# Methodology for TokenInsight Index of Blockchain Industry

TokenInsight Inc.

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# Contents

# **1.** Introduction

The TokenInsight Index of the blockchain industry (hereafter referred to as TI index), created and developed by TokenInsight Inc., is a component index designed to measure the overall performance of the blockchain industry, consisting of 30 representative exchange listed token projects.

# **2.** Sample Space

The sample space of the TI index consists of blockchain projects that meet all the following conditions:

- ☐ Platform projects that have been crowdfunded for more than 2 months, or blockchain projects with an average daily market value ranking in the top 10 since their crowdfunding;
- ☐ Excludes projects with a rating lower than B grade, according to TokenInsight Risk Ratings;
- ☐ Platform projects with trading volume not overly concentrated or dedicated to a single exchange;
- ☐ The price of a project Token freely floating and there are no obvious abnormal fluctuations;
- ☐ Excludes other projects that the index committee has determined should be excluded.

# **3.** Sampling

In order to ensure that the index has high market representation and good investment value, the TI index has selected 30 projects with large scale and high liquidity qualities as samples. The sampling method is as follows:

□ Calculate the Average Daily Traded Volume (ADTV) and Average Daily Liquidity Market Capitalization (ADLMC) of all blockchain projects within our determined sample space within the last month;

□ Sort the projects in the sample space by ADTV and ADLMC from highest to lowest, and then exclude the projects that are in the bottom 25% in both criteria;

□ Sort the remaining projects from highest to lowest by their market capitalization in the last month and select the top 30 projects as samples.

# 4. Index Calculation

The TI index is measured in "points" and is accurate to 2 digit spaces after the decimal point.

## 4.1 Base Date and Base Period

The TI index uses 8:00 AM GMT, 15 April 2018 as the base date; 1000 points as the base point; and adjusted liquidity market capitalization of 30 component Tokens on base date as the base period.

## 4.2 Index Calculation Methodology

TI index is calculated by Laspeyre's Weighted Composite Price Index Formula. The formula is as follows:

$$TI = \frac{\text{adjusted liquidity market capitalization of component token}}{\text{base period}} \times 1000$$

The adjusted liquidity market capitalization equals the product of the market price of one specific token and its adjusted liquidity. Besides, the base period is also called the divisor. Given that each token is circulated on

many exchanges and its concentration is diversified, the market price is thus calculated through a weighted method. The ratio, being the market capitalization of each exchange to the total market capitalization, is used as the weighted coefficient.

Since the liquidity of one specific token may change frequently, TokenInsight Inc. uses adjusted liquidity to calculate its TI index in order to maintain a moderate stance. The adjusted liquidity is the on the latest index modified on that day and is update with index modification.

When there are changes on the component list, or from non-trading factors such as adjusted liquidity, TokenInsight Inc. uses *the divisor modification approach* to modify the old divisor to guarantee the continuity of its TI index. Details are described in section 5 of the *index modification chapter*.

## 4.3 Real-time Index calculation

The TI index is calculated in real time, with real-time transaction prices and data for component projects coming from the tokenin.io website.

This is done by recalculating the index once per second since its base date.

When an unusual situation occurs on the exchange, TokenInsight Inc. will continue to calculate the index depending on the situation that has taken into place.

# **5.** Index Modification

When a change in the list of component Tokens or a change in the adjusted liquidity market of such Tokens caused by non-trading factors take place, TI index will use *the divisor modification approach* to

restructure the original divisor in order to guarantee the continuity of TI index.

## 5.1 Correction Formula

TI index will use the *the divisor modification approach* to modify, the modified formula as follows:

$$\frac{\text{Adjusted liquidity market capitalization prior to modification}}{\text{old divisor}} = \frac{\text{Adjusted liquidity market capitalization after modification}}{\text{new divisor}}$$

The adjusted liquidity market capitalization after modification equals the sum of the adjusted liquidity market capitalization prior to modification and the newly increased (decreased) adjusted liquidity market capitalization.

Hence, the new divisor can be obtained from this formula (that is, the divisor after modification, also known as the new base period) and future indexes will be calculated based on this change.

## 5.2 Situations Need to be Corrected

☐ Adjustment: When the periodic or temporary adjustment of the index sample project takes effect, the index will be corrected before the effective date;

☐ Security Issues: When a sample project continues to encounter hacker attacks, other security problems, zero value, or is prohibited by law from trading, it will be removed from the sample pool. And then we will reorder all blockchain projects by market value before placing them into the pool.

# **6.** Periodic Review of Component Projects

The TI index reviews the components of each project every 1 month in accordance with the principle of combining sample stabilization and dynamic tracking and adjusts are made to the index component projects according to its relevant results.

## 6.1 Review Time

The TokenInsight index committee generally meets on the first Monday of each month to review the TI index, and adjusts the sample projects on the second Monday if needed.

## 6.2 Reference for Review

The reference for reviewing sample projects on the first Monday of each month is generally based on trade data from the first Monday of the previous month to the day before the first Monday of the review month (new issues are subject to issue date).

## 6.3 Sample Adjustment

The percentage of each adjustment of index samples will not exceed 20%.

## 6.4 Buffer Principle

In order to effectively reduce the turnover rate of index sample projects, the TI index adopts the buffer rule during its periodic adjustment: new samples in the top 24 are given priority to be included in the index, and old samples in the top 36 are preferred to be retained.

## 6.5 List of Alternatives

The TI index sets up a list of alternative projects to deal with temporary

adjustments that occur between periodic adjustments. For details, see section 8 on *Alternative List of Component Projects.*

# 7. Temporary Adjustment of Component Projects

TokenInsight Inc. will make necessary adjustments to the TI index when there are special events in   component projects that affect the representativeness and investment value of each index. These events include, but are not limited to: token spliting, delisting, etc.

In general, TokenInsight Inc. will publish a sample project adjustment list as early as possible before the adjustment.

## 7.1 Component token split

When component tokens are splited, the original price can be calculated by using the current token price and the split ratio. Adjusted liquidity market capitalization will be calculated in the light of original price and updates will occur in the index modification. When it comes to re-sampling and sorting, the splited token will become involved with its corresponding daily average through liquid market capitalization.

## 7.2 Trade Suspension Policy

Exchanges might collectively suspend the trading of a given token in anticipation of a hard fork or for some other reason. For the purposes of calculating the index, it will be assumed that the last composite price remains unchanged until trading resumes.

If the suspension continues for more than 14 days or in the event of delisting from exchanges, then we will remove the token from the index during next rebalancing, and the vacancies will be filled by top-ranked projects on the alternative list.

## 7.3 Security Issues of Component Projects

☐ Persistent hacking attacks or other security concerns: component projects with the problem will be removed from samples, and the vacancies will be filled by the top-ranked projects on the alternative list.

☐ Its value goes to zero or its transactions are prohibited by law: component projects with the problem will be removed from samples, and the vacancies will be filled by the top-ranked projects on the alternative list.

## 7.4 Force Majeure

In cases of acts made by those of governmental authority, or due to war, riot, natural disaster, or other cause beyond the reasonable control of TokenInsight inc., the indexing will continue as usual unless it is technically impossible to perform.

## **8.** Alternative List of Component Projects

In order to improve predictability and transparency, the TI index sets up a list of alternative projects to deal with temporary adjustments that occur between periodic adjustments.

☐ We will set up an alternative list when we regularly adjust samples. The number of projects in the alternative list is generally 20% of the number of index samples, and the TI index sets up 6 alternative component projects.

☐ When a sample vacancy occurs for reasons such as delisting or other reasons, we will select the top-ranked projects in the alternative list as index samples.

□ When the number of projects in the alternative list is more than half used, TokenInsight Inc. will update and announce a new list in a timely manner.

# 9. Index Maintanance

## 9.1 Index Committee

In order to standardize the operation of the index and use scientific and authoritative methods to compile the TI index, TokenInsight Inc. has set up an index committee, which is composed of experts and well-known scholars in index compilation, index investment, market researchon international levels.

□ The Index Committee is responsible for assessing, advising, and reviewing the compiling of the TI Index, ensuring that scientific and authoritative methods are used; evaluating the qualifications of the index sample projects to ensure that the requirements of the rules are met; and advising on other matters concerning the operation and development of the Index.

□ In general, the TI Index Committee shall meet regularly once a month or as required. Each meeting shall be attended by more than half of the experts. Decisions shall be made by a collective vote of the Committee and shall be valid only with the consent of more than two thirds of the experts present.

□ The relevant resolutions of the Committee are issued on behalf of TokenInsight Inc..

□ The members of the Index Committee are appointed by TokenInsight Inc. and may, in principle, be renewed every two years. The Committee shall have a Chairman, who shall preside at

the meetings and shall form the resolutions of the meetings.

## 9.2 Secretary of the Index Committee

The index committee has a secretary who is responsible for connecting with members, preparing materials for meetings, chairing meetings, and promoting the implementation of relevant resolutions.

## 9.3 TokenInsight Inc.

TokenInsight Inc. is responsible for the operation of the TI Index; for the maintenance, management, and servicing of the Index in accordance with the rules; and for the implementation of relevant resolutions of the Index Committee.

# 10. Revision and Supplement of Index Rules

Based on market changes and user feedback, when the index committee or TokenInsight Inc. becomes aware of the need to revise or supplement the index rules, it must be discussed and decided by the index committee.

- □ Any changes to the index rules must be discussed and decided through the index committee.
- □ When the conditions for a meeting are not met, a vote may be taken through communications, and any change in the rules may be approved only with the consent of at least two thirds of the members.
- □ Adjustments to index rules must be announced in advance.

# 11. Disclosure of Information

In order to guarantee the objectivity, neutrality, authority, transparency, openness, and fairness of the index, TokenInsight Inc. has established a strict information disclosure system.

☐ Before any information is publicly disclosed, no one, including members of the index team and the index committee, may privately disclose it to the outside world or give private interviews to the media.

☐ The media for information disclosure includes, but is not limited to, the TokenInsight website (tokenin.io) and other strategic media partners.

☐ The results of periodic review of samples are generally announced 3 days in advance; adjustment plans for samples are announced as far in advance as possible; and major adjustments to index compilation and maintenance rules are generally announced 3 days in advance.

# 12. Index Release

## 12.1 Channels

The TI Index is widely distributed in various forms at home and abroad.

☐ Real-time index release via TokenInsight website (www.tokeninsight.com);

☐ Instant global release via TokenInsight Inc. strategic media partners;

☐ Daily reports via strategic media partners.

## 12.2 Frequency

The TI index is calculated and distributed in real time, the current calculated frequency is once per second, and the index quotes are updated every minute.

# Appendix A: Glossary

1. Blockchain: It is a new application mode of computer technology, such as distributed data storage, point-to-point transmission, consensus mechanism, encryption algorithm, etc. Consensus mechanism refers to the algorithm of building trust and obtaining benefits among different nodes in a blockchain system.

2. Token: Token is one of the most important concepts in blockchain technology, and it is more accurately translated by professionals as "tongzheng" than "daibi", representing a certificate of interest on the blockchain rather than a kind of currency.

3. Fork: In a blockchain, miners dig out blocks and link them to the main chain. Typically, only one block appears at a time. If two blocks are generated at the same time, two blockchains of the same height, with the same transaction information, but with different signatures from miners, or with different transaction sequences, are called a fork.

4. Crowdfunding: ICO, refers to blockchain projects initial public issue tokens to raise Bitcoin, Ethereum and other general cryptocurrency.

# Appendix B: Explanation of Index Calculation

Assuming that we choose 3 platform projects as component projects to calculate the index and use the adjusted liquidity market capitalization of projects on base day as base value.  Basic point index is set to be 1000 points.

✓ Index under normal calculation (when no need for correction)

Base Day

| Token | Market Price(USD) | Liquidlity | Liquidity Market Capitalization | Adjusted Liquidity | Adjusted Liquidity Market Capitalization |
|-------|-------------------|------------|----------------------------------|--------------------|-------------------------------------------|
| A | 80 | 2,000 | 160,000 | 2,000 | 160,000 |
| B | 5 | 5,000 | 25,000 | 5,000 | 25,000 |
| C | 0.3 | 10,000 | 3,000 | 10,000 | 3,000 |
| | | | | Total | 188,000 |

Calculation of Index

| Total Adjusted Liquidity Market Capitalization | Base Date | Base Point | TI Index |
|------------------------------------------------|-----------|------------|----------|
| (1) | (2) | (3) | (3)×(1)/(2) |
| 188,000 | 188,000 | 1000 | 1000 |

The First Day

| Token | Market Price(USD) | Liquidlity | Liquidity Market Capitalization | Adjusted Liquidity | Adjusted Liquidity Market Capitalization |
|-------|-------------------|------------|----------------------------------|--------------------|-------------------------------------------|
| A | 85 | 2,100 | 178,500 | 2,000 | 170,000 |
| B | 6 | 5,200 | 31,200 | 5,000 | 30,000 |

| | | | | | |
|---|---|---|---|---|---|
| C | 0.9 | 11,000 | 9,900 | 10,000 | 9,000 |
| | | | Total | | 209,000 |

## Calculation of Index

| Total Adjusted Liquidity Market Capitalization | Base Date | Base Point | TI Index |
|---|---|---|---|
| (1) | (2) | (3) | (3)×(1)/(2) |
| 209,000 | 188,000 | 1000 | 1111.70 |

✓ Adjustment of sample project:

Remove project C from sample and add project D to the sample.

| Token | Market Price(USD) | Liquidlity | Liquidity Market Capitalization | Adjusted Liquidity | Adjusted Liquidity Market Capitalization |
|---|---|---|---|---|---|
| A | 85 | 2,100 | 178,500 | 2,100 | 178,500 |
| B | 6 | 5,200 | 31,200 | 5,200 | 31,200 |
| D | 2 | 8,000 | 16,000 | 8,000 | 16,000 |
| | | | | Total | 225,700 |

## Correction of Index

| Adjusted Liquidity Market Capitalization Prior to Modification | Adjusted Liquidity Market Capitalization After Modification | Old Divisor | New Divisor |
|---|---|---|---|
| (1) | (2) | (3) | (3)×(2)/(1) |
| 209,000 | 225,700 | 188,000 | 203,022.01 |

## The Second Day

| Token | Market Price(USD) | Liquidlity | Liquidity Market Capitalization | Adjusted Liquidity | Adjusted Liquidity Market Capitalization |
|---|---|---|---|---|---|

| Token | Market Price(USD) | Liquidity | Liquidity Market Capitalization | Adjusted Liquidity | Adjusted Liquidity Market Capitalization |
|---|---|---|---|---|---|
| A | 90 | 2,200 | 198,000 | 2,100 | 189,000 |
| B | 7 | 5,400 | 37,800 | 5,200 | 36,400 |
| D | 1.5 | 8,200 | 12,300 | 8,000 | 12,000 |
| | | | | Total | 237,400 |

Calculation of Index

| Total Adjusted Liquidity Market Capitalization | Base Date | Base Point | TI Index |
|---|---|---|---|
| (1) | (2) | (3) | (3)×(1)/(2) |
| 237,400 | 203,022.01 | 1000 | 1169.33 |

The Third Day

✓ Component token splits

One Token A split to one hundred Token E.

| Token | Market Price(USD) | Liquidlity | Liquidity Market Capitalization | Adjusted Liquidity | Adjusted Liquidity Market Capitalization |
|---|---|---|---|---|---|
| E | 0.8 | 230,000 | 184,000 | 0 | 0 |
| B | 6 | 5,600 | 33,600 | 5,200 | 31,200 |
| D | 1.2 | 8,400 | 10,080 | 8,000 | 9,600 |

According to the market price of E, the market price A could be calculated. The market price of A=100 ×the market price of E：

| Token | Market Price(USD) | Liquidlity | Liquidity Market Capitalization | Adjusted Liquidity | Adjusted Liquidity Market Capitalization |
|---|---|---|---|---|---|
| A | 80 | 0 | 184,000 | 2,100 | 168,000 |
| B | 6 | 5,600 | 33,600 | 5,200 | 31,200 |

| | | | | | |
|---|---|---|---|---|---|
| D | 1.2 | 8,400 | 10,080 | 8,000 | 9,600 |
| | | | | Total | 208,800 |

## Calculation of Index

| Total Adjusted Liquidity Market Capitalization | Base Date | Base Point | TI Index |
|---|---|---|---|
| (1) | (2) | (3) | (3)×(1)/(2) |
| 208,800 | 203,022.01 | 1000 | 1028.46 |

# Contact Information

For detailed information on the TI Index, please contact TokenInsight Inc..

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