Stock Market Index

"It's ironical that something as huge as a stock market which should be stable as it represents the economy of a nation, is actually extremely volatile since it is driven more by the sentiments of the people"

Stock Market is a place where the stocks of a listed company are traded. A single figure that sums up the overall performance of the market on a daily basis is the Stock Index. A good Stock Index captures the movement of the well diversified and highly liquid stocks. For a lay man it is the pulse rate of the economy. Index movements reflect the changing expectations of the stock market about future dividends of the corporate sector. The index is calculated by finding the weighted average of the prices of the most actively traded companies in the market, where the weights are generally in proportion to the market capitalization of the company.

But when and where did it all start? Stock Exchanges as a centre for trading were established as early as the 16th century. In Antwerp, a major financial hub in Belgium, traders gathered together in 1531 to speculate in shares and commodities. This was the world's first Stock Exchange. London and Paris set up Exchanges sometime near the end of the 17th century. Close to hundred years later, in 1792, the New York Stock Exchange (NYSE) was established, which is still one of the world's most powerful exchanges today. The reason for establishment was primarily the need for financing businesses and for providing returns for the finances.

In India, the Stock Exchange, Mumbai, was established in 1875 as "The Native Share and Stockbrokers Association" (a voluntary non-profit making association) and is now popularly known as the Bombay Stock Exchange (BSE). The other major exchange is the National Stock Exchange of India Limited (NSE) and was incorporated in November 1992. Combined the two trading zones are responsible for 99.9% of the trading done in India.

Types of Indexes available:-

- **Broad-Market Index:** This consists of all the large, liquid stocks of the country and becomes the benchmark for the entire capital market of the country. An example for this is the S&P CNX 500.

- **Specialized Index:** We can either have Industry or Sector specific Index for any particular sector of the economy which then serves as the benchmark for that particular industry or we can have an index for the highly liquid stocks. Taking an example for an industry specific index we have the S&P Banking Index which is a capitalization-weighted index of 26 domestic equities traded on the New York Stock Exchange and NASDAQ, The stocks in the Index are high-capitalization stocks representing a sector of the S&P 500. Similarly, The S&P CNX Nifty is a relevant example for an index composed of highly liquid stocks

Determinants of a Stock Index

Following parameters should be taken into picture before one constructs a stock index:

- **Liquidity –** Liquidity of stocks as measured by the "impact cost" criterion which determines the cost faced when actually trading the index. For example if the current market price of a stock is Rs 200 and a trader purchases it at Rs 202 (due to involved transaction costs) then the market impact cost is 1% and the stock is considered highly liquid for lower impact cost. EG.
- **Diversification –** Diversification, by putting stocks of various sectors that reflect the economy, is used to cancel out stock noise which is essentially the individual stock fluctuations and to reduce investor's risks. An index must thus have a balanced representation of all sectors.
- **Optimum size -** More stocks lead to greater diversification but the limiting factor is the size of the index. Increasing number of stocks in an index from 10 to say 30 gives a sharp reduction in risks but increasing the number beyond a point does very little in risk reduction. Further it might lead to addition of illiquid stocks. For example, the optimal size for BSE Sensex is 30.
- **Market Capitalization:** The index should include primarily the stocks of companies that have significant market capitalization with respect to the index such that any major change in the price of the stock is reflected in the index. For example in BSE 30 Index, the scrip must have a minimum of 0.5% of the market capitalization of the Index.
- **Averaging -** Every stock primarily moves for two reasons: The news about the company and the news about the country. An ideal index is affected only by the latter, that is the news of the economy and the effect of the former is knocked out by proper averaging. The various methods of averaging employed are:

    - **Price Weighted:** The weights assigned are proportional to the stock prices.
    - **Market Capitalization Weighted:** The equity price is weighted by the market capitalization of the company. Hence each constituent stock in the index affects the index value in proportion to the market value of all outstanding shares.

$$\text{Index} = \frac{\text{(Current market capitalization)}}{\text{(Base Market Capitalization)}} \times \text{Base Value}$$

Where:

CMS = Sum of (current market price * outstanding shares) of all securities in the index
BMS = Sum of (market price * issue size) of all securities as on base date.

- **Equal Weighted:** The weights are equal and assigned irrespective of both market capitalization or price

Index revision is done periodically taking into consideration the factors mentioned above. The relevant index body makes clear, researched and publicly documented rules for this purpose. These rules are applied regularly, to obtain changes to the index set. However, it is ensured that the value of the index does not change significantly after the revision of the index set.

Sensex (BSE 30)
The index includes 30 companies which figure in top 100 in terms of market capitalization and are also among the leaders in their industry groups. Presently the following are the constituent companies: ACC, Infosys, ICICI Bank, Dr. Reddy's Lab, SBI, CIPLA, Zee Telefilms, Nestle India, RPL, RIL, HCL Tech., Bajaj Auto, BHEL, Castrol, BSES, Colgate Palmolive, Hindalco, Grasim, Glaxo, Hero Honda, Gujrat Ambuja Cements, HLL, HPCL, ITC, L&T, MTNL, Ranbaxy, TISCO, TELCO and Satyam.

Standard and Poor's CRISIL NSE Exchange NIFTY
S&P CNX NIFTY is an S&P endorsed Stock Index owned by the India Index Services Ltd. (IISL). It is a highly diversified index, accurately reflecting the overall market conditions and is composed of 50 liquid stocks. It is backed by solid economic research and three extremely respected organizations (NSE, CRISIL and S&P).

Signals from the Stock Index

The Index finds uses in various fields starting from economic research to helping investors choose appropriate portfolio for investment. For example the index funds are funds that passively invest in the market i.e. the portfolio returns of the index funds is same as that of the Index.

Since the Index is an indicator of the overall mood of the investors in the secondary market, it helps a company answer questions like is it the right time to take out an IPO, how to price the issue, etc.

It acts as a signal to the government of the 'feel good' factor prevailing in the economy. As much as the finance ministry may want to ignore it, the performance of the stock market right after the introduction of the budget gives an immediate feedback to the Finance Minister about the acceptability of the budget.

However, the market index is a double edged sword. Because the index is influenced by expectations of the future performance of the stocks, it leads to a self fulfilling prophecy. Suppose an investor thinks that the stock of the company is going to go down and this feeling prevails across the market then everyone would want to get out of the company's stock. This will automatically lead to the stock prices crashing.

The Stock Index can often also act as a trigger to herd mentality. Any downturn in the market would be reinforced by the collective action of the investors to hedge against any losses and get out of the market. This would further depress the market.

This herd mentality is often used to the advantage of speculators. The speculator buys long thus creating waves in the market that the stock he is investing in is 'hot'. Thus everyone would follow suit giving the speculator a good short term profit margin.

The stock index is often more a representation of investors' perceptions (noise element) rather than real news. The dot com bubble of 2000 is a case in point. There was a rush of investment in anything even remotely connected with information-technology driving up the stock prices way above what they should have been according to their P/E ratios.

Thus it can be seen that though the index is a popular investor's guide, it is riddled with imperfections which can often confuse rather than help.

The index popularly used in India is the NSE CNX Nifty. There are processes afoot to reduce the pure noise element and speculative margin of the index. The basic problem arises due to imperfect information reflected by the inclusion of illiquid stocks in the calculation of the index. Illiquid stock is one which is not actively traded in the market or has been lying dormant for a long time. Inclusion of such stocks leads to problems of stale prices, bid-ask bounce and ease in manipulation.

Bid-ask bounce: Illiquid stocks have a wide bid-ask spread. Thus even when no news is breaking, when a stock price is not changing, the `bid-ask bounce' is about prices bouncing up and down between bid and ask. Such changes are spurious in nature.

Stale prices: A stock index is supposed to represent the state of the stock market at the closing time (3:30 pm in NSE) on a particular day. However the last traded price of an illiquid stock (if included in the index) may be even a week old thus distorting the index.

Hence to make an index useful, there has to be continuous evaluation of the stocks listed and any stock which remains inactive for a period of time should be de-listed or removed from the index. A prudent investor is one who exercises caution while interpreting the market index, taking into account all its inconsistencies.

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