

## SENSEX Calculation - No Rocket Science

We normally talk or hear about the movement of sensdex very often. Maybe our parents, relatives, colleagues or friends talk about it. If none of these are interested than there are news channel flashing 24x7 news about the sensdex, giving out the reasons for its upward or downward movement. But not all of us must have wondered that how is Sensdex calculated. If for example ,we say that the sensdex closed at 18000 points today, higher by 500 points from previous close than how both these figures are computed and how this figure reflects the mood of the economy.

Lets now clear that doubt in our mind and completely understand the whole concept of sensdex from its inception in 1986 till the time you are reading this article in a simple, easy and understandable language with examples.

Before moving ahead, lets first look at the meaning of two important terms that will be the core of our discussion. First is Full Market Capitalization and the other is Free Float Market Capitalization.

Full Market capitalization is the total value of the tradable shares of a publicly traded company. It is equal to the share price multiplied by the number of shares outstanding of that company. So for example, if the share price of Reliance is Rs 10 and the company has total 1000 shares outstanding, than the market capitalization of reliance will be Rs 10,000 ( 1,000 \*Rs 10). On the other hand, Free float market capitalization is the total value of a publicly traded company excluding the shares held by the promoters. So if in the above example ,promoters of reliance holds 400 shares out of the thousand shares of the company than the Free Float market capitalization will be Rs 6000 i.e.( 1000-400)\*Rs 10.

The Index was initially calculated based on the "Full Market Capitalization" methodology but was shifted to the free-float methodology with effect from September 1, 2003. Sensdex is computed on free float market capitalization method because it is assumed that the shares held up by the promoters are locked and are not available for day to day trading. There are certain criteria's to determine the promoters holding and the company is required to update this information quarterly with the stock exchange.

Let's now begin with the concept.

Sensdex is an abbreviation of the word Sensitive Index - the benchmark index of the Bombay Stock Exchange (BSE). It is composed of 30 of the largest and most actively-traded stocks on the BSE. Initially compiled in 1986, the Sensdex is the oldest stock index in India. The base year of Sensdex is 1978-79 and the base value is 100. These 30 companies in the Index keeps on changing as per the guidelines of the exchange and reflects the general trends of all the companies and the economy as a whole. So you must have guessed by now that the selection of these companies are from diverse industries and selected on fulfilling certain criteria's of the respective exchange. So if Reliance industries is selected to be a part of index than the reason is because it will represent the entire oil & gas industry due to its huge market share and Influence. It must also be noted that reliance industries is not permanently a part of index and may be removed

from the index if it fails the eligibility criteria. Any other company which fulfils the criteria will be then made the part of index.

Although the index was introduced in the year 1986, its base year was taken to be 1978-79. So at the time when sensdex was started in 1986, 30 eligible companies were selected and on the basis of their prices, market capitalization was calculated (remember, M-Cap is price multiplied by the total shares outstanding) and it was said that at this market capitalization, sensdex is 100. After that, movement of sensdex is being reported on the basis of price fluctuations in these 30 companies taking the base value as 100. So if the share price of most of the company increases than the total market capitalization also increases and ultimately the sensdex increases, same thing happens vice versa as well.

Lets understand this with the help of an example.

Company	Total no.of shares	No of Free float shares	price of shares	Total Market Capitalization	Free float market capitalization
Reliance	1,000	800	20	20,000	16,000
Tata	2,000	1,600	30	60,000	48,000
Infosys	3,000	2,400	40	120,000	96,000
Airtel	4,000	3,200	50	200,000	160,000
SBI	5,000	4,000	60	300,000	240,000
	<b>15,000</b>	<b>12,000</b>		<b>700,000</b>	<b>560,000</b>

In this example, reliance has 1000 shares outstanding in its balance sheet and out of them 800 shares are with general public and the balance 200 shares are held by the Ambani family, similarly 1000 shares of SBI are held up with the government and the balance are in public domain. We calculated both the total as well as free float market capitalization but will use later one for SENSEX computation. So now lets assume that the market capitalization in the year 1978-79 was 1,00,000 and as previously discussed, sensdex at this level was 100. On the basis of this market capitalization, we will calculate the index again for the revised M-cap. Therefore the revised Sensdex will be computed as follows:

$$\frac{\text{New market Cap}}{\text{Old Market Cap}} * 100 \quad \text{i.e.} \quad \frac{560000 * 100}{100000} = 560$$

Hence, the sensex will move upward to 560 from 100, it should be noted that practically this process is done on real time basis and the revised Sensex is computed every 10 seconds. It should be noted that Bombay stock exchange was in existence from past 100 years and the companies were also listed in it much before the year 1986. It was only that the trends in the stock market were not measurable and therefore the Sensex was introduced to Measure the ups and down in the Indian stock market.