Study of the relationship between **Sri Lankan Stock Market** and the **Economy**

As Sri Lankan economy is expected to grow at an average rate of more than 7% during next few years, institutional investors are looking at ways to profit from the expansion of the economy. Although Sri Lanka's stock market is equivalent to 29% of GDP and revenue of listed firms is equivalent to 25% of GDP, Sri Lankan stock market performance has often moved in different direction from the real economy. Sri Lankan data does not show a relationship between economic performance and stock market performance. However there is weak evidence to suggest that GDP growth is stimulated by stock market performance and investing in the stock market may not be a good hedge against inflation.

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Investors who are keen on investing in frontier growth markets like Sri Lanka are mainly expecting to profit from the expected economic expansion. Despite many research evidence highlighting poor relationship between economic performance (i.e., GDP growth) and stock market performance across developed and emerging markets, still many investors look at these two variables to gauge the return potential of a market. Often investors associate GDP growth with growth in the stock market! Sri Lanka's expected growth rate of more than 7% during next few years is an attractive proposition for investors. However, equally important is the expected stock market performance driven by the underlying economic growth!

Sri Lanka's stock market has a market capitalization of around 29% of GDP (2013). Further revenue of listed firms in the Colombo Stock Exchange ("CSE") is equivalent to 25% of the US$ 65 billion economy (2013) – both these figures suggest that there has to be a good link between the performance of the CSE and the economy. However the actual performance of the stock market and economy has often showed opposite trends – both in recent timed and also in the past. In this research paper, we will briefly examine the relationship between the GDP growth and performance of the CSE as measured by growth in All Share Price Index ("ASPI") using annual data from 1991 – 2013.

Business sentiments and many other factors like political and business cycles impact performance of a stock market in the short term, but when we consider a longer period like a two decade period, such short term effects are likely to be minimal and fundamental economic relationships are likely to prevail. The relationship between GDP growth and stock market performance is analyzed by a series of (simple) correlation analysis.

The relationship between GDP Growth and Stock Market

The relationship between GDP and stock market performance is primarily driven by two factors: *expectations effect* and *wealth effect*. Expectation effect refers to stock market trends driven by expected changes in the GDP. When economy is expected to grow, company performance is also expected to follow same trend which will be reflected in share prices. Increase in share prices will cause overall market to move up.

The relationship espoused by wealth effect refers to growth in GDP caused by increase in stock market performance. Stock market gains increase wealth for investors or stock holders. This wealth creation results in increased expenditure – both consumption and capital expenditure which in turn stimulates the economy. Also when stock market performance is good, it is easier and attractive for firms to raise funds and undertake new investments. This further fuels growth in the economy. On the other hand when stock market declines both capital and consumer spending can slow down causing overall economy to slow down.

Simon Godfrey, Investment Specialist, Emerging Markets Group at BNP Paribas Partners in a white paper titled *Emerging Markets Equities: Does faster growth translate into high returns*, notes that out of the tree commonly identified drivers of Emerging Markets equities, namely *GDP Growth, structural changes* and *demographic changes*, the most controversial and difficult to establish is the relationship between GDP growth and equity market. Another study by Ernst and Young shows that despite emerging market equities have expanded significantly over time (to reach around 40% of GDP of emerging markets economies), the long run correlation between GDP growth and real stock returns is a negative 0.22 for emerging markets.

Another research done by Holger Sandte, Chief Economists, WestLB Mellon Asset Management on the *relationship between Stock Markets vs. GDP Growth* shows that long term correlation between

GDP growth and stock market in the US is nearly zero. However, he finds a weak correlation between expected GDP performances and current stock market performance using (quarterly) data from 2007 – 2012: a correlation of 0.28 for US market and 0.33 for Eurozone. Sandte further notes that macro-economic forecasting do help in making investment decisions and most leading indicators do not run ahead of stock markets but move with a lag effect.

Similar findings were shown in a study done by PWC to ascertain *if stock markets are a leading indicator of real economic trends in the UK and USA.* This research showed a stock market performance has a short term positive impact on US economy, but not in the UK economy. Same report points out that the positive relationship in the US is probably due to high consumer spending patterns. Unlike in the UK, US households are more exposed to stock market, and stock market gains result in increase in their wealth. Increase in household wealth increases consumer spending and results in higher economic growth. In contrast, majority of investors in the UK stock market are financial institutions which have limited propensity to increase spending due to increase in wealth.

An academic research published in the Journal of Economics, Finance and Administrative Science (Tang, Habibullah and Puah, 2007) has examined the *relationship between stock market performance and economic trends in selected Asian countries* using data from 1980 to 2004. Although this study did not find any relationship between the two variables in Sri Lanka, they found a positive relationship between stock market performance and economic growth in China, Hong Kong, Indonesia, Malaysia and Thailand. They showed that economic growth stimulated stock market as well as stock market stimulated economy in these counties. However in Japan and Korea stock market had a stimulating effect on the economy while in India economy had a stimulating effect on the stock market.

As highlighted by Godfrey in his article, performance of emerging markets equities are primarily driven by three factors: *GDP growth*, *structural changes* and *demographic changes*. In Sri Lanka's case, what is interesting is that impact of demographic changes and structural changes are not significant. Hence the importance of GDP growth stands out as an important factor impacting equity returns.

Analysis of Sri Lanka data

In order to understand the relationship between the stock market and the real economy, a series of correlation analysis are carried out using stock market and GDP data from 1991 to 2013. In order to avoid any distortion that may have been caused due to the sharp movements in the stock market and GDP post 2009 (after civil conflict ended), a separate correlation analysis was done without taking into account 5 years from 2008 to 2013.

Relationship between overall market and GDP growth?

Table below summarizes correlation between annual GDP growth and annual change of CSE's ASPI. The correlation coefficient of these two variables are near zero (and negative) indicating that there is no relationship between the two variables. The near zero correlation is somewhat similar to the findings by Sandte which showed near zero long term correlation between the two variable in the US (between S&P 500 Index and GDP growth). Hence we can conclude that there is no long term relationship between the performance of the equity market and real economy.

	Correlation Coefficient	
Data/Variables	1991-2013	1991-2007
GDP Growth and ASPI (annual change)	(0.10)	(0.03)
GDP Growth and ASPI (annual real change)	(0.08)	(0.02)

Does stock market reflect expected GDP growth or do stock market gains stimulate GDP growth?

As mentioned earlier, the relationship between GDP growth and stock market is mainly stemming from two relationships. One is that stock market is driven by expected GDP growth. The other is GDP growth is driven by Stock Market growth. Now let us examine if we can observe any evidence of the existence of these relationships from Sri Lanka data. Table below shows the correlation between previous year stock market performances and current year GDP growth.

Data/Variable	Correlation Coefficient 1991-2013	Correlation Coefficient 1991-2007
Leading Effect: Next year GDP Growth and Current year ASPI growth	0.37	0.17
Lag Effect: Previous year GDP growth and Current year ASPI growth	(0.26)	(0.21)

The correlation of 0.37 between next year GDP growth and current year ASPI change suggests a weak but a notable positive correlation. This is similar to findings by Sandte: a 0.28 correlation for the US and a 0.33 correlation for the Eurozone. This relationship can be interpreted in two ways:

- Expectation effect: Stock market running ahead of the expected real economic trends (provided reasonable forecast was available about next year GDP growth)
- Wealth effect: Current year GDP has been impacted by previous year stock market performance.

Nevertheless, when the period between 2008 – 2013 is excluded the correlation becomes weak, we can still argue for a minor stimulating effect of Stock market in the economy. There is very low negative correlation between previous year GDP growth and current year ASPI growth in line with the observations made by Sandte. This implies that there is no relationship between previous year GDP performance and future stock market performance.

Sri Lankan equities as an inflation hedge?

Sri Lankan has also been plagued with high inflation, despite some easing off during last few years. The 22 year period from 1991 – 2013 has recorded an average inflation of 9.1% p.a. In an inflationary environment, many investors, especially local investors consider investing in the stock market can provide some hedge against inflation as stock prices tend to move with general price increases. This is because of the inflationary effect on financial performance and asset value of companies.

Hedging against inflation is also an important consideration of some long term institutional investors. Hence, it is worthwhile to examine if Sri Lankan stock market is a good hedge against the inflation. One way to ascertain if equity market has provided an inflation hedge is to examine the correlation between the nominal growth in GDP and the stock market index. Ideally stock market index and nominal GDP growth should have some positive correlation.

Data/Variables	Correlation Coefficient 1991-2013	Correlation Coefficient 1991-2007
GDP Growth (Nominal) and Stock Market Index	(0.22)	0.13
Inflation (GDP Deflator) and Stock Market Index	(0.18)	0.19

As shown above the correlation between nominal GDP growth and ASPI index is a weak negative figure. This means that historical data do not show that investing in Sri Lankan stock market can protect investors from losing value of money due to inflation.

Why stock market is a weak indicator of real economy?

There are several possible reasons why CSE is not a good reflection of the underlying economic trends. Most obvious is that listed companies contribute to a small share of the GDP. Although revenue of all listed companies amounts to 25% of Sri Lanka's GDP, the aggregate of these company revenues include layers of consolidation effect thus counting single revenue item in two or even more companies. This is due to conglomerate and group holding structure popular in Sri Lanka. For example, around 65% revenue of John Keells Holdings PLC (largest capitalized local company in the CSE), represents revenue of several other large public companies.

Further only 31% of listed firms in CSE (out of 283 firms) are SMEs compared to SMEs accounting for over 80% business establishments in the country, and SMEs accounting for a large share in high growth service sector businesses. According to a Survey conducted by World Bank/IFC (2011) Sri Lanka has a comparatively lower percentage of listed SMEs. Same Survey highlights that However percentage is comparatively higher for large firms).

Although Sri Lankan stock market gained over 275% between 2008 and 2013 (from the tail end of the civil conflict) there was only 22% increase in number of companies listed in the CSE during the same period. Even majority of new listings during last few years were financial services companies which were listed mainly due to regulatory requirements. Recent poor performance of IPOs and new listings will only discourage high growth SMEs to tap stock market to raise funds thus further slowing down the linkage between the economy and equity market. As Sri Lankan enters a grow phase, many new entrepreneurial ventures are likely to achieve high growth in the medium term compared to larger firms which are more likely to face slower growth due to market limitations, etc. But it will take some time for these high-growth (SME) firms to reach mature growth and ultimately decide to become public companies.

Another cause for poor relationship between stock market and economic growth is the high level of government activities in the economy. Government backed development initiatives – mainly infrastructure development projects (with foreign funding) have contributed to a significant share of the GDP during last few years. High dependence on Foreign Direct Investments ("FDI") and other forms of foreign funding to fuel growth can also weaken the relationship between the equity market GDP. When the GDP share of foreign owned and/or foreign funded firms increase, equity markets will not reflect the economic expansions contributed by these foreign owned/funded companies and projects.

Another possible cause of weak relationship between stock market and GDP Growth is the use of high leverage to fund growth. When companies use high leverage to fund growth a larger share of earnings do not accrue to equity holders. Estimated 1/3 of private sector capital formation in Sri Lanka are debt funded. Further there has been a trend of increase in companies raising debt compared to equity – for examples 57% of funds raised through Colombo Stock Exchange in 2013 are through bond issues compared to mere 2% raised from issues from new entrants to the market. Increase in debt funding could further slow down growth in equity market and equity market becoming more representative of the broader economic trends.

As highlighted by some other researchers, stock market has a stimulating effect on the economy when larger share of the population is exposed to stock market. This is because of the increase in wealth created from the market boost consumption. However, in Sri Lanka, investing in the stock market is popular only with a small fraction of the population. Majority of local participants in the CSE are large companies and individuals linked to companies. Hence another possible reason for low level of relationship between CSE and economic performance is the low level of participation in the stock market by Sri Lankan households. As mentioned earlier CSE does not appear to be an effective hedge against the inflation. Under this condition CSE may not emerge as a popular option for savers as they often consider preservation of wealth as a prime importance than making wealth.

Conclusion

As discussed above the long term economic trends in Sri Lanka have no apparent relationship with the stock market performance. This is most likely due to low contribution by public companies to the GDP. High dependence on foreign capital and use of high leverage to fund growth are also possible causes to weak integration of the equity market and real economy. Findings also suggests that there is a weaken relationship between current stock market performance and future GDP performance indicating that performance of the stock market may have some stimulating effect on the economy. Data also suggest that the relationship between nominal GDP and stock market is also weak indicating stocks may not be a good way to preserve wealth in the longer term.

References:

1. Sandte, Holger (July 2012), *"Stock Markets vs. GDP Growth: A Complicated Mixture*", West LB Mellon Asset Management.
2. Godfrey, Simon (June 2013), "*Emerging Markets Equities: Does faster growth translate into high returns"*, BNP Paribas Partners
3. _______________, (2012), *"Moving Towards Mainstream" Stock market development and performance in the rapid-growth markets"*, Ernst and Young, 2012
4. _______________, (February 2013),*" Are stock market reliable leading indictors of the real economy in UK and US?"*, PWC
5. Tang, Hong Peng and Habibullah, Muzafar Shah and Puah, Chin-Hong (2007): *Stock market and economic growth in selected Asian countries.* Published in: Journal of Economics, Finance and Administrative Sciences No. 7 (2007): pp. 43-52.

Data Table:

	GDP Growth (Real)	GDP Growth (Nominal)	Inflation	ASPI Index Growth	ASPI Index Growth (Real)
1991	4.6%	16.1%	11.0%	118.0%	96.4%
1992	4.3%	14.7%	10.0%	-27.8%	-34.4%
1993	6.9%	17.1%	9.5%	61.7%	47.7%
1994	5.6%	15.4%	9.3%	0.8%	-7.8%
1995	5.5%	14.4%	8.4%	-32.7%	-37.9%
1996	3.8%	16.4%	12.1%	-9.1%	-18.9%
1997	6.3%	15.4%	8.6%	16.4%	7.2%
1998	4.7%	13.5%	8.4%	-14.9%	-21.5%
1999	4.3%	8.9%	4.4%	-4.2%	-8.2%
2000	6.0%	13.1%	6.7%	-21.8%	-26.7%
2001	-1.5%	10.7%	12.4%	38.7%	23.4%
2002	4.0%	12.7%	8.4%	31.2%	21.0%
2003	5.9%	11.3%	5.1%	30.3%	24.0%
2004	5.4%	14.7%	8.8%	41.9%	30.4%
2005	6.2%	17.2%	10.4%	27.6%	15.5%
2006	7.7%	19.9%	11.3%	41.6%	27.3%
2007	6.8%	21.8%	14.0%	-6.7%	-18.1%
2008	6.0%	23.3%	16.3%	-40.9%	-49.1%
2009	3.5%	9.6%	5.9%	125.3%	112.7%
2010	8.0%	15.9%	7.3%	96.0%	82.7%
2011	8.2%	16.7%	7.9%	-8.5%	-15.2%
2012	6.4%	15.9%	8.9%	-7.1%	-14.7%
2013	7.2%	12.2%	4.7%	4.8%	0.1%

GDP Nominal Growth = ((1+GDP growth) x (1+GDP deflator)) – 1

All Share Price Index (Real) = ((All Share Index change +1)/(GDP deflator +1))-1