

Sushil Kumar Agrawal

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(Gurgaon, Haryana)

INDEX IN VALUATION

This is a several part article on use of indexes in valuation.

Let us start with – **What are Indexes**

Index are a weighted average of several items of similar nature that gives an over all balanced picture of the whole.

Let us explain in more detail using **Stock Market Index**.

In Bharat there are two stock markets – Bombay Stock Market and National Stock Market. Both are based in Mumbai. Bombay Stock Exchange started in 1896.

Both the two exchanges have their INDEX. BSE – is a 30 share index called SENSEX and NSE index is called NIFTY 50.

Now there are approximately 6500 shares that are quoted and traded every day. Some are traded a lot and some are not traded regularly.

Plus some shares have a high value and high market capitalization and some are not.

The total money invested in the market is very high, and it is an important indicator of the financial health of the companies and the economy.

To understand the over all market it is very cumbersome, costly and not easy.

Let us say – 100 shares have a reduction of price and 70 shares had an increase in price. Which is the way market has moved? Up or down? This will involve a big problem. So, an index is created.

Top 50 stocks were taken. These were selected by several factors like market capitalization, traded volume, industry it represents, and other factors.

Then – each share is allotted a weight. The allotment of weight is such that the total of all the weight is 100. That means there is a relative importance of the share in the over all index.

The price of the share is multiplied by the weight for all the fifty shares. The number is then divided by 100. That give a number.

When the index is created – say 1979 or 1999 – the base value of the index is formed. That means – the same – multiplication of share price with weight is done on a base date. Then the value is made equal to say 1000. That becomes the base of the index.

With that as the base – the index is then calculated on a regular basis and declared.

This is the number where investors, governments, RBI and other institutions make their decisions upon.

So, instead of 6500 share prices and a lot of ups and downs, there is a number that is of 50 shares, that reflects about the market to a very high manner. It is easy to understand by every one, it is transparent.

Let us take another example:

Food prices

Let us say – Black Pepper price increased from Rs. 400 per kg to 700 per kg.

And in the mean time onions price decreased from 25 per kg to 22 per kg.

Is there food inflation?

Now in a day – the use of onions is 250 gms and of pepper is 4 gms. The cost of onions use per day is reduced by Rs $3 \times 0.25 =$ Rs 0.75 saving.

Increase for black pepper. = 4 gms X $300/1000 =$ 0.12 increase. So there is an increase of 0.12 and reduction of 0.75.

*Over all there is a reduction. Means there is no food price inflation.

Now we see how index are made and also help in the economy and other institutions to take decisions.

There are several types of index. Let us list a few.

1. Consumer Price Index

This started in 1951, and takes care of over 700 items that are required by the consumers or all of us in our daily living. Apart from food, it also covers, items like TV, cars etc. Items have different weightages.

This is declared every month.

2. Whole Sale price Index

This is more comprehensive and also includes machines and chemicals and industrial goods. This gives a very comprehensive data.

The constituents in WPI and their weightages are as follows..

Name	Sub Name	Weight Name	Weight Sub Name	Number of item Names	Number of Items Sub Name
Primary Articles		22.6156			
	Food Articles		15.25585		77
	Non Food Articles		4.11894		28
	Minerals		0.83317		11
Fuel & Power	Crude Petroleum & Natural Gas		2.40960		2
		13.15190			
	Coal		2.13813		5
	Mineral Oils		7.94968		10
Manufactured Products	Electricity		3.06409		1
		64.23054			
	Mfg of food products		9.12173		60
	Mfg of Bevreges		0.90907		7
	Mfg of Tobacco products		0.51357		3
			4.88068		25

Name	Sub Name	Weight Name	Weight Sub Name	Number of item Names	Number of Items Sub Name
Manufactured Products					
	Mfg of wearing Apparel		0.81414		8
	Mfg of leather & related products		0.53540		11
	Mfg of wood, it's product and cork		0.77181		10
	Mfg of paper & paper products		1.11322		20
	Printing & reproduction of recorded media		0.67622		7
	Mfg of Chemical & Chemical Products		6.46505		76
	Mfg of Pharma, medicinal chemical, botanical products		1.99345		23
	Mfg of rubber & plastics products		2.29851		38
	Mfg of other non metallic mineral products		3.20176		26
	Mfg of Base Metals		9.64632		41
	Mfg of metal products except machinery & equipment		3.15498		27

Name	Sub Name	Weight Name	Weight Sub Name	Number of item Names	Number of Items Sub Name
Manufactured Products					
	Mfg of computers, electronic & optical products		2.00875		18
	Mfg of Electrical equipment		2.92970		48
	Mfg of Machinery & Equipment		4.78899		60
	Mfg of motor vehicle , trailer & semi trailer		4.96853		24
	Mfg of other transport equipment		1.64777		11
	Mfg of furniture		0.72672		6
	Other Manufacturing		1.06417		13

This a very comprehensive data base. For India – this is the base Index that we can use in valuation most of the items – except share prices and land.

The index is reviewed and every 10 years and then the number of items are added and the weightage of line items are also changed.
To go in a bit more detail.

The following is detail list of manufacturing items.

Name	Sub Name	Weight Name	Weight Sub Name	Number of item Names	Number of Items Sub Name
Manufactured Products					
	Mfg of wearing Apparel		0.81414		8
	Mfg of leather & related products		0.53540		11
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Details of Manufacturing of Machinery & Equipment

a. Manufacture of engines and turbines, except aircraft, vehicle and two wheeler engines	1318010000	0.63840
Steam Turbines	1318010001	0.02536
Industrial valve	1318010002	0.61304
b. Manufacture of fluid power equipment	1318020000	0.16151
Injection pump	1318020001	0.04418
Hydraulic pump	1318020002	0.00026
Pneumatic tools	1318020003	0.04017
Water pump	1318020004	0.07690
c. Manufacture of other pumps, compressors, taps and valves	1318030000	0.55183
Centrifugal Pumps	1318030001	0.02796
Pump sets without motor	1318030002	0.25362
Air or vacuum pump	1318030003	0.17456
Air gas compressor including compressor for refrigerator	1318030004	0.05445
Gasket kit	1318030005	0.04124

d. Manufacture of bearings, gears, gearing and driving elements	1318040000	0.34015
Roller and ball bearings	1318040001	0.28071
Motor Starter	1318040002	0.04757
Clutches and shaft couplings	1318040003	0.01187
e. Manufacture of ovens, furnaces and furnace burners	1318050000	0.00837
Furnaces & Ovens	1318050001	0.00837
f. Manufacture of lifting and handling equipment	1318060000	0.28509
Cranes	1318060001	0.07620
Material handling, lifting and hoisting equipment	1318060002	0.04086
Hydraulic equipment	1318060003	0.16803
g. Manufacture of office machinery and equipment	1318070000	0.00582
Reprographic machine and scanners	1318070001	0.00582
h. Manufacture of other general -purpose machinery	1318080000	0.43675
Chillers	1318080001	0.00436
Air filters	1318080002	0.25613
Air conditioning plant	1318080003	0.00015
Filtration equipment	1318080004	0.13412
Conveyors - non-roller type	1318080005	0.00093
Oil pump	1318080006	0.00200
Deep freezers	1318080007	0.01599
Water purifier	1318080008	0.02307

i. Manufacture of agricultural and forestry machinery	1318090000	0.83265
Agricultural tractors	1318090001	0.52772
Harvesters	1318090002	0.00364
Agriculture implements	1318090003	0.26218
Threshers	1318090004	0.00071
Soil preparation & cultivation machinery (other than tractors)	1318090005	0.03840
j. Manufacture of metal -forming machinery and machine tools	1318100000	0.22363
Drilling Machine	1318100001	0.06894
Grinding or polishing machine	1318100002	0.02477
Lathes	1318100003	0.01044
Precision machinery equipment/Form tools	1318100004	0.11948
k. Manufacture of machinery for mining, quarrying and construction	1318110000	0.37079
Excavator	1318110001	0.06463
Dumper	1318110002	0.06785
Road roller	1318110003	0.00995
Loader	1318110004	0.00379
Mining, quarrying & metallurgical machinery/parts	1318110005	0.02454
Mixing machine	1318110006	0.00216
Concrete vibrator & mixture	1318110007	0.01692
Earth moving machinery	1318110008	0.18095

I. Manufacture of machinery for food, beverage and tobacco processing	1318120000	0.22793
Rice mill machinery	1318120001	0.03071
Pressure vessel and tank for fermentation & other food processing	1318120002	0.05469
Machinery used in the milling industry	1318120003	0.02217
Separator	1318120004	0.00246
Sugar Machinery	1318120005	0.11790
m. Manufacture of machinery for textile, apparel and leather production	1318130000	0.19214
Open end spinning machinery	1318130001	0.13728
Sewing Machines	1318130002	0.01112
Roller mill (Raymond)	1318130003	0.00190
Printing machinery	1318130004	0.04184
n. Manufacture of other special -purpose machinery	1318140000	0.46834
Machinery for plastic products - extruded	1318140001	0.08373
Moulding Machine	1318140002	0.09108
Chemical equipment & system	1318140003	0.00731
Pharmaceutical Machinery	1318140004	0.19273
Packing machine	1318140005	0.01276
Evaporator	1318140006	0.08073
o. Manufacture of renewable electricity generating equipment	1318150000	0.04559
Solar power system (solar panel & attachable equipment)	1318150001	0.02582
Windmill turbines (2500KW)	1318150002	0.01977

So, WPI has most of the items that we will require in indexing. This is published every month. It is available for free and can be down loaded from different web sites.

In the next article, I will go in – how to use the index in valuation.

