



South Pacific Stock Exchange

SPSE Total Return Index (STRI)

The SPSE Total Return Index (“STRI”) is an aggregate market capitalization index which reflects the aggregate market value of all its components relative to their aggregate value on the base day. The index is constructed on a base of 1000 set at 4th January 2000. Components of this index include shares of all SPSE listed companies. STRI is an accumulation index which reflects the total return from the stock market including the price and dividend returns. This index is not affected by new listings, delistings or any other form of corporate action. STRI uses an index divisor. The purpose of an index divisor is to normalize index values. It is a number which remains consistent over time which enables comparability within the index.

Methodology

In order to capture total return from the stock market, the dividend yield has to be factored in. A total daily dividend is calculated by multiplying each company’s dividend per share by the number of shares outstanding. This is done for each trading day and the dividend per share is always zero for listed companies that do not pay a dividend. For listed companies that pay a dividend, the dividend per share also remains zero except on the days of the closure of register (14 days after the day of the dividend declaration). The first step is to calculate the total dividend paid on a given day:

$$\text{Total Daily Dividend} = \sum \text{Dividend}_i * \text{Shares}_i$$

Where:

Dividend_i = Dividend per share paid for stock *i*

Shares_i = Outstanding shares

Total Daily Dividend is measured in dollars so the next step is to convert this figure into points of the price index by dividing it by the divisor for the underlying price index:

$$\text{Index Dividend} = \frac{\text{Total Daily Dividend}}{\text{Divisor}}$$

The next step is to apply the usual definition of a total return from a financial instrument (price returns plus dividend returns) to the price index and calculate the Daily Total Return for the index (DTR). DTR is computed as:

$$\text{DTR}_t = \left(\frac{\text{Index Level}_t + \text{Index Dividend}_t}{\text{Index Level}_{t-1}} - 1 \right)$$

The DTR is used to update the total return index from one day to the next as follows:

$$\text{Total Return Index}_t = (\text{Total Return Index}_{t-1}) * (1 + \text{DTR}_t)$$

Necessary Divisor Adjustments

The key to index maintenance is the adjustment of the divisor. This number, which typically has little mathematical rationale behind it, remains consistent and therefore enables comparability within the index over time. We begin with selecting a base period for the divisor. Then the initial aggregate market value of all stock indices at the base period is computed. The resultant total then is indexed (set equal to 1000) and used to calculate the base period divisor.

The base period divisor is defined as:

$$\text{Base Period Divisor} = \frac{\text{Base Period Market Value}}{\text{Base Period Index Value}}$$

Any changes in shares outstanding, capital actions, addition or deletion of stocks to the index should not change the level of the index. Any change to the stocks in the index that alters the total market value of the index while holding stock prices constant will require a divisor adjustment. Such adjustments are made to offset the change in the market value of the index and control the index values from fluctuating which may result otherwise.

The divisor adjustment is made as follows:

$$\text{Divisor}_{new} = \frac{\text{MV} + \text{CMV}}{\text{Index Level}}$$

Where:

MV = Market Value

CMV = Change in market value

Uses of SPSE Total Return Index

The above index is constructed to measure the change or movement in the whole of the SPSE's share market through changes in total returns (price plus dividends), also known as accumulation index. The price index measures only capital gains and losses and ignores dividends or distributions received, whereas an accumulation index provides a total return by including such income paid to the shareholder. It follows that the accumulation index will typically be higher than the price index. In essence, these indices are the performance yardstick for SPSE.

The way an index works is that it is comprised of a representative sample of the stocks which are statistically determined to represent the changes in the underlying whole market or market segment. In the case of SPSE, all 16 listed companies are included in the index. Thus, quoting the behavior of an index will really be a shorthand way of referring to the overall performance of the underlying basket of stocks.

Prospective investors can now study the movement in STRI and make their investment choices. Likewise, share market brokers can analyze this index and advise their clients in making informed decisions. The simplest use of the index can be made by observing or charting the movement trends in indices.

Alongside STRI, SPSE is also maintaining Equal-Weighted price and total return indices. An Equal-Weighted Index gives the same weight, or same importance to each stock by being based on the number of companies listed. The smallest companies have the same impact on the index as the largest ones which allow all the companies to be considered on an even playing field. Given our market where the largest company is 49.9% of the total market capitalization and the 3 largest companies make up 76.1% of the total market cap, it is important for us to maintain a form of measure to reflect the general performance of the market without being skewed by the heavy weights.

However, the index based on value or market capitalization still remains the better reflection of the market. While investors have had some reservations for such an index due to the overweighting toward the larger companies which gives a distorted view of the market, it has to be noted that larger companies also have larger shareholder base therefore should have higher level of impact on the index.

Other uses of the index include constructing investment portfolios, benchmarking and comparing share market performance with other investments and doing cost of capital analysis.