

Indxx Disruptive Technologies Index:

Methodology

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Indxx Disruptive Technologies Index

Index Description

The Indxx Disruptive Technologies Index is based around companies that enter traditional markets with new digital forms of production and distribution, are likely to disrupt an existing market and value network, displace established market leading firms, products and alliances and increasingly gain market share.

Creation of Master list

Investable Universe

- The Index is designed to include the most liquid and investable universe of companies listed on developed and emerging markets exchanges as defined by Indxx. For information, please refer to the document 'Country Classification and Investability Requirements', by visiting the 'Index Documents' section on <https://indxx.com/announcements.php>
- Companies must have a minimum market capitalization of \$500 million and a minimum average daily turnover for the last 6 months greater than or equal to \$2 million.
- The stock must have traded on 90% of the eligible trading days in the last 6 months. In case a security does not have a trading history of 6 months (only IPOs), such a security must have started trading at least 3 months before the start of the Reconstitution Process, and should have traded on 90% of the eligible trading days for the past 3 months.

Free Float

All constituent must have a minimum free float equivalent of 10% of shares outstanding.

Maximum Price

Securities trading at a price of \$10,000 or above are ineligible for inclusion in the index. This rule is not applicable for existing constituents. Existing constituents would remain in the Index irrespective of their stock price.

Security Type

- Common Stock, ADR, GDR.
- In case ADR for a security is available, it will be considered for inclusion over the security types.

The security selection process is based on research performed by Indxx and entails the following steps:

- An extensive research is undertaken with a focus on identifying the industries and business segments that are technology disruptors. The industries identified through this research-based approach are subject to change at every annual reconstitution.
- Any sub-theme identified as a disruptive theme, must remain in the index for a period of 3 years.
- As of March 2017, Indxx has identified the following 10 broad sub-themes to be the most relevant to the disruptive technologies theme:
 - **3D Printing:** Companies that are primarily engaged in 3D printing hardware, CAD and 3D printing software, 3D printing materials and centers, 3D scanning and measurements.
 - **Clean Energy and Smart Grid:** Companies that are either Clean (carbon free – solar, wind, hydro, geo-thermal and waste to energy) Energy producers, clean energy equipment providers (e.g. solar panels components, wind turbines and related components), electric grid, electric meters and devices (electric infrastructure), networks, energy or other grid-related activities.
 - **Cloud Computing:** Companies that are either Cloud service providers (SaaS, PaaS, IaaS, XaaS) or provide products and services that uses cloud computing technology.
 - **Cybersecurity:** Companies primarily involved in the development and administration of security protocols applied to private - public networks, computers, and mobile devices for protection of the data integration and network operations.
 - **Data and Analytics:** Companies that generate their revenues by providing data analytics tools and services, decision making software and market intelligence services to third parties.
 - **FinTech:** Companies that utilize transformational and innovative software solutions within the financial services industry that focus on at least one of the following business areas:
Enterprise Solutions, P2P and Marketplace Lending, Crowd-Funding, Personal Finance Software, Automated Wealth Management and Trading, Blockchain and Alternative Currencies.
 - **Healthcare Innovation:** Companies that are primarily engaged in Robotic Assistance, 3D solutions, Digital Healthcare, Artificial intelligence related to healthcare are included.
 - **Internet of Things:** Companies that have business segments as Semiconductors and Sensors, Networking Infrastructure/Software, Equipment, Vehicle and Infrastructure/Building Technology or Consumer IoT Technology are found to be the most relevant to the Internet of Things theme.
 - **Mobile Payments:** Companies that are providers of payments solutions, payment processing services, credit card network or payment industry infrastructure and software services.
 - **Robotics & Artificial Intelligence:** Companies that are primarily engaged in Industrial Robotics and Automation, Unmanned Vehicles and Drones, Non-Industrial Robotics and Artificial Intelligence.

- Companies that gain 50% or more of their revenue from the above sub-themes are eligible for inclusion in the index. Such companies are defined as pure-play companies.
- The top ten 'pure-play' companies by market capitalization from each sub-theme will form the final portfolio. If fewer than 10 companies qualify to be eligible for inclusion from a sub-theme, all the eligible companies will be part of the final index

Reconstitution and Rebalancing Rules

- The index follows an annual reconstitution and quarterly rebalancing schedule. The reconstituted portfolio becomes effective on the close of business on the third Friday of September each year. The rebalanced portfolio becomes effective on the close of business on the third Friday of March, June and December each year. This day is called the 'Effective Day.'
- The security selection and portfolio creation process starts on the close of the nearest Friday falling at least one month before the effective day, called the 'Selection Day.'
- The final portfolio constituents are shortlisted from a selection pool of all eligible securities selected based on the data as of the Selection Day.
- Weights are calculated at the close of the seventh trading day prior to the Effective Day. Index Shares are frozen using weights as of this day.

Weighting

- The Index is equally weighted at the time of reconstitution and rebalancing.

Buffer Rules

Buffer Rules are employed to reduce Portfolio Turnover. The following Buffer Rules are applicable:

Market Capitalization

An existing index constituent shall continue to remain in the index even if its Market Capitalization does not meet the previously defined minimum market capitalization criteria, but remains within +/- 20% of this limit.

Liquidity

An existing index constituent shall continue to remain in the index even if its Liquidity is below the previously defined Average Daily Traded Value limit, but remains within +/- 30% of this limit.

Corporate Actions

The following corporate actions (such as stock splits, special dividends, spin-offs and rights offerings) are applied to Price Return indices on the ex-date or earlier as decided by the Index Committee.

Corporate Action	Description	Treatment	Adjustment
Company addition and deletion	In case a constituent is added, removed or replaced with another constituent in the Index.	Replacement: The new company will be added to the index using the weight of the company being removed. Addition/ Deletion only	Stock Adjustment Divisor Adjustment
Stock Split	A stock split is a decision by the company's board of directors to increase the number of shares that are outstanding by issuing more shares to current shareholders. After a split, the stock price will be reduced since the number of shares outstanding has increased.	Stock splits will be adjusted for on the ex- date. The number of shares will increase times the adjustment factor for the split.	No divisor adjustment is required since the share count and price changes are offsetting.
Rights Issue	Rights Issue gives existing shareholders the right to purchase a proportional number of new shares at a discount to the market price on a stated future date. The rights issued to a shareholder have a value, thus compensating current shareholders for the future dilution of their existing shares' value.	The company remains in the Index at the same weight. The following price adjustment is made: Price of the Parent Company - (the Price of Rights Offering/Rights Ratio). The Index committee will decide whether to participate in the rights issue or not. If the subscription price is greater than or equal to the stock closing price, Indxx would not participate in the rights issue.	No Divisor Adjustment
Spin-Off	Spin off is the creation of an independent company through the sale or distribution of new shares of an existing business/division of a parent company.	The company remains in the Index at the same weight. The following price adjustment is made: Price of the Parent Company minus (the Price of Spin-off company/Share Exchange Ratio).	No Divisor Adjustment
Delisting	Delisting refers to the practice of removing the stock of a company from a stock exchange so that investors can no longer trade shares of the stock on that exchange.	The security would be removed from the index, and the invested amount in the delisted security will be reinvested into the index.	Divisor Adjustment
Acquisition	A corporate action in which a company buys most, if not all, of the target company's ownership stakes in order to assume control of the target firm.	The Target company would be removed from the index, and the invested amount in the acquired security will be reinvested into the index.	Divisor Adjustment
Corporate Action	Description	Treatment	Adjustment

Merger	Merger is the combination of two or more companies, generally by offering the stockholders of one company securities in the acquiring company in exchange for the surrender of their stock.	<p>The Target company is removed from the Index.</p> <p>The Target company is replaced with the Surviving company.</p>	<p>Divisor Adjustment</p> <p>Stock Adjustment</p>
Bankruptcy	Bankruptcy is a legal proceeding involving a person or business that is unable to repay outstanding debts.	The security would be removed from the index, and the invested amount in the acquired security will be reinvested into the index.	Divisor Adjustment
Temporary Delisting / Prolonged Trading Suspension	A temporary delisting/trading suspension occurs when a security stops trading on the stock exchange for a certain time period. This usually occurs when a publicly-traded company is going to release significant news about itself.	The security would be removed from the index based on the Index Committee's decision and the invested amount in the acquired security will be reinvested into the index.	Divisor Adjustment
Special Dividends	When a company pays a special dividend, the share price of the company declines by the amount of the dividend.	The Divisor is adjusted to reflect a fall in the price of the company paying the special dividend.	Divisor Adjustment
Bonus Issue of Shares	A bonus share is a free share of stock given to current/existing shareholders in a company, based upon the number of shares owned by them.	The issue of bonus shares increases the total number of shares issued and owned, it does not increase the value of the company. The ratio of number of shares held by each shareholder remains constant.	No Adjustment

Total Return Indices

Total Return Index

In addition to all the above mentioned corporate actions, ordinary cash dividends will be applied on the ex-date for calculating TR Indices.

Adjustment in the Index

All dividend payments will be reinvested in the index, by adjusting the divisor in the total return index on the ex-dividend date.

Index Policy

Index Committee Policy

The Index Committee is responsible for setting policy, determining index composition, and administering the indices in accordance with the Indxx index methodology. The Index Committee reserves the right to use qualitative judgment to include, exclude, adjust, or postpone the inclusion of a stock. Continued index membership of a constituent is not necessarily subject to the guidelines provided in each of the Indxx index methodology. A stock may be considered for exclusion by the Index Committee on the basis of corporate governance, accounting policies, lack of transparency and lack of representation, despite meeting all the criteria provided in each of the Indxx index methodology.

Announcements

Announcements of additions and deletions of constituents, due to various corporate actions mentioned above, in the middle of the year will be decided by the Index Committee. This will be communicated to the client well ahead of time. Also important news items as well as corporate actions with respect to all the constituents of the index will be informed to the client on a weekly basis.

Holiday Schedule

The index is calculated when the U.S. equity markets are open. In situations where an exchange is forced to close early due to unforeseen events, the index will be calculated based on the closing prices published by the exchange, or if no closing price is available, the last regular trade reported for each stock before the exchange closed.

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