



KSE-100 Index Methodology

Contents

1. Introduction	1
2. Objective	1
3. Free - Float Methodology	1
3.1. Objective and Description	1
4. Selection Criteria of stocks	2
5. Re-composition/ Review Period	3
6. Addition/Deletion of stocks during Re-composition process	4
6.1 Sector Rules	4
6.2 Capitalization Rule	4
7. Base Period	5
8. Maintenance of KSE100 Index	5
9. Online Computation of the Index	5
10. Adjustment in the KSE100 Index for corporate actions	5
10.1 Adjustment for Cash Dividend	5
10.2 Adjustment for Bonus Shares	6
10.3 Adjustment for Right Shares	7
10.4 Bonus & Right Issue Adjustment (Simultaneously)	10
11. Updation of Free Float	11

KSE 100 Index

The KSE 100 Index is designed to measure the performance of 100 companies which comprises the sector largest market capitalization companies and highest market capitalization companies (other than sector largest market capitalization companies).

1. Introduction

The KSE-100 Index was introduced in November 1991 with base value of 1,000 points. The Index comprises of 100 companies selected on the basis of sector representation and highest Free-Float Capitalization, which captures around ~80% to 70% of the total Free-Float Capitalization of the companies listed on the Exchange. Out of the following 36 Sectors, 35 companies are selected i.e. one company from each sector (excluding Open-End Mutual Fund Sector) on the basis of the largest Free-Float Capitalization and the remaining 65 companies are selected on the basis of largest Free-Float Capitalization in descending order. This is a total return index i.e. dividend, bonus and rights are adjusted.

Index Expert Committee (IEC) of PSX recommended to the governing board of directors of the Pakistan Stock Exchange Limited (PSX) in early 2012 to implement the KSE100 Index on the basis of free-float market capitalization. In the meeting held on April 24th, 2012, the governing PSX Board approved the IEC recommendation. The Free-float based KSE 100 was calculated parallel to the full-cap KSE-100 Index since 11th June 2012 and the recomposed KSE100 Index based on free-float methodology effective from October 15th 2012. In this transition, the Rules for composition and re-composition of the Index based on free-float methodology have remained un-changed other than selection of companies on the basis of free-float market capitalization as against total market capitalization.

2. Objective

The primary objective of the KSE100 index is to have a benchmark by which the stock price performance can be compared to over a period of time. In particular, the KSE 100 is designed to provide investors with a sense of how the Pakistan equity market is performing. Thus, the KSE100 is similar to other indicators that track various sectors of the Pakistan economic activity such as the gross national product, consumer price index, etc.

3. Free - Float Methodology

Free-Float means proportion of total shares issued by a company that are readily available for trading at the Stock Exchange. It generally excludes the shares held by controlling directors / sponsors / promoters, government and other locked-in shares not available for trading in the normal course.

3.1. Objective and Description

- Free-Float calculation can be used to construct stock indices for better market representation than those constructed on the basis of total market capitalization of companies.

- It gives weight for constituent companies as per their actual liquidity in the market and is not unduly influenced by tightly held large-cap companies.
- Free-Float can be used by the Exchange for regulatory purposes such as risk management and market surveillance.

Free-Float Calculation Methodology		
Total Outstanding Shares		xxx
Less	Government Holdings	xxx
	Shares held by Directors / Sponsors / Senior Management Officers and their Associates	xxx
	Shares in Physical Form	xxx
	Shares held by Associate Companies / Group Companies (Cross Holdings)	xxx
	Shares issued under Employees Stock Option Scheme that cannot be sold in the Open market in normal course	xxx
	Treasury Shares	xxx
	Any other category that are barred from selling at the review date	xxx
Free Float		xxx

Notwithstanding to the above calculations, under no circumstances, free-float of a scrip shall exceed its book entry shares, available in the Central Depository System.

Sponsor” has the same meaning as defined in The Companies (Issue of Capital) Rules, 1996

“Senior Management Officer” and “Associate” have the same meaning as defined in the Securities Act, 2015

4. Selection Criteria of stocks

- Largest Free-Float Capitalization in each of the **35** Pakistan Stock Exchange sectors *excluding Open-end Mutual Fund Sector including ETF Funds;*

List of prominent sectors of Pakistan economy are as follows:

List of Sectors			
1	Automobile Assembler	19	Oil & Gas Exploration Companies
2	Automobile Parts & Accessories	20	Oil & Gas Marketing Companies
3	Cable & Electrical Goods	21	Open-end Mutual Funds including ETF Funds
4	Cement	22	Paper & Board
5	Chemical	23	Pharmaceuticals
6	Close-end Mutual Funds	24	Power Generation & Distribution
7	Commercial Banks	25	Real Estate Investment Trust
8	Engineering	26	Refinery
9	Fertilizer	27	Sugar & Allied Industries
10	Food & Personal Care Products	28	Synthetic & Rayon
11	Glass & Ceramics	29	Technology & Communication
12	Insurance	30	Textile Composite
13	Investment Bank/ Inv. Cos/ Sec. Cos.	31	Textile Spinning
14	Jute	32	Textile Weaving
15	Leasing Companies	33	Tobacco
16	Leather & Tanneries	34	Transport
17	Miscellaneous	35	Vanaspati & Allied Industries
18	Modaraba	36	Woollen

- The remaining index places (in this case 65) are taken up by the largest Free-Float Capitalization companies in descending order.
- Company which is on the Defaulters' Counter and/or its trading is suspended, declare Non-Tradable (i.e. NT) in preceding 6 months from the date of re-composition shall not be considered in the re-composition of KSE-100 Index.
- A newly listed company qualify to be included in the existing index (after one re-composition period) if the Free-Float Capitalization of the newly listed company is at least 2% of the total Free-Float Capitalization

5. Re-composition/ Review Period

KSE-100 Index shall be recomposed on semi-annually basis as follows:

Basis	Revision/Implementation
Last working day of February	First working day of April
Last working day of August	First working day of October

6. Addition/Deletion of stocks during Re-composition process

Maintenance of the index over time will require an on-going semi-annual re-composition process, internal and external- buffer files of shares that exceed (shares outside the index) or fall below (shares inside the index) the above criteria will be maintained under the jurisdiction of the Board of Directors/Management of the Exchange.

Maintaining adequate representation of the under-lying stock market through all of its future development and changes is dependent upon the establishment of an appropriate re-composition process.

Re-composition rules fall into two general categories: 1) Sector Rules and 2) Free-Float Capitalization Rules.

6.1 Sector Rules

Sector rules govern the selection (or deletion) of companies on the basis of being the top Free-Float Capitalization stock in each of the 35 PSX sectors (excluding Open-end Mutual Fund sector). Two rules are recommended to undertake selection in this area-one, a time based rule and the other is a value-based rule. Stocks shall be triggered by compliance with either rule.

Time-based rule:

A stock (not in the index) which becomes the largest in its sector (by any amount of value) shall be entered the index after maintaining its position as largest in the sector for consecutively two re-composition periods.

Value-based rule:

A stock (not in the index) which becomes the largest in its sector by a minimum of 10% greater in capitalization value than the present largest in the sector (in the index) will enter the index at the time of re-composition

6.2 Capitalization Rule

Capitalization rules govern the selection (or deletion) of companies on the basis of being among the largest free-float capitalization companies in the stock market. Only one rule applies here-time based rule.

Time-based rule:

A stock (not in the index) may qualify for entry if it exceeds the market cap value consecutively in two re-composition periods of the last stock in the index selected on the basis of market cap. A qualifying company automatically pushes out the lowest cap selected stock in the index.

7. Base Period

The base period of KSE100 Index is November 1991 and the base value is 1,000 index points. The calculation of KSE100 Index involves dividing the free-float market capitalization of 100 companies in the Index by a number called the Index Divisor. The Divisor is the only link to the original base period value of the KSE 100 Index. It will keep the Index comparable over a period of time and will also be the adjustment point for all future corporate actions, replacement of scrips etc.

8. Maintenance of KSE100 Index

The day-to-day maintenance of the Index will be carried out within the Broad Index Policy Framework set by the Exchange. The Management will ensure that KSE100 Index and all the other PSX indices maintain their benchmark properties by striking a balance between frequent replacements in indices and maintaining their historical continuity.

9. Online Computation of the Index

During market hours, prices of the Index scrips at which trades are executed, are automatically used by the trading computer to calculate the KSE100 Index and continuously make updations on all trading workstations connected to the PSX trading computers on real time basis.

10. Adjustment in the KSE100 Index for corporate actions

KSE100 Index shall be calculated on total return basis and corporate actions (Cash dividend, Bonus and Right issue) adjustments shall be made in order to maintain the index continuity. If no adjustments were made, a discontinuity would arise between the current value of the index and its previous value despite the non-occurrence of any economic activity of substance. At the Exchange, the base value will be adjusted, which is used to alter market capitalization of the component stocks to arrive at the KSE100 Index value.

The determination of Ex price of a security is mentioned in Rule 10.6 of PSX Rule Book that: “If the Books of a Security are closed for determining any entitlement for its shareholders by the Company, the Exchange shall determine the ex-price based on the mechanism prescribed by the Exchange, as an opening price for the Trading Day falling on two Settlement Day before its Books Closure starting date”.

New Divisor shall be calculated due to corporate action at the end of T-3 days of its Book Closure starting date. E.g. Starting day of Book Closure = Friday, new divisor shall be calculated at day end of Tuesday.

The adjustment for corporate actions will be made as given under:

10.1 Adjustment for Cash Dividend

KSE100 Index is a total return index; therefore, adjustment of cash dividend shall be made.

If company declared a 10% cash dividend:

KSE100 Index = 1,120 points

KSE100 Index market capitalization = Rs. 13,950,000,000

Divisor = 12,455,357

Constituents	Share Price	Free Float Shares	Free Float Market Capitalization (RS)
Stock A	22.50	50,000,000	1,125,000,000
Stock B	41.00	150,000,000	6,150,000,000
Stock C	44.50	150,000,000	6,675,000,000
Total Free Float Market Capitalization			13,950,000,000

Step-1

Determine the ex-dividend price of the stock A to calculate the revised market capitalization and a new divisor for the next day

Stock A

Par value: Rs.10 per share

Closing Price: Rs. 22.50 per share

Cash Dividend 10 % of par value

i) Cash dividend amount per share = par value x dividend% = Rs 10 x 10% = Rs.1

ii) Ex-dividend price = closing price – cash dividend amount = Rs.22.50 – Rs.1 = Rs.21.50

Step-2

Illustration, Revision in the Market Capitalization and Divisor

Share price of stock A shall be adjusted after the close of day to calculate the New Divisor for the next day

Constituents	Share Price	Free Float Shares	Free Float Market Capitalization (Rs)
Stock A	21.50	50,000,000	1,075,000,000
Stock B	41.00	150,000,000	6,150,000,000
Stock C	44.50	150,000,000	6,675,000,000
Revised Free Float Market Capitalization			13,900,000,000

New Divisor = Revised Market Cap. / Index points

$$13,900,000,000 / 1,120 = 12,410,714$$

10.2 Adjustment for Bonus Shares

Declaration of Bonus requires adjustment in the free float capitalization and within the Index Divisor itself. The following process illustrates the process for a situation whereby a stock A has declared 10% bonus in terms of shares. Following steps are recommended to be followed in order to determine the

price of Ex-Bonus of Stock A to calculate the revised free-float market capitalizations and new divisor for the next day.

Step-1

KSE100 Index = 1,120 points

KSE 100 Index Free-float market capitalization = Rs. 13,950,000,000

Divisor= 12,455,357

Closing Price of Stock A: Rs. 22.50

Bonus: 10 %

Stock lot size= 100 Shares

Given below example, calculates the Ex-bonus price on the basis of a stock lot size of 100 shares by observing following steps.

- Total free-float shares after the Bonus issue: $100 + (100 \times 10\%) = 110$ shares
- Cost of stock-lot size 100 shares x closing price of stock A: $100 \times 22.50 = \text{Rs. } 2,250$

Ex-Bonus Price: $2,250/110 = \text{RS } 20.45$

Step-2

Illustration, Revision in the Market Capitalization and Divisor

Share price and free-float shares of stock A shall be adjusted after the close of day to calculate the New Divisor for the next day

Stock A		
Free Float shares	Bonus	Total free float shares
50,000,000	10%	55,000,000

Constituents	Share Price	Free Float Shares	Free Float Market Capitalization
Stock A	20.45	55,000,000	1,124,750,000
Stock B	41.00	150,000,000	6,150,000,000
Stock C	44.50	150,000,000	6,675,000,000
Revised Free Float Market Capitalization			13,949,750,000

*New Divisor = Revised Market Cap. / Index points

$13,949,750,000 / 1,120 = 12,455,134$

**Divisor changed as stock prices are reported in two decimal places*

10.3 Adjustment for Right Shares

The Right issues of the companies which constitute the KSE100 Index are adjusted in two stages. At first stage the Ex-Right price is adjusted and at the second stage the capital (free-float shares) are adjusted. A brief detail about the right issues is mentioned below:

The company which declares Right shares has to close its books (shareholders register) to determine entitlement within 30 days of its declaration.

At the date of book closure, the Ex-Right price is ascertained and if the company belongs to the KSE 100 Index then the Divisor is adjusted due to the Ex-Right price of the company.

When the company informs the Exchange that it has dispatched Letter of Rights Offer to the shareholders, the trading in the Letter of Rights Offer (Un- paid) are commenced. A separate block of capital, Un-Paid-Right, is formed equal to amount of right issue and the trading continues till next 30 days or till the last date of payment.

After the last date of payment the trading in Un-Paid-Right (Letter of Rights Offer) is discontinued.

By the end of 30th day of the last date of payment or earlier, the company informs that shares certificates are ready for exchange with Right Allotment Letter (RAL) or credited in the CDS, the capital of the RAL is merged with the company. At this stage the Divisor of the KSE100 Index is adjusted for the increase in the number of shares of the company.

A) Right issue without premium

If Company A has issued 10 % right shares

KSE100 Index = 1,120

KSE100 Index Free Float Market Capitalization = 13,950,000,000

Divisor = 12,455,357

First Stage

Step 1

Determine the Ex-Right price of the stock A to calculate the revised free-float market capitalization and a new divisor for the next day.

Stock A price Rs 22.50

Right: 10 %

For simplicity in working, we will calculate the Ex-Right price on the basis of a lot of 100 shares.

i. Total free-float shares after the Right issue

$100 \text{ shares} + (100 \text{ shares} \times 10 \% \text{ Right}) = 110 \text{ shares}$

ii. Cost of a lot (100 shares)

$100 \text{ shares} \times \text{market price of A} + 10 \text{ right shares} \times \text{par value}$

$= 100 \times 22.50 + 10 \times 10$

= Rs. 2350

iii. Ex- Right price per share = 2,350/110

= Rs. 21.36

Step 2

Share price of A is adjusted after the close of day to calculate the New Divisor for the next day.

Stock	Shares Price (Rs)	No of Free Float Shares	Market Value (Rs)
A	21.36	50,000,000	1,068,000,000
B	41	150,000,000	6,150,000,000
C	44.5	150,000,000	6,675,000,000
Revised Free Float Market Capitalization			13,893,000,000

New Divisor = Revised Free Float Market Capitalization/ Index points

$$=13,893,000,000/1,120 = 12,404,464$$

Second Stage

After 15 days of the last date of payment the company confirm the subscription amount, accordingly the capital of RAL is merged with the company and the Divisor is adjusted for the increase in number of free-float shares.

Step 1

Free-float shares of Stock A shall be adjusted after the close of Day to calculate the New Divisor for the next day.

Stock A		
Free Float shares	Right Issue	Total Free Float shares
50,000,000	10%	55,000,000

Stock	Shares Price (Rs)	No of Free Float Shares	Market Value (Rs)
A	22	55,000,000	1,210,000,000
B	41	150,000,000	6,150,000,000
C	44.5	150,000,000	6,675,000,000
Revised Free Float Market Capitalization			14,035,000,000

New Divisor = Revised Free Float Market Capitalization/ Index Points

New Divisor = 14,035,000,000/1,120 =12,531,250

10.4 Bonus & Right Issue Adjustment (Simultaneously)

If Company A has announced;

Bonus: 10%

Right: 10% at a Premium of Rs 10 per share

KSE100 Index = 1,120

KSE100 Index Market Capitalization = 13,950,000,000

Divisor = 12,454,357

Step 1

Calculate the Ex-Bonus and Ex- Right price of the stock A:

For simplicity we will calculate its price on the basis of a lot of 100 shares.

i) Total shares after the Right issue and Bonus

100 shares + (100 shares x 10 % Right) + (100 shares x 10% Bonus)

100+ 10 +10

= 120 shares

ii) Cost of a lot (100 shares)

100 shares x market price of A + {10 right shares x (par value + premium)}

= 100 x 22.50+ 10 x (10+10)

= Rs 2,450

iii) Ex-Bonus and Ex- Right price per share = 2,450/120

= Rs 20.42

Step 2

Calculate the total number of free-float shares after the Bonus issue.

Stock A		
Free Float shares	Bonus Issue	Total Free Float shares
50,000,000	10%	55,000,000

Step 3

Share price and the total number of free-float shares of A shall be adjusted after the close of Day to calculate the New Divisor for the next day

Stock	Shares Price (Rs)	No of Free Float Shares	Market Value (Rs)
A	20.42	55,000,000	1,123,100,000
B	41	150,000,000	6,150,000,000
C	44.5	150,000,000	6,675,000,000
Revised Free Float Market Capitalization			13,948,100,000

New Divisor = Revised Free Float Market Capitalization/ Index points

New Divisor = $13,948,100,000 / 1,120 = 12,453,661$

11. Updation of Free Float

Listed companies submit quarterly free float to the Exchange. In line with PSX trading system free float of scrips in Index will also be updated.