGDP?(-1))	-0.538545	0.094079	-5.724407	0.0000
D(FGDI?(-1))	-0.121104	0.138555	-0.874051	0.3848
D(FDI?(-1))	-0.064687	0.426787	-0.151567	0.8799
D(PC?(-1))	0.001679	0.014320	0.117232	0.9070
D(SC?(-1))	0.001543	0.096467	0.015990	0.9873
D(OR?(-1))	-0.000718	0.002360	-0.304069	0.7619
Fixed Effects (Cross)				
_BAN--C	0.240302			
_IND--C	0.025246			
_SRI--C	-0.047418			
_PAK--C	-0.218131			

Weighted Statistics

R-squared	0.288120	Mean dependent var	0.041425
Adjusted R-squared	0.205980	S.D. dependent var	1.180559
S.E. of regression	1.051492	Sum squared resid	86.23949
F-statistic	3.507669	Durbin-Watson stat	2.314936
Prob(F-statistic)	0.001091		

Unweighted Statistics

R-squared	0.267340	Mean dependent var	0.037500
Sum squared resid	290.5190	Durbin-Watson stat	2.264109

Table: A3 (First Model using Common Coefficient)

Dependent Variable: D(PGDP?)
Method: Pooled EGLS (Cross-section SUR)
Total pool (balanced) observations: 92

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.137138	0.194351	-0.705621	0.4825
D(PGDP?(-1))	-0.561311	0.084715	-6.625906	0.0000
D(MCR?)	0.018538	0.042521	0.435981	0.6640
D(TR?)	0.011313	0.007194	1.572583	0.1198
D(TV?)	-0.018810	0.033301	-0.564837	0.5738
D(GDI?)	0.311824	0.124129	2.512090	0.0140
D(FDI?)	-0.215431	0.371640	-0.579678	0.5638
D(PC?)	0.003302	0.012829	0.257379	0.7976
D(SC?)	0.026950	0.088660	0.303967	0.7620
D(OR?)	-0.000828	0.002495	-0.331812	0.7409
Fixed Effects (Cross)				
_BAN--C	0.126573			
_IND--C	-0.008139			
_SRI--C	0.093788			
_PAK--C	-0.212221			

Weighted Statistics

R-squared	0.372248	Mean dependent var	-0.008769
Adjusted R-squared	0.276893	S.D. dependent var	1.259835
S.E. of regression	1.071335	Sum squared resid	90.67301
F-statistic	3.903820	Durbin-Watson stat	2.362858
Prob(F-statistic)	0.000106		

Unweighted Statistics

R-squared	0.331685	Mean dependent var	-0.029348
Sum squared resid	273.8827	Durbin-Watson stat	2.273046

Table: A4 (First Model using Cross Section)

Dependent Variable: D(PGDP?)
Method: Pooled EGLS (Cross-section SUR)
Total pool (balanced) observations: 92

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.097179	0.220341	-0.441038	0.6610
_BAN--D(PGDP_BAN(-1))	-0.507340	0.144880	-3.501783	0.0010
_IND--D(PGDP_IND(-1))	-0.686735	0.220578	-3.113338	0.0030
_SRI--D(PGDP_SRI(-1))	-0.520765	0.151845	-3.429590	0.0012
_PAK--D(PGDP_PAK(-1))	-0.386261	0.146305	-2.640113	0.0109
_BAN--D(MCR_BAN)	-0.098638	0.439498	-0.224433	0.8233
_IND--D(MCR_IND)	-0.017656	0.096004	-0.183908	0.8548
_SRI--D(MCR_SRI)	0.080435	0.091109	0.882845	0.3814
_PAK--D(MCR_PAK)	-0.093377	0.088972	-1.049509	0.2988
_BAN--D(TR_BAN)	-0.009914	0.052440	-0.189047	0.8508
_IND--D(TR_IND)	0.035270	0.039692	0.888600	0.3783
_SRI--D(TR_SRI)	0.264229	0.241413	1.094509	0.2788
_PAK--D(TR_PAK)	0.013504	0.007533	1.792690	0.0788
_BAN--D(TV_BAN)	0.655500	2.653136	0.247066	0.8058
_IND--D(TV_IND)	-0.242100	0.168620	-1.435773	0.1571
_SRI--D(TV_SRI)	-0.529035	0.867458	-0.609868	0.5446
_PAK--D(TV_PAK)	-0.018527	0.036811	-0.503315	0.6169
_BAN--D(GDI_BAN)	-0.584010	0.325007	-1.796914	0.0782
_IND--D(GDI_IND)	0.486337	0.257073	1.891821	0.0641
_SRI--D(GDI_SRI)	0.220861	0.194222	1.137159	0.2607
_PAK--D(GDI_PAK)	0.194285	0.328914	0.590685	0.5573
_BAN--D(FDI_BAN)	2.595100	3.941239	0.658448	0.5132
_IND--D(FDI_IND)	-3.971750	2.063482	-1.924781	0.0597
_SRI--D(FDI_SRI)	-0.159942	0.532785	-0.300200	0.7652
_PAK--D(FDI_PAK)	3.513918	1.230338	2.856058	0.0062
_BAN--D(PC_BAN)	-0.069829	0.090870	-0.768454	0.4457
_IND--D(PC_IND)	0.481178	0.384898	1.250144	0.2168
_SRI--D(PC_SRI)	0.312422	0.164958	1.893951	0.0638
_PAK--D(PC_PAK)	0.079082	0.072032	1.097869	0.2773
_BAN--D(SC_BAN)	-0.302418	0.134709	-2.244979	0.0290
_IND--D(SC_IND)	-0.198900	0.404166	-0.492126	0.6247
_SRI--D(SC_SRI)	0.157470	0.149115	1.056030	0.2958
_PAK--D(SC_PAK)	0.318479	0.177951	1.789704	0.0793
_BAN--D(OR_BAN)	-0.000212	0.002510	-0.084335	0.9331
_IND--D(OR_IND)	0.525316	0.319261	1.645411	0.1059
_SRI--D(OR_SRI)	0.016960	0.066627	0.254558	0.8001
_PAK--D(OR_PAK)	-0.156385	0.054785	-2.854526	0.0062
Fixed Effects (Cross)				
_BAN--C	0.786908			
_IND--C	0.387498			
_SRI--C	-0.503684			

_PAK--C	-0.670722

Weighted Statistics

R-squared	0.626271	Mean dependent var	-0.016223
Adjusted R-squared	0.345974	S.D. dependent var	1.604064
S.E. of regression	1.297304	Sum squared resid	87.51583
F-statistic	2.234312	Durbin-Watson stat	2.445467
Prob(F-statistic)	0.003480		

Table: A5 (Second Model, First Equation)

Dependent Variable: D(GDI?)
Method: Pooled EGLS (Cross-section SUR)
Total pool (balanced) observations: 92

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.021753	0.104189	0.208782	0.8352
_BAN--D(MCR_BAN(-1))	-0.013784	0.164536	-0.083772	0.9335
_IND--D(MCR_IND(-1))	0.032943	0.086258	0.381911	0.7036
_SRI--D(MCR_SRI(-1))	0.055946	0.093689	0.597140	0.5522
_PAK--D(MCR_PAK(-1))	0.070276	0.048429	1.451123	0.1509
_BAN--D(TR_BAN(-1))	-0.000428	0.021730	-0.019708	0.9843
_IND--D(TR_IND(-1))	0.009003	0.026096	0.345010	0.7310
_SRI--D(TR_SRI(-1))	-0.054298	0.273816	-0.198303	0.8433
_PAK--D(TR_PAK(-1))	-0.002583	0.006066	-0.425886	0.6714
_BAN--D(TV_BAN(-1))	0.105159	1.083232	0.097079	0.9229
_IND--D(TV_IND(-1))	-0.033514	0.085066	-0.393974	0.6947
_SRI--D(TV_SRI(-1))	0.715279	1.009813	0.708328	0.4809
_PAK--D(TV_PAK(-1))	0.013337	0.040511	0.329208	0.7429
Fixed Effects (Cross)				
_BAN--C	0.320160			
_IND--C	0.041680			
_SRI--C	-0.233773			
_PAK--C	-0.128068			

Weighted Statistics

R-squared	0.146588	Mean dependent var	0.043646
Adjusted R-squared	-0.021848	S.D. dependent var	1.089936
S.E. of regression	1.082801	Sum squared resid	89.10678
F-statistic	0.870287	Durbin-Watson stat	1.969347
Prob(F-statistic)	0.598746		

Unweighted Statistics

R-squared	0.039895	Mean dependent var	0.052826
Sum squared resid	195.1038	Durbin-Watson stat	2.263400

Table: A6(Second Model, Second Equation)

Dependent Variable: D(PGDP?)
Method: Pooled EGLS (Cross-section SUR)
Total pool (balanced) observations: 88

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.018208	0.237571	0.076641	0.9392
_BAN--D(PGDP_BAN(-1))	-0.401181	0.187368	-2.141142	0.0363
_IND--D(PGDP_IND(-1))	-0.475624	0.172774	-2.752859	0.0078
_SRI--D(PGDP_SRI(-1))	-0.460553	0.192736	-2.389548	0.0200
_PAK--D(PGDP_PAK(-1))	-0.231872	0.236785	-0.979252	0.3314
_BAN--D(FGDI_BAN(-1))	0.708094	0.383483	1.846480	0.0698
_IND--D(FGDI_IND(-1))	-0.106458	0.239030	-0.445377	0.6576
_SRI--D(FGDI_SRI(-1))	-0.190267	0.209794	-0.906923	0.3681
_PAK--D(FGDI_PAK(-1))	-0.128786	0.136604	-0.942766	0.3496
_BAN--D(FDI_BAN(-1))	-2.898539	2.720603	-1.065403	0.2910
_IND--D(FDI_IND(-1))	0.030429	1.822743	0.016694	0.9867
_SRI--D(FDI_SRI(-1))	-0.264714	0.604858	-0.437646	0.6632
_PAK--D(FDI_PAK(-1))	-2.533310	1.734307	-1.460704	0.1493
_BAN--D(PC_BAN(-1))	0.088607	0.103348	0.857363	0.3947
_IND--D(PC_IND(-1))	0.200005	0.249562	0.801423	0.4260
_SRI--D(PC_SRI(-1))	0.026513	0.209093	0.126802	0.8995
_PAK--D(PC_PAK(-1))	-0.043588	0.098521	-0.442424	0.6598
_BAN--D(SC_BAN(-1))	0.172488	0.160434	1.075130	0.2866
_IND--D(SC_IND(-1))	-0.193398	0.377413	-0.512432	0.6102
_SRI--D(SC_SRI(-1))	-0.198847	0.190822	-1.042056	0.3016
_PAK--D(SC_PAK(-1))	0.236392	0.286312	0.825645	0.4123
_BAN--D(OR_BAN(-1))	0.001176	0.002296	0.512162	0.6104
_IND--D(OR_IND(-1))	-0.020416	0.270368	-0.075511	0.9401
_SRI--D(OR_SRI(-1))	-0.198345	0.102099	-1.942676	0.0568
_PAK--D(OR_PAK(-1))	0.096493	0.084561	1.141102	0.2584
Fixed Effects (Cross)				
_BAN--C	-0.234823			
_IND--C	0.256425			
_SRI--C	0.444589			
_PAK--C	-0.466191			

Weighted Statistics

R-squared	0.401501	Mean dependent var	0.052996
Adjusted R-squared	0.132176	S.D. dependent var	1.271968
S.E. of regression	1.184320	Sum squared resid	84.15685
F-statistic	1.490768	Durbin-Watson stat	2.327089
Prob(F-statistic)	0.100275		

BIOGRAPHY

Mr. Md. Enam ul Haque was born on 10th Ja nuary, 1978 in Barisal, Bangladesh. He did his MBA degree with specilisation in Finance at teh Faculty of Business Administration of Dhaka University in 2002. After graduated he has been working as Lecture at the Faculty of business and econom ics of manarat International University in Bangladesh. After successfully serving two and half years at Manarat International University, he registered to undertake th e Master Degree in International Econom ics & Finance at the Chulalongkorn University in Bangkok, Thailand.