



**Index Construction  
&  
Maintenance Guidelines**

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## **INDEX DESCRIPTION**

The NYSE Arca Tech 100<sup>SM</sup> Index is a price-weighted index comprised of common stocks and American Depository Receipts (ADRs) of technology-related companies listed on US exchanges. Companies from different industries that produce or deploy innovative technologies to conduct their business are considered for inclusion. Leading companies are selected from several industries, including computer hardware, software, semiconductors, telecommunications, data storage and processing, electronics, media, aerospace & defense, health care equipment, and biotechnology.

Modeled as a multi-industry technology index, the objective of the NYSE Arca Tech 100 Index is to provide a benchmark for measuring the performance of technology-related companies operating across a broad spectrum of industries.

The NYSE Arca Tech 100 Index components are selected at the discretion of the Selection and Oversight Committee from the investable universe of securities that meet the pre-determined eligibility criteria. In administering the Index, the Selection and Oversight Committee will exercise reasonable discretion as it deems appropriate.

The key elements of the NYSE Arca Tech 100 Index management process are:

### **I. INDEX COMPOSITION**

### **II. INDEX WEIGHTING AND CALCULATION METHODOLOGY**

### **III. INDEX CALCULATION AND DISSEMINATION PROCESSES**

### **IV. INDEX REVIEWS/RECONSTITUTION PROCESS**

## **I. INDEX COMPOSITION**

### **Investable Universe Guidelines**

The Selection and Oversight Committee considers the following guidelines to determine the investable universe:

- a. Liquidity and price
- b. Financial viability
- c. Industry representation
- d. Operating companies

- a. Liquidity and price: a stock's liquidity is very important to ensure that the index is investable. Low-priced stocks can have lower liquidity. Low-priced stocks are harder to borrow for short sales, and they often do not have listed options. Further, some institutions aren't permitted to hold low-priced stocks.
- b. Financial viability: a simple way to screen for companies is through the positive earnings test, where the company should have four consecutive quarters of positive earnings in terms of GAAP net income.
- c. Industry representation/balance: In order for the index to reflect the performance of leading technology-related companies across a broad spectrum, the Selection and Oversight Committee selects new components so that one industry group does not dominate the Index.
- d. Operating companies: the Selection and Oversight Committee excludes limited partnerships and non-operating holding companies, closed-end funds and exchange traded funds or royalty trusts.

### **Eligibility Criteria**

To be eligible for initial and continuing inclusion in the NYSE Arca Tech 100 Index, a security must meet the following criteria:

#### **Constituent Specific Criteria:**

- 1) The security must be listed on the NYSE<sup>®</sup>, NYSE Arca<sup>®</sup>, AMEX<sup>®</sup>, or Nasdaq<sup>®</sup> markets. The security must have "seasoned" on one of these markets for at least 12 months; in the case of spin-offs, the operating history of the spin-off will be considered.
- 2) The issuer of the security must be a leader in its industry and produce or deploy innovative technologies to conduct its business. This may include companies that are engaged in manufacturing products and providing services within advanced technology fields. A review of the company's product mix, service offering, and position within the channel of commerce is used in identifying leading companies.
- 3) Securities to be deleted or added will undergo a quantitative review process analyzing a company's reported financial data to determine the growth, valuation, revenue source and financial leverage deployed by the company to support the products or services produced. A composite scoring model for the quantitative screens include, but are not limited to:
  - Revenue growth and sources of revenue growth
  - Net income analysis and trend review
  - Operating margin analysis and peer group comparison
  - Company valuation and peer group comparison

- Minimum liquidity standards based on market cap and average daily volume traded
- 4) For the purpose of initial inclusion, the issuer must have reported a cumulative positive net income over the trailing 12 month period.
- 5) The issuer of the security must not have annual financial statements with an audit opinion which the auditor or the company has indicated cannot be currently relied upon. The issuer must have reported the company's financials accurately and timely as required by applicable requirements of the Exchange Act, or within thirty days after the date the report was due to be filed. The Selection and Oversight Committee may remove and / or exclude securities from issuers that submit material or frequent financial restatements.
- 6) The issuer of the security must not currently be in bankruptcy proceedings.
- 7) The security must not have accumulated more than 10 non-trading days in the prior quarter.
- 8) The issuer of the security must not have entered into a definitive merger agreement or other arrangement which would result in the security no longer being Index eligible within the next six months.

**Index Specific Criteria:**

- 9) At least 85% of the weight of the Index must be comprised of component securities which each have a minimum public float value of at least \$150 million and a minimum average daily trading value (ADTV) of at least \$1 million during the previous two (2) months of trading.
- 10) At least 90% of the weight of the index must be comprised of Component Stocks which each has a minimum monthly trading volume of at least 250,000 shares during the last six months.
- 11) At least 30% of Index value must be derived from components for which the market price per share closed above \$3 for the majority of the trading days in the past six months, as measured by the highest closing price recorded in the primary market on which the underlying security trades.

12) No component may constitute 10% or more of total Index weight, unless exempt by the Selection and Oversight Committee from this requirement, provided that in no case will any component represent more than 15% of the total Index weight.

13) The five heaviest weighted components may comprise no more than 25% of the total Index weight.

14) The index will contain 100 underlying securities.

**Security types excluded:**

- Fixed-dividend shares
- Convertible notes, warrants, rights, units and other derivative securities.
- Tracking stocks
- Limited partnerships
- Closed-end funds and exchange traded funds

The Selection and Oversight Committee conducts semi-annual reconstitution and maintenance reviews to monitor Index compliance with broad-based index requirements to be eligible for continued inclusion in the Index.

**II. INDEX WEIGHTING AND CALCULATION METHODOLOGY**

The NYSE Arca Tech 100 Index is a price weighted rather than market capitalization weighted index. This means the index holds the same number of shares of each security, thus the price of the security is the influencing factor to the value of the index. Higher priced securities have a higher weight in the index than lower priced securities, as the shares of each component are equally held. Its' component weightings are therefore affected only by changes in the stocks' prices, in contrast with other indexes' weightings that are affected by both price changes and changes in the number of shares outstanding.

To calculate the value of the index, simply add up the last sale prices of its components on their primary exchanges (not consolidated prices) and divide the sum by the divisor.

$$I_t = \sum C_t / D_t$$

Where:

- $I_t$  - Index value on trading session t
- $C_t$  - Components closing prices on trading session t
- $D_t$  - Divisor on trading session t

Over the years, adjustments have been made to the divisors to ensure the continuity of the averages after corporate actions such as spin-offs and stock splits. As a result the divisors are no longer equal to the number of components in the index, as would be expected.

The formula for calculating a divisor change is as follows:

$$D_{t+1} = D_t * \sum C_t^a / \sum C_t$$

Where:

- $D_{t+1}$  - Divisor to be effective on trading session t+1
- $D_t$  - Divisor on trading session t
- $C_t^a$  - Components adjusted closing prices for stock dividends, splits, spin-offs and other applicable corporate actions on trading session t
- $C_t$  - Components closing prices on trading session t

### **The Effect of Dividends and the Dividend Policy**

The NYSE Arca Tech 100 Index is a stock price index. The payment of normal dividends is not taken into account when computing the index. On the date on which dividends are announced, the market price of the stock usually drops abruptly and this is also reflected in the index.

Special dividends from either non-operating income or any cash dividends that are larger than 10% of the stock price are included in the NYSE Arca Tech 100 Index on ex-dividend date. The Index is adjusted to prevent the distributions from distorting the price index.

In unclear situations, the Selection and Oversight Committee will give a notice no later than the end of the following day after the dividend announcement. Notice will be provided that the dividend will be handled as a special dividend. If a notice is not given, any dividend will not be considered special.

### **III. INDEX CALCULATION AND DISSEMINATION PROCESSES**

Values for the NYSE Arca Tech 100 Index will be calculated whenever U.S. exchanges are open and will be disseminated every 15 seconds throughout the trading day using the latest traded price of each common stock or ADR on its primary U.S. exchange. The closing values of the NYSE Arca Tech 100 Index are disseminated at 5:15 PM. US Eastern Time, using the closing price of each common stock or ADR on its primary U.S. exchange.

If trading in a stock is suspended while its market is open, the last traded price for that stock is used for all subsequent index computations until trading resumes. If trading is suspended before the opening, the stock's adjusted closing price from the previous day is used to calculate the index. Until a particular stock opens, its adjusted closing price from the previous day is used in the index computation.

It is important for market users to know not only of any normal time lags in the incorporation of prices in an index but also, as soon as possible, when index calculation is being affected by such factors as trading suspensions in index components or problems with price feeds from any particular market. The NYSE Arca Tech 100 Index provides market operators with a transparent process for resolving any issues arising in such situations.

#### **Sources of Data**

Dow Jones & Company, Inc. is the calculation agent using intra-day and last sale prices from the primary market and reported to the Consolidated Tape Association. Dow Jones & Company, Inc. manages and updates corporate actions.

Index values are disseminated from 9:30 am to 4:00 pm EST. The opening value shall consist of the current last sale for securities that have not opened. At the end of the trading day, 4:00 PM US Eastern Time, closing prices disseminated from the primary listing exchange.

#### **Index Halts**

The Index is halted whenever market wide circuit breakers kick in and trading is suspended at any of the primary exchanges. This will automatically halt the NYSE Arca Tech 100 Index calculation and dissemination until the market wide circuit breakers are removed.

## **Data Corrections and Precision**

**Intraday Index Data Corrections:** commercially reasonable efforts are made to ensure the correctness of data used in real-time index calculations. If incorrect price or corporate action data affects index daily highs or lows, it is corrected retroactively as soon as feasible.

**Index-Related Data and Divisor Corrections:** incorrect pricing and corporate action data for individual issues in the database will be corrected upon detection. In addition, an incorrect divisor of an index, if discovered within five days of its occurrence, will always be fixed retroactively on the day it is discovered to prevent an error from being carried forward. Commercially reasonable efforts are made to correct an older error subject to its significance and feasibility.

**Computational and Reporting Precision:** all calculated and adjusted data are stored in real numbers. For reporting purposes, Index values are rounded to two decimal places and divisors are rounded to integers. Any values derived by the index calculation engine from a corporate action used for the divisor adjustments and index computations are rounded to seven decimal places.

**Undocumented Events:** any matter arising from undocumented events will be resolved at the discretion of the Selection and Oversight Committee.

## **Announcement Policy**

**Semi-Annual Index Review:** the results of the semi-annual index reviews are announced at least two weeks in advance of their effective implementation dates as of the close of the last business day of May and November; provided that all necessary public information concerning the change is available. Inquiries or requests to be added to the distribution list may be emailed to [NYSE ArcaTech 100Index@archipelago.com](mailto:NYSE ArcaTech 100Index@archipelago.com)

**Ongoing Event-Related Changes:** all changes resulting from reconstitutions, excluding corporate events, are typically announced to the public at least two business days prior to these changes becoming effective in the indices as an “expected” announcement, or as an “undetermined” announcement, when the effective dates are not yet known or when aspects of the event are uncertain.

**Exceptional Events:** In exceptional cases, certain corporate action events are announced during market hours for same or next day implementation. Announcements made by the Selection and Oversight Committee during market hours are usually linked to late company disclosure of corporate events, or unexpected changes to previously announced corporate events.

#### IV. INDEX REVIEWS/RECONSTITUTION PROCESS

The Selection and Oversight Committee reviews and reconstitutes (as needed) the Index semi-annually to ensure that it continues to reflect the performance of technology driven companies.

Changes that affect the composition of the index include the following:

- The deletion of an index component for failure to meet requirements specified for inclusion in the index
- The addition or deletion of an index component due to a corporate action

Those changes that have material impact on the value of the index are implemented no later than 3 business days after the action. For example:

If a constituent is delisted by its principal exchange, enters bankruptcy proceedings, or is under extreme financial distress, the security is removed immediately from the NYSE Arca Tech 100 Index. Exceptions are made on a case-by-case basis. For example, a security might not be removed immediately when a bankruptcy filing is not a result of operating or financial difficulties, or;

If the issuing company of one or more NYSE Arca Tech 100 Index constituents is acquired by or merges with another company, then the original constituent and the acquirer are replaced by a security of the successor entity - providing that the successor meets applicable eligibility criteria.

Components are replaced within 3 business days of the action to maintain the fixed number of stocks in the NYSE Arca Tech 100 Index.

For the sake of continuity, composition changes due to other eligibility requirements, such as average daily volumes, public float, etc., between scheduled dates are rare. Extraordinary revisions are generally implemented as needed, when they have a material effect on the value of the Index. When such an event necessitates that one component be replaced, the entire index is reviewed and multiple component changes may be implemented simultaneously.

## APPENDICES

### Appendix 1: The Industry Classification Benchmark (ICB)

The NYSE Arca Tech 100 index utilizes the Industry Classification Benchmark (ICB) created by Dow Jones and FTSE. The system is supported by the ICB Universe Database, which contains over 40,000 companies and 45,000 securities worldwide from the FTSE and Dow Jones universes.

ICB is a detailed structure for sector and industry analysis, facilitating the comparison of companies across four levels of classification and national boundaries. The system allocates companies to the sub-sector whose definition most closely describes the nature of its business. The nature of a company's business is determined by its source of revenue or where it constitutes the majority of revenue.

- 10 industries help investors monitor broad industry trends
- 18 supersectors can be used for identifying macroeconomic opportunities for investment and trading decisions
- 39 sectors provide a broad benchmark for investment managers
- 104 sub-sectors allow for more detailed quantitative and qualitative analysis

#### A sample of Sub-sector definitions:

Industry	Supersector	Sector	Sub-sector
Technology [9000]	Technology [9500]	Software & Computer	Computer Services [9533]
		Services [9530]	Internet [9535]
			Software [9537]
			Technology Hardware
		& Equipment [9570]	Electronic Office Equipment [9574]
			Semiconductors [9576]
			Telecommunications Equipment [9578]

9533 Computer Services	Companies that provide consulting services to other businesses relating to information technology. Includes providers of computer-system design, systems integration, network and systems operations, data management and storage, repair services and technical support.
9535 Internet	Companies providing Internet-related services, such as Internet access providers and search engines and providers of Web site design, Web hosting, domain-name registration and e-mail services.
9537 Software	Publishers and distributors of computer software for home or corporate use. Excludes computer game producers, which are classified under Toys.
9572 Computer Hardware	Manufacturers and distributors of computers, servers, mainframes, workstations and other computer hardware and subsystems, such as mass-storage drives, mice, keyboards and printers.
9574 Electronic Office Equipment	Manufacturers and distributors of electronic office equipment, including photocopiers and fax machines.
9576 Semiconductors	Producers and distributors of semiconductors and other integrated chips, including other products related to the semiconductor industry, such as semiconductor capital equipment and motherboards. Excludes makers of printed circuit boards, which are classified under Electrical Components & Equipment.
9578 Telecommunications Equipment	Makers and distributors of high-technology communication products, including satellites, mobile telephones, fiber optics, switching devices, local and wide-area networks, teleconferencing equipment and connectivity devices for computers, including hubs and routers.

Source: The Industry Classification Benchmark is a joint product of FTSE International Limited and Dow Jones & Company, Inc. and has been licensed for use. "FTSE" is a trade and service mark of London Stock Exchange and The Financial Times Limited. "Dow Jones" and "DJ" are trade and service marks of Dow Jones & Company, Inc. FTSE and Dow Jones and do not accept any liability to any person for any loss or damage arising out of any error or omission in the ICB.