

Methodology Document of NIFTY100 Liquid 15 Index

August 2018

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Introduction:

NIFTY100 Liquid 15 Index is designed to provide exposure to the liquid stocks while making the index easily replicable and tradable. All the index constituents have derivatives traded on them. The maximum weight of a single stock is capped at 15%.

Eligible Securities:

Constituents of NIFTY 100 index that are available for trading in NSE's Futures & Options segment are eligible for inclusion in the NIFTY100 Liquid 15 index.

Differential Voting Rights:

Equity securities with Differential Voting Rights (DVR) are eligible for inclusion in the index subject to fulfilment of criteria given below:

- Market capitalisation criteria is measured at a company level by aggregating the market capitalisation of individual class of security meeting the liquidity criteria for the respective index
- Free float of DVR equity class share should be at least 10% of free-float market capitalization of the company (voting equity class share and DVR equity class share) and 100% free-float market capitalization of last security in respective index
- It should meet liquidity criteria applicable for the respective index
- Upon inclusion of DVRs in index, the index may not have fixed number of securities. For example, if DVR of an existing NIFTY 50 constituent is included in NIFTY 50, the NIFTY index will have 51 securities but continue to have 50 companies
- It is possible that the DVR is eligible for inclusion in the index whereas the full voting rights security class is ineligible. In such scenario, the DVRs shall be included in the index irrespective of whether full voting rights share class is part of index

Index Construction & Review Methodology:

The index is calculated using free float market capitalization methodology and has a base date of January 1, 2009 indexed to a base value of 1500. At the time of rebalancing of shares/ change in index constituents/ change in investable weight factors (IWFs), the weightage of the index constituent (where applicable) is capped at 15%. Weightage of such stock may increase beyond 15% between the rebalancing periods.

Selection Criteria

- The index shall have 15 stocks from the 100 stocks forming part of NIFTY 100 and are individually eligible in the F&O segment as per the criteria stipulated by SEBI.
- For inclusion in the index the stock shall have turnover ratio (TRO) greater than 100% in majority of the last 6 months at time of review.
- The free float market capitalization shall be average daily free float during the month of review.
- The turnover ratio (TRO) shall be computed as under

$$\text{TRO} = \frac{\text{AGGREGATE MONTHLY TURNOVER}}{\text{AVERAGE FREE FLOAT DURING THE MONTH}} * 12$$

- The eligible companies are then ranked in descending order of the free float market capitalization and the top 15 companies are selected to form the base index.

Exclusion criteria

- If the stock's TRO is less than 100% in 3 out of 6 months then such stock shall be eligible for exclusion. The stock replacing it shall meet the inclusion criteria mentioned above.
- A stock continuing to meet the inclusion criteria may still be excluded if any other stock meeting the inclusion criteria has 1.5 times free float market capitalization that of the existing stock in the index.
- The total number of stocks which shall be replaced in a review shall be restricted to 2. If there are more than 2 stocks eligible for replacement then stock with lower free float market capitalisation shall be replaced first.
- The review will take place on a semi-annual basis.

Calculation Methodology

The index is calculated using free float market capitalization methodology.

Capping:

Each constituent in the index is capped at 15%. This means that at the time of rebalancing of the index, no single constituent shall have weightage of more than 15%. The capping factor of stocks is realigned upon change in equity, investible weighted factor (IWF), replacement of scrips in the index, periodic rebalancing and on a quarterly basis after the expiry of the F&O contracts in March, June, September and December.

In the event of weight realignment, capping factors will be calculated for all constituents whose uncapped weight is greater than 15%. Weightage of such constituent may increase beyond 15% between the rebalancing periods depending on the price movement. The capping factor is calculated considering the closing prices of the index constituents 5 working days prior to the effective date of the changes.

Index Maintenance:

Index Reconstitution:

Index maintenance plays a crucial role in ensuring the stability of the index. The indices are reconstituted semi-annually considering 6 months data ending January and July respectively. The replacement of stocks in broad market indices (if any) are generally implemented from the first working day after F&O expiry of March and September. In case of any replacement in the index, a four weeks' prior notice is given to the market participants.

Additional index reconstitution may be undertaken in case any of the index constituent undergoes a scheme of arrangement for corporate events such as merger, spin-off, compulsory delisting or suspension etc. The equity shareholders' approval to a scheme of arrangement is considered as a trigger to initiate the exclusion of such stock from the index through additional index reconstitution.

Changes in the index level reflect changes in the market capitalization of the index which are caused by stock price movements in the market. They do not reflect changes in the market capitalization of the index, or of the individual stocks, that are caused by corporate actions such as dividend payments, stock splits, mergers, or acquisitions etc.

When a stock is replaced by another stock in the index, the index divisor is adjusted so the change in index market value that results from the addition and deletion does not change the index level.

Calculation Frequency

The index is calculated and disseminated through its trading terminals and website on real time basis on all days that the National Stock Exchange of India is open for trading in equity shares.

Corporate Actions and Share Updates

Maintaining the index include monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends etc. Some corporate actions, such as stock splits and stock dividends, require simple changes in the common shares outstanding and the stock prices of the companies in the index. Other corporate actions, such as share issuances, change the market value of an index and require a divisor adjustment to prevent the value of the index from changing.

Adjusting the divisor for a change in market value leaves the value of the index unaffected by the corporate action. This helps keep the value of the index accurate as a barometer of stock market performance, and ensures that the movement of the index does not reflect the corporate actions of the companies in it. Divisor adjustments are made after the close of trading and after the calculation of the closing value of the index.

Corporate actions such as splits, stock dividends, rights offerings, and share changes are applied on the ex-date.

All singular instances of share changes arising out of additional issue of capital, such as ESOPs, QIPs, ADR/GDR issues, private placements, warrant conversions, and FCCB conversions,

which have an impact of 5% or more on the issued share capital of the security are implemented after providing a five working days' prior notice. Share repurchase (buyback) also have the same rules as applicable to share changes.

Changes entailing less than 5% impact on the issued share capital or a free-float are accumulated and implemented from the first working day after F&O expiry of March, June, September and December after providing five working days' prior notice.

At the time of every rebalancing that is resulted on account of change in the index constituents, change in equity, changes in IWFs and payment of special dividend (defined under Total Return (TR) Index Calculation section), weights of each scrip are realigned to 15% by making a suitable divisor adjustment.

Currency of Calculation

For calculation of the index, all prices in Indian rupees are considered.

Investible Weight Factors (IWFs):

IWF as the term suggests is a unit of floating stock expressed in terms of a number available for trading and which is not held by the entities having strategic interest in a company. Higher IWF suggest greater number of shares held by the investors as reported under public category within a shareholding pattern reported by each company.

The IWFs for each company in the index are determined based on the public shareholding of the companies as disclosed in the shareholding pattern submitted to the stock exchanges on quarterly basis from March, June, September and December effective after the expiry of the F&O contracts. The following categories are excluded from the free float factor computation:

- Shareholding of promoter and promoter group
- Government holding in the capacity of strategic investor
- Shares held by promoters through ADR/GDRs.
- Strategic stakes by corporate bodies
- Investments under FDI category
- Equity held by associate/group companies (cross-holdings)
- Employee Welfare Trusts
- Shares under lock-in category

Example: For XYZ Ltd.

	Shares	%
Total Shares	1,00,00,000	100.00

	Shares	%
Shareholding of promoter and promoter group	19,75,000	19.75
Government holding in the capacity of strategic investor	50,000	0.50
Shares held by promoters through ADR/GDRs.	2,50,000	2.50
Equity held by associate/group companies (cross-holdings)	12,575	0.13
Employee Welfare Trusts	1,45,987	1.46
Shares under lock-in category	14,78,500	14.79

$$\text{IWF} = [1,00,00,000 - (19,75,000 + 50,000 + 2,50,000 + 12,575 + 1,45,987 + 14,78,500)] / 1,00,00,000. = \mathbf{0.61}$$

Index Governance:

Index Committee

A professional team at NSE Indices Limited manages the index. There is a three-tier governance structure comprising the Board of Directors of NSE Indices Limited, the Index Policy Committee, and the Index Maintenance Sub-Committee. NSE Indices Limited has constituted the Index Policy Committee, which is involved in the policy and guidelines for managing NSE its Limited indices. The Index Maintenance Sub-committee makes all decisions on additions and deletions of companies in the Index.

Index Policy

The indices use transparent, researched and publicly documented rules for its maintenance. These rules are applied regularly to manage changes to the indices. Index reviews are carried out periodically to ensure that each security in the index fulfills eligibility criteria.

Announcements

All index-related announcements are posted on the websites of NSE Indices Limited and NSE. Changes impacting the constituent list are also posted on the Web site. Please refer to the www.niftyindices.com and www.nseindia.com.

Holiday Schedule

For the calculation of indices, the NSE Indices Limited follows the official holiday schedule. A complete holiday schedule for the year is available on the NSE Indices Limited and NSE website. Please refer to the www.niftyindices.com and www.nseindia.com.

Index Precision

The level of precision for index calculation is as follows:

- Shares outstanding are expressed in units
- Investible weight factors (IWFs) are expressed in two decimals
- Capping factors are expressed in six decimals
- Float-adjusted market capitalization is stated to two decimal places
- Index values are disseminated up to two decimal places

Index Recalculations

All NIFTY family of indices are recalculated whenever errors occur. Users of the NIFTY indices are notified through appropriate channel of communication.

Market Feedback & Index Methodology Review

NSE Indices Limited is committed to ensure that all NIFTY indices are relevant for the market participants. In order to ensure this, NSE Indices Limited on an on-going basis interacts with the stakeholders inviting the feedback through various channels of

communication. The feedback received from the market participants forms a key input for all index related aspects.

Review of methodology of NIFTY indices is carried out on an annual basis. Additionally, NSE Indices Limited also considers any feedback that it may receive with regards to index methodology as part of on-going market interactions. Any changes to the index methodology is approved by the Committee and the same is announced through a press release.

Other

In case of a market stress or disruption, NSE Indices Limited will review and deal with the situation on consultative basis with the National Stock Exchange of India Ltd. (NSE) as NSE is source for price data for computation of equity indices.

All indices are expected to reflect the performance of a basket of stocks selected based on the defined guidelines and theme. Every index user is advised to evaluate the benefits of index and take an informed decision before using the index for self or creation of index-linked products. NSE Indices Limited does not accept any liability for any losses, claims, expenses etc. that may be incurred by any person as a result of usage of NIFTY family of indices as a result of reliance of the ground rules, any errors or inaccuracies.

Data Source

Prices of index constituents are sourced from NSE

Index Calculation

Price Index Calculations:

The index is calculated using free float market capitalization methodology. At the time of rebalancing of shares/ change in index constituents/ change in investable weight factors (IWFs), the weightage of the index constituent (where applicable) is capped at 15%. Weightage of such stock may increase beyond 15% between the rebalancing periods.

Index Market Capitalization = Total shares outstanding * Price * IWF * Capping Factor

Index Value = Current Index market capitalization / Base Market Capital * Base Index Value (1500)

Base market capital of the Index is the aggregate market capitalisation of each scrip in the index during the base period. The market capitalization during the base period is equated to an Index value of 1500 known as the base Index value.

Total Return (TR) Index Calculation:

The index reflects the return one would get if an investment is made in the index portfolio. As the index is computed real-time, it takes into account only the stock price movements. However, the price indices do not consider the return from dividend payments of index constituent stocks. Only the capital gains and losses due to price movement are measured by the price index. In order to get a true picture of returns, the dividends received from the index constituent stocks also need to be included in the index movement. Such an index, which includes the dividends received, is called the total return index. The total return index reflects the returns on the index from stock prices fluctuation plus dividend payments by constituent index stocks.

The total return version of the index is also available, which assumes dividends are reinvested in the index after the close on the ex-date. Corporate actions like dividend announcement do not require any adjustment in the normal price index (other than special dividend). Special dividend refers to a dividend that's more than 5% of close price of a stock declaring dividend and all cases of dividends (irrespective of the dividend amount), where the listed entity has sought exemption from the timeline prescribed under the provisions of SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015. A suitable divisor adjustment is made in case of a special dividend.

A separate Total Returns Index (TR) is calculated which shows the returns on Index portfolio, inclusive of dividends.

Calculation of the TR Index:

$$TR\ Index = Previous\ TR\ index * \left[1 + \left(\frac{(Today's\ PR\ Index + Indexed\ Dividend)}{Previous\ PR\ Index} - 1 \right) \right]$$

Index dividend for the day 't' =

Total Dividends of the scrips in the Index / Index divisor for the day

Total dividends of scrips in the Index = Σ (Dividend per share * Modified index shares)

Modified index shares = Total shares outstanding * IWF * Capping Factor (if applicable)

Index Dissemination

Tickers

Index	Bloomberg	Reuters
NIFTY100 Liquid 15	LIX15	.NLIX50

Web site

Daily index values, index constituents, methodology, and press releases are available on www.niftyindices.com and www.nseindia.com.

About Us:

About National Stock Exchange of India Limited (NSE):

The National Stock Exchange of India Ltd. (NSE) is the leading stock exchange in India and the third largest in the world by nos. of trades in equity shares in 2017, according to World Federation of Exchanges (WFE) report. NSE was the first exchange in India to implement electronic or screen based trading. It began operations in 1994 and is ranked as the largest stock exchange in India in terms of total and average daily turnover for equity shares every year since 1995, based on SEBI data. NSE has a fully-integrated business model comprising exchange listings, trading services, clearing and settlement services, indices, market data feeds, technology solutions and financial education offerings. NSE also oversees compliance by trading and clearing members with the rules and regulations of the exchange. NSE is a pioneer in technology and ensures the reliability and performance of its systems through a culture of innovation and investment in technology. NSE believes that the scale and breadth of its products and services, sustained leadership positions across multiple asset classes in India and globally enable it to be highly reactive to market demands and changes and deliver innovation in both trading and non-trading businesses to provide high quality data and services to market participants and clients.

For more information, please visit: www.nseindia.com

About NSE Indices Limited:

(Formerly known as India Index Services & Products Limited-IISL)

NSE Indices Limited, a subsidiary of NSE, provides a variety of indices and index related services for the capital markets. The company focuses on the index as a core product. The company owns and manages a portfolio of indices under the NIFTY brand of NSE, including the flagship index, the NIFTY 50. NIFTY equity indices comprises broad-based benchmark indices, sectoral indices, strategy indices, thematic indices and customised indices. NSE Indices Limited also maintains fixed income indices based on Government of India securities, corporate bonds, money market instruments and hybrid indices. Many investment products based on NIFTY indices have been developed within India and abroad. These include index based derivatives traded on NSE, Singapore Exchange Ltd. (SGX) and Taiwan Futures Exchange (TAIFEX) and a number of index funds and exchange traded funds. The flagship 'NIFTY 50' index is widely tracked and traded as the benchmark for Indian Capital Markets.

For more information, please visit: www.niftyindices.com