An introduction to Stock Market Indices

What is an Index?

'The Stock market' talk is all over from print to electronic media and even the web. But what does it mean when people say that "the market performed well today?" or "the market is down today?" What is "the market" that everyone is referring to anyway? As it appears to be, when most people talk about "the market," they are actually referring to an index. With the growing importance of the stock market in our society, the All Share Price Index (ASPI) and the Milanka Price Index (MPI) of the Colombo Stock Exchange (CSE) have become familiar terms especially for the investing community in their everyday vocabulary.

Mr. Charles Dow created the first and, consequently, most widely known as the Dow Jones index back in May of 1896. At that time, it contained 12 of the largest [public companies](#) in the U.S. Today, the [Dow Jones Industrial Average](#) (DJIA) contains 30 of the largest and most influential companies in the U.S. Like Dow Jones, the Nasdaq, S&P 500, Nikkei, and Sensex, are widely known market indices in the world. In the Sri Lankan context the well known indices would be the ASPI, MPI and MBSL Midcap index.

For investors, indices give the direction of the entire market. They use indices to track the performance of the stock market. Ideally, a change in the price of an index represents an exactly proportional change in the stocks included in the index. The ASPI is one of the principal stock indices of the CSE and it measures the movement of share prices of all listed companies based on market capitalization.

This chapter will deal with the different kinds of indices in Sri Lanka, their importance and computation methodologies.

Purpose of Stock Market Indices

The most basic purpose is to provide a measure to understand the direction or the movements of the market as a whole. An increase in the index indicates a rising market and decrease indicates a falling market. Market indices enable us to calculate market return. It represents the rate of return earned by investing in a portfolio that impersonates the market portfolio. Market return and risk are typically used as primary benchmarks to judge investment performance of a portfolio. Technical analysts try to predict future price movements by looking at the behaviour of past price trends. Market indices also enable us to examine factors that influence aggregate security price movements. Security analysts, portfolio managers and academics investigate these factors that impact the performance of the market.

Types of Stock Market Indices

There are three types of stock market indices. They are price-weighted, value-weighted and equally weighted indices. They differ according to the weighting scheme used in their construction.

- **A price –weighted index** is an index where the price of each stock receives the same weight. It is constructed as an arithmetic mean of current prices of the stock that constitute the index. The best example of a price weighted index is the Dow Jones Industrial Average (DJIA), which is a price-weighted average of 30 well-known industrial stocks in the U.S. There is no weighted market index in Sri Lanka.

- **A value-weighted index** is an index where each stock is given a weight equal to its value. The value of a stock is the market capitalization of the common stocks, as measured by the number of listed shares times the market prices per share. This is the most widely used index construction method. In the Sri Lankan market the ASPI, MPI, and the MBSL MidCap index are all value weighted indices. The most popular value-weighted index in the U.S. is the S&P 500 Index.

- **An equally –weighted index** is an index in which the change of each stock is given the same weight. Sometimes this is referred to as an unweighted index. In the construction of an equally weighted index, all stocks carry equal weight regardless of price or market value.

Now let's look at the Sri Lankan stock market indices in detail.

All Share Price Index (ASPI)

It is a value-weighted price index, which incorporates all the voting ordinary shares listed on the CSE. The base year is 1985, and the base value of the index is 100. ASPI showed 7,811.82 points as its highest value on 14th February 2011. Current ASPI value is the broadest and the longest measure of the level of the Sri Lankan stock market.

As explained above the ASPI is a value weighted index based on market capitalization where the weight of any company is taken as the number of ordinary shares listed in the market. This weighting system allows the price movements of larger companies to have a greater impact on the index. Such a weighting system was adopted on the assumption that the general economic situation has a greater influence on larger companies than on smaller ones.

The ASPI indicates the price fluctuations of shares of all the listed companies and covers all the traded shares of companies during a market day. The ASPI is calculated using the following formula;

$$All\ Share\ Price\ Index = \frac{Market\ Capitalization\ of\ All\ Listed\ Companies}{Base\ Market\ Capitalization} * 100$$

Where,

$$Market\ Capitalization = \sum Current\ No.\ of\ Listed\ Shares\ of\ Company_i * Market\ Price_i$$

$$Base\ Market\ Capitalization = \sum No.\ of\ Listed\ Shares\ of\ Company_i * Market\ Price_i$$

Base values are established with average market value on year 1985. Hence the base year becomes 1985.

$$Opening\ Base\ Market\ Capitalisation = \frac{Total\ Market\ Capitalization\ in\ 1985}{No.\ of\ Trading\ Days\ in\ 1985}$$

Milanka Price Index (MPI)

The CSE introduced the Milanka Price Index (MPI) on 4th January 1999. Like the ASPI it is also a value-weighted price index, which incorporates only 25 selected stocks listed on the CSE. These stocks represent the largest and the most liquid 25 stocks. The base date is December 31, 1998, and the base index value is 1000.

Therefore, the MPI comprises of 25 companies that are selected considering their performance over the immediately preceding four quarters of the date of review. We commonly hear people saying that these 25 companies are the best companies of the CSE. But however, this statement is not 100% accurate, as these companies are selected considering two basic criterions.

The CSE reviewed and revised the companies to be included in the MPI on an annual basis until 2004 and then on a quarterly basis from 2005, considering the increased level of activity and the need for the MPI to denote the changes in the market conditions more regularly. Commencing from 2007, the CSE now reviews and revises the companies to be included in the MPI on a biannual basis.

Criteria to be satisfied for inclusion in the MPI

The criteria taken into account in its construction are size and liquidity.

01. Size is measured by the average of market capitalization of companies as at end of the immediately preceding 4 quarters of the date of evaluation. i.e.: 31st December 2009, 31st March 2010, 30th June 2010 & 30th September 2010.

02. Liquidity is measured by
        (a) Number of trades excluding odd lot trades executed over the one full year period immediately preceding the date of evaluation. i.e: 1st October 2009 to 30th September 2010 and

        (b) Trading value over one full year period immediately preceding the date of evaluation as a percentage of average of market capitalization of companies as at end of the immediately preceding 4 quarters of the date of evaluation. i.e. Trading value over the period 1st October 2009 to 30th September 2010 as a percentage of average of market capitalization of companies as at 31st December 2009, 31st March 2010, 30th June 2010 and 30th September 2010.

Minimum criteria to be satisfied for inclusion in the MPI

The companies should satisfy a minimum criteria in respect of the following parameters:

1. Average of market capitalization of companies as at end of the immediately preceding 4 quarters of the date of evaluation.

2. Number of trades excluding odd lot trades executed over the one full year period immediately preceding the date of evaluation.

3. Trading value over the one full year period immediately preceding the date of evaluation as a percentage of average of market capitalization companies as at end of the immediately preceding 4 quarters of the date of evaluation.

   The CSE set minimum criteria in 2001 in respect of the above. The minimum criteria was subsequently revised annually in 2002, 2003, 2004, and quarterly from 2005 and biannually from 2007 based on the level of activity during the period under evaluation.

MPI Calculation

$$\text{Milanka Price Index} = \frac{\text{Market Capitalization of 25 Milanka Companies}}{\text{Base Market Capitalization of those 25 Milanka Companies}} \times 1000$$

Total Return Indices (TRI)

Introduced in January 2004, the Total Return Indices are calculated daily in addition to the Price Indices. The TRI reflects returns due to both price changes and dividend income. The TRI is hence a better measure of returns from an investor's perspective. In computing the TRI, it is assumed that dividends earned from a share are re-invested in the market.

The ASPI, MPI, and Sector Indices are published daily, since January 2004, in terms of total returns. The ASPI computed on total returns is known as ASTRI and the MPI computed on total returns is known as MTRI.

The TRI is calculated as follows:

Adjustment for Cash Dividend

In order to adjust the price index for dividends, an index dividend adjustment is computed representing the value of cash dividends declared by the component stocks on ex-dividend date, as expressed in index points. The formula used for the computation of the ex-dividend adjustment for a value-weighted total return index such as the ASPI or MPI is given below;

Ex-dividend adjustment

$$(XDJ) = \frac{G_i W_i}{B} * BaseIndexValue$$

Where:
G_i - Dividend per share of the ith component security
W_i - Weighting of the ith component security (equal to the number of ordinary shares issued by the company)
B - Base market capitalization of the relevant price index
Base Index Value: ASPI= 100, MPI=1000

Computation of TRI

The formula used for calculating TRI is given below:

$$TRI_t = \frac{TRI_y * \left[PI_t + XDJ\right]}{PI_y}$$

Where:

TRI_t - Total Return Index value today
TRI_y - Total Return Index value previous day
PI_t - Underlying Price Index today
PI_y - Underlying Price Index previous day
XDJ - Ex-dividend adjustment as computed above

Sector Indices

The listed companies of CSE are divided into 20 sectors and a price index for each sector is calculated on a daily basis using the same formula used to construct the ASPI. Each index indicates the direction of the price movement of the sector. By referring to these indices investors can get an idea of the stock price levels of particular business sectors. The 20 Business sectors are as follows;

1) BANK FINANCE AND INSURANCE – (BFI)
2) BEVERAGE FOOD AND TOBACCO – (BFT)
3) CHEMICALS AND PHARMACEUTICALS – (C&P)
4) CONSTRUCTION AND ENGINEERING – (C&E)
5) DIVERSIFIED HOLDINGS –(DIV)
6) FOOTWEAR AND TEXTILE – (F&T)
7) HEALTH CARE – (HLT)
8) HOTELS AND TRAVELS – (H&T)
9) INFORMATION TECHNOLOGY – (IT)

10) INVESTMENT TRUSTS – (INV)
11) LAND AND PROPERTY – (L&P)
12) MANUFACTURING – (MFG)
13) MOTORS – (MTR)
14) OIL PALMS – (OIL)
15) PLANTATIONS – (PLT)
16) POWER & ENERGY –(P&E)
17) SERVICES – (SRV)
18) STORES SUPPLIES – (S&S)
19) TELECOMMUNICATIONS – (TLE)
20) TRADING –(TRD)

MBSL MidCap Index

In a pioneering move, MBSL constructed a stock market index the "MBSL MidCap Index" which measures the aggregate price level and price movement of medium size companies listed on the Colombo Stock Exchange. MBSL MidCap Index was formulated in January 1999 by a private company for the first time in the history of the Sri Lankan financial sector. It consists of 25 medium size companies listed in the CSE and represents the price fluctuations of the companies.

This is a specific index, which was constructed by selecting companies based on three main aspects such as profitability, liquidity and market capitalization of these companies. Market capitalization is calculated by the total number of issued shares multiplied by the current market price of the stock. Liquidity is determined considering three factors; number of trades, number of shares traded and number of shares traded as a percentage of issued shares. Profitability is measured by the profits after tax. The base year of the MidCap Index was 3st December 1998 and the base year value was 1000 units. The MBSL Midcap index is revised annually.

Conclusion

The impact of indices on investing was, and continues to be, huge. On the most basic level, indices brought transparency and a better understanding of market forces. Indices are invaluable to traders, momentum investors, technical analysts of the capital market and all the others as it gives them a measure of overall market sentiment. Most of all, indices created a benchmark for investors and money managers to measure up against. The creation of this benchmark also encouraged a segment of the investing population to choose a less active route and settle for more modest returns, thus marking the first time in investing history where it became possible for people with little financial knowledge to control their own portfolios. The challenge for investors is no longer how to get reliable market information, but what to do with it.