

## **Introduction**

This is the 54<sup>th</sup> in a series of publications presenting Index Numbers of Stock Exchange Securities traded at the Karachi Stock Exchange. The present volume contains data from July, 2003 to June, 2008.

A price index measures the changes in price of a fixed aggregate of commodities or the purchase of the same basket at different points of time. Theoretically, an index number represents the general level of magnitude of the changes between two or more situations of a number of variables taken as a whole and shows the general composite changes in price of the respective group after the individual tendencies have been smoothed. Specifically, a Security Index aims at measuring changes in the cost of earnings income at a certain level from marketable public debt and from shares of joint stock companies. Investors regard a Security Index as a benchmark against which to evaluate the performance of their own or of an institutional portfolio or to determine the level of the stock market in relation to earnings or dividend per share. The State Bank has so far published a comprehensive set of statistics on security indices and has also published separately a supplement to it on dividend yields and earning yields of ordinary shares in order to sharpen the tools of investment analysis.

### **Scopes and Coverage**

The securities fall into two broad groups viz., (i) Shares of corporate bodies and (ii) Government bonds, each of which has distinct characteristics. The corporate shares can be categorized as variable dividend (ordinary shares) and fixed dividend (preference shares) stock. The latter category consists of a few Scrip's only and its turnover is also limited. The State Bank Index Series are based on the ordinary shares of joint stock companies only (excluding mutual funds).

### **Type of Data Used**

There exist different procedures of data selection for the compilation of Security Indices. The preponderant factor is the type of data available and the underlying objective of the index. For the State Bank Indices, use has been made of K.S.E. ready board quotations of Friday both for weekly and monthly respectively. Where, however, scrip has not been quoted on Friday use has been made of the preceding day's rate.

In a developing economy, new floatation occurs at a fast rate. As a consequence, the number of scrip's quoted on the Stock Exchange during the base period will differ from those in the subsequent period. This would make the basket heterogeneous for which statistical adjustments are made to keep it reasonably uniform. It would suffice to say that the scrip's included in the indices have differed from period to period.

The main purpose of the Security Index is to measure price changes, which are mainly attributable to changes in the market conditions without being influenced from changes in the capital structure. It is customary to use statistical adjustments for the sake of maintaining uniformity in the index series. In general, the event, which causes the market to quote a security at a lower price, is the one when it is quoted some ex-privilege, the privilege being in our case right issues and bonus scrip's. In a situation of this nature, the index needs to be appropriately adjusted since prices show considerable changes which are not identifiable with the normal trade fluctuations but with alterations in paid-up capital such as right issues and bonus scrip's. Statistical procedures employed by various compilers of share price indices differ in certain respects. Most of them envisage bringing about a statistical adjustment in the base period or current prices. For the State Bank Indices, the methodology entails an adjustment in the base period price.

The Joint Stock Companies alter paid-up capital structure through issuance of right shares or bonus shares. The capitalization directly affects the market price, which warrants an adjustment in the base price for statistical purposes. Where a right issue (each shareholder has the right to subscribe to further shares at a given price in the proportion of 'm' shares for every 'n' shares held) occurs, the base period price has been adjusted in the following way:-

$$P'_o = \frac{np + mr}{(n+m)p} P_o$$

Where,  $P'_o$  is the adjusted base period price,  $P_o$  is the original base period price,  $p$  represents the market price at the close of dealings on the last day before the day these are quoted ex-rights, and 'r' shows the price at which offer is made and the offer is 'm' shares for every 'n' shares held. Bonus issues of shares are a slightly different category of transactions. In making a bonus issue a company converts part of its accumulated reserves into capital, the scrip entitlement that is transmitted to shareholders.

The same adjustment formula has been employed by taking  $r = 0$  when the rate is given ex-bonus. Statistical adjustment is also necessary for substitution of new companies, alterations, deletions or amalgamation of old companies. The State Bank Indices have been computed to preserve continuity by working out an imputed price for the base period in all such cases. The imputation is based on the assumption that the new index was the same as that which would have prevailed had there been no change in the list of component shares. Accordingly, the procedure for the computation of the imputed base price consists in dividing the current market rate by the index value on the date such an event occurs.

### **Base Period**

The base is a normal period or level employed as the benchmark for comparing all periods. The choice of the base period is dictated by a number of factors. On the recommendation of the Federal Government the index is being compiled with the base year 2000-01. The average price of ordinary shares during July 2000-June 2001 has been taken to be the base period prices.

### **Weighting and grouping**

For the State Bank Indices, revised industry classification on the basis of Standard International Industrial Classification has been adopted w.e.f. July, 2004 with a view to maintain the uniformity with trading pattern on the Karachi Stock Exchange. The revised classification runs into twenty-nine main groups / subgroups, further categorized into twelve broader economic groups namely:

1. Cotton & Other Textile
2. Chemicals & Pharmaceuticals
3. Engineering
4. Auto & Allied
5. Cables & Electrical Goods
6. Sugar & Allied
7. Paper & Board
8. Cement
9. Fuel & Energy
10. Transport & Communication
11. Banks & Other Financial Institutions
12. Miscellaneous

The weights assigned are proportional to the total paid-up capital of the companies entering each group. The accelerated financial activity on the stock market has led to considerable changes in the capital structure of the component companies.

The base year weights tend to introduce an element of error, which requires some corrective steps. There are various techniques available to rectify the situation of which the chain base deserves special mention. However, it seems appropriate to employ moving weights in order to take account of the subsequent expansion in various sectors and to portray movements of share prices in consonance with general market conditions. The exercise has been carried out in respect of the General Index. The group indices are simple arithmetic average of price relatives. The Composite Index has been obtained by weighted arithmetic mean. For Market Capitalization no system of weighting is meaningful.

### **State Bank General Index of Share Prices**

The State Bank General Index comprises all the ordinary shares categorized into twenty-nine groups / subgroups. On 30th June, 2008 the number of Companies were 636.

### **State Bank Sensitive Index of Share Prices**

The State Bank Sensitive Index is a very valuable day-to-day indicator of market conditions. It is a sample study of the shares comprising the General Index and the sample list of shares is revised once a year. The selection criterion employed for the Sensitive Index has been predominantly the number of fluctuations occurring in the quotation of each share over the past twelve months and a suitably chosen cut-off for the most active shares in the market. The statistical methodology of the Sensitive Index is analogous to that of the General Index. On 30th June, 2008 number of companies used for the Sensitive Index was 105.

### **Market Capitalization of Ordinary Shares**

The Market Capitalization is the total market value of ordinary shares comprising the General Index. The market value is worked out by multiplying the market price by the total number of shares outstanding and added together for the component groups as also for the entire list to compile the series.

## **State Bank Turnover Index of Shares**

The State Bank Turnover Index essentially depicts the state of prevailing business activity in terms of the quantum of transactions noted by stock market. It purports to measure variability of the money amounts exchanged per scrip in relation to the average during the base period (July, 2000-June, 2001). The money value of turnover is computed by multiplying the number of shares sold with corresponding market rate. The aggregate amount for each day is then divided by the number of companies whose shares are transacted. The daily ratio is expressed as a percentage of the base period ratio and these percentages are in turn averaged for each week ending Friday to arrive at the Weekly Turnover Index. Further it is added that the data published in this booklet pertains to the last Friday or last working day of the month

The companies with their paid up capital, paid-up value, average share price and the highest & lowest quotation is given in Appendix I.

The list of companies covered in SBP Sensitive Index is given in Appendix II.