

# BETA FT SMART TRANSPORTATION INDEX

## GUIDLINE

**BETA**  
FINANCIAL TECHNOLOGIES

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## 1 INDEX INTRODUCTION

This document (the “Guideline”) is to be used as a guideline with regard to the composition, calculation and maintenance of the BFTST Index - Beta FT Smart Transportation Index (the “Index”). **The Index is calculated, administered and published by Beta Financial Technologies (“BFT”) assuming the role as index administrator (the “Index Administrator”) and Calculation Agent (the “Index Calculation Agent”).** The Index is designed to measure and exploit advantages of investment into companies focused on disruption technologies and business models in transportation industry. Index use innovative selection and weighting mechanisms. Portfolio Selection is done through text analysis of regulatory filings and company reports along with scoring momentum effect of each stock.

The BFTST Index (“Index”) is a USD (the “Index Currency”) denominated index that uses a rule-based, quantitative, long only asset allocation strategy index.

The Index rebalances quarterly over five Index Business Days between Index Selection Date and Index Rebalancing Day

## 2 TERMS AND DEFINITIONS

For the purposes calculation of the Beta FT Smart Transportation Index Methodology (the "Methodology"), BFT uses the following terms and definitions:

<b>Universe</b>	the list of stocks established by Index Calculation Agent that participates in Index calculation process, and Universe;
<b>Base Universe</b>	is comprised of all stocks which fulfil the Index Universe Requirements set out in Section 2.1 and updates quarterly;
<b>Universe Formation Day</b>	the day, on which the data is collected for the following Universe formation.
<b>Stocks</b>	Securities that signify proportionate ownership in the issuing corporation. This entitles the stockholder to that proportion of the corporation's assets and earnings;
<b>Closing price</b>	the price of a security at the end of the day's business on an Exchange;
<b>Trading day</b>	each day that is Index Business Day in respect of all Index Components presented in the Index;
<b>Exchange</b>	is with respect to the Index and every Index Component, the respective Exchange where the Index Component has its primary listing;
<b>Index</b>	measure that consists of weighted values of the Index Components that

	make up based on guideline and policies;
<b>Index Business Day</b>	each day when all Exchanges are open for business in (USA, New York);
<b>Index Component</b>	each security reflected in the Index;
<b>Index Selection Date</b>	on Selection Day index composition and weights are revised, Index Selection Date k is 15 <sup>th</sup> Index Business Day (IBD) of each quarter
<b>Index Rebalancing Date</b>	20 <sup>th</sup> Index Business Day of quarter which is 5 <sup>th</sup> days after Index Selection Day (k+5) such that all Exchanges are open for business in (USA, New York);
<b>The Index Level</b>	is the closing level of the Index in respect of the relevant Index Business Day
<b>Index Basket</b>	all financial securities presented in the Index after selection date
<b>Basket Cap</b>	is in respect to an Index Component the upper percentage weight of Industry Portfolio in the Index
<b>Initial Start Date (<math>t_0</math>)</b>	28 January 2016
<b>Index Start Level</b>	100
<b>Created and live from</b>	15th July 2021

2.1 The index calculated in accordance with this Methodology has the following names and codes:

Ticker	Name	RIC	ISIN	Currency	Rebalancing
BFTST30	Beta FT Smart Transportation Index	.BFTST30		USD	Quarterly

2.2 Terms not specifically defined in this Methodology shall be used in meanings established by other internal documents of the Exchange, as well as laws and other regulatory acts of the Bank of Russia.

2.3 This Methodology, as well as all amendments and supplements thereto, are approved by the BFT and become effective on a date determined by the company. Amendments and additions to the Methodology may be made no more than once a quarter.

### 3 INDEX UNIVERSE REQUIRMENTS AND ADJUSTMENTS

Each Industry Portfolio weight is subject to an “Basket Cap” to a “Basket Floor”. Each Industry Component is subject to an Index Component Cap and Floor. The Caps and Floors have been

chosen to allow the Index to allocate across the different Industry Portfolios with conviction while aiming to be diversified. Note that Index Components within each Industry Portfolio are equally weighted. The sum of all Index Component weights within each Industry Portfolio as well as the sum of all Industry Portfolios weights should equal to 100%.

### 3.1 INDEX UNIVERSE REQUIREMENTS

3.1.1 The Companies' with listing on USA exchanges

3.1.2 Stock price of the issuer:  $\geq 5$  (USD)

3.1.3 Stock Average Daily Trading Volume (ADTV) for last 20 days  $\geq 10$  mln. (USD)

3.1.4 Market capitalization of the issuer:  $\geq 2.5$  bn. (USD)

3.1.5 For companies with more than one share line, only the share line with prime equity listing (determined by Factset Inc) Market Capitalisation as of the Selection Day is included in the Index Universe

3.1.6 Description of Index Components Business Activity that the Index can select from **Table (2.1)**:

**Table 2.1 Business activity description for the NLP analysis**

#	Business activity related to transportation
1	Systems, platforms, and related sub-components that intelligently and predictively manage and optimize fleets of vehicles for the transportation of passengers and/or goods.
2	Safety systems and semiconductors for automotive industry and cars, drones and vehicles
3	The manufacturers of autonomous vehicles and related connectivity capabilities.
4	Software and components that facilitate full or partial autonomy, including interfacing with other autonomous vehicles or infrastructure, or related



	connectivity capabilities.
<b>5</b>	Active driver assistance systems that provide state of the art autonomous safety (collision prevention), driver monitoring and object recognition technology.
<b>6</b>	Sensors (e.g. distance measurement, cameras, etc.) that are used for object and collision detection systems, such as traffic sign or pedestrian recognition.
<b>7</b>	Navigation and information systems that enhance a vehicle's autonomy
<b>8</b>	Companies that manufacture electric road vehicles.
<b>9</b>	Electric vehicle powertrain systems, motors, and other major subsystems.
<b>10</b>	Producers of electric vehicle energy storage systems and related management systems, as well as zero-emission clean fuel technology systems, such as hydrogen fuel cells.

3.1.7 Beta FT proprietary NLP model is analysing companies profile description and filings through an automated scan of the EDGAR database of annual company-issued filings, specifically: 10-Ks; 20-Fs; 40-Fs; and S-1 filings and Factset data with company description. The scan searches the most recent filing for companies and identifies documents that discuss the search terms in: Chapter 1 (Business) or Chapter 7 (Management's Discussion and Analysis) of its most recent Form 10-K, Chapter 4 (Information on the Company) of its most recent Form 20-F. If a company has not filed an annual report, the business summary of its most recent S-1 filing is used. The words within a search term may be separated by punctuation, such as a hyphen, but must otherwise be adjacent. Only the securities of those companies identified in this step qualify for inclusion in the universe of eligible securities. Securities that do not include in Item 1 (Business) or Item 7 (Management's Discussion and Analysis) of its most recent Form 10-K, Item 4 (Information on the Company) of its most recent Form 20-F.

3.2 The determination of the Universe is fully rule-based and the Calculation Agent cannot make any discretionary decisions

- 3.3 The Base Universe is updated annually to consider any material changes including corporate events and IPOs
- 3.4 The Stocks are included in the Index and excluded from the Index during quarterly Index rebalancing
- 3.5 Calculation Agent calculates its indices following predefined algorithm of actions described in Index Management Policy and Corporate Actions Policy.

#### 4 INDEX CALCULATION

##### 4.1 Index Basket Selection

Each Index Basket is combined from TOP-30 companies with highest BFT Momentum Factor Index (BMF) which select highest momentum stocks and refine from overbought high volatility stocks according to Money Flow Index.

##### 4.2 BFT Momentum Factor Index (BMF) Construction

BFT The Momentum Factor Index (BMF) measure strength of the stock price growth. The closer price historical path to the exponential function the higher is Momentum Factor value.

MF of each i - Component is a mean from 181 and 365 Index Business Days Momentum Score (MS)

$$(1.1) \quad MF_{i,t} = \frac{1}{2} * MS_{i,t,t-181} + \frac{1}{2} * MS_{i,t,t-365}$$

$MS_{i,t,t-181}$  Momentum Score of i- Component on 181 Index Business Days from day t

$MS_{i,t,t-365}$  Momentum Score of i- Component on 365 Index Business Days from day t

$$(1.2) \quad MS_{i,t,t-T} = (1 + \beta_{i,t,t-T})^{252} * R_{i,t,t-T}^2$$

*With following constraint: for each i-component,*

if Volatility Score ( $VS_{i,t,t-50}$ ) is higher/less than  $\pm 2$  Standard Deviation

and

During observation period 365 days Money Flow Index ( $MFI_{i,t,t-365}$ )  $> 80$  later than  $MFI_{i,t,t-365} < 20$  than for all such Index Components:

$$MS_{i,t,t-T} = 0$$

$\beta_{i,t,t-T}$  slope coefficient from linear regression i-Component from linear regression specified below

$R^2_{i,t,t-T}$  is the coefficient of determination of i-Component from one factor the linear regression specified below

$T$  time horizon, equal 181 or 365 Index Business Days

Linear regression or Price and monotone growing function to determine strength of momentum through coefficient  $\beta_{i,t}$ .

$$(1.3) \quad y_{i,t} = \alpha_{i,t} + \beta_{i,t} * x_t$$

Where ,  $y_{i,t} = \ln(P_{i,t})$  and  $X = \{0,1,2,3 \dots\}$

$y_{i,t}$  logarithm of price of i-Component

#### Volatility Score (VS) calculation

$$(1.4) \quad VS_{i,t,t-50} = (P_{i,t} - \bar{P}_{i,t,t-50}) / \sigma_{i,t,t-50}$$

$\bar{P}_{i,t,t-50}$  average price of i- Component on 50 days' horizon from day t

$\bar{P}_{i,t}$  price of i - Component at day t

$\sigma_{i,t,t-50}$  standard deviation of price of i - Component on 50 days' horizon from day t

#### Money Flow Index (MFI) calculation

$$(1.5) \quad MFI_{i,t,t-14} = \frac{\text{Positive Money Flow (PMF)}_{i,t,t-14}}{\text{Negative Money Flow (NMF)}_{i,t,t-14} + \text{Positive Money Flow (PMF)}_{i,t,t-14}}$$

$$(1.6) \quad \text{Money Flow}_{i,t} = \text{typical price}_{i,t} * \text{volume}_{i,t}$$



$$(1.7) \text{ typical price}_{i,t} = \frac{\text{Price}_{i,t}^{\text{day high}} + \text{Price}_{i,t}^{\text{day low}} + \text{Price}_{i,t}^{\text{day close}}}{3}$$

$$(1.8) \text{ Positive Money Flow (PMF)}_{i,t,t-14} = \sum_{t-14}^t \text{ Money Flow}_{i,t}$$

Where,

Money Flow<sub>i,t</sub> is Positive if typical price<sub>i,t</sub> > typical price<sub>t-1</sub>

Money Flow<sub>i,t</sub> is Negative if typical price<sub>i,t</sub> < typical price<sub>t-1</sub>

## 5 Index Level calculation

### Net Index Level calculation

In respect to each Index Business Day t following the Index Start Day other than a Rebalancing Date Net Index Level is calculated according to formula

$$NI_o = 100$$

$$(1.9) NI_t = NI_{t-1} * \left(1 + \left(\frac{PRI}{PRI_{t-1}} - 1\right) + \sum_{j=1}^N w_{j,t} * D_{j,t}\right)$$

**NI<sub>t</sub>** Net Index Level at Index Business Date t

**NI<sub>t-1</sub>** Net Index Level at Index Business Date t-1

**PRI<sub>t</sub>** Price Return Index level at Index Business Date t

**PRI<sub>t-1</sub>** Price Return Index level at Index Business Date t-1

**D<sub>j,t</sub>** net dividend yield of Index Component j at Index Business Date t

**w<sub>j,t</sub>** weight of Index Component j in the Index at Index Business Date t

1.1 Dividends are reinvested into entire index. Please refer to Dividends Reinvestment policy on [website](#)

**Weight of Index Component at any date in the Index formula:**

$$(1.10) w_{j,t} = \frac{PR_{j,t}}{PR_{j, Sel(k)+5}}$$

**PR<sub>j,t</sub>** Level of Price Return of Index Component j at Index Business Date t

**PR<sub>j, Sel(k)+5</sub>** Level of Price Return of Index Component j 5 Index Business Days

After Index Selection Date k

**Net dividend yield formula:**

$$(1.11) D_{j,t} = DivCash_{j,t} * \frac{1 - TaxRate_j}{P_{j,t-1}}$$

**$P_{j,t-1}$**  Closing Price level of Index Component j at Index Business Date t-1

**$DivCash_{j,t}$**  cash dividend paid by Index Component j at Index Business Date t

**$TaxRate_j$**  Withholding Tax Rate for the Index Component j in compliance with [Dividends Reinvestment Policy](#)

**Price Return of Index Component calculation formula:**

$$(1.12) PR_{j,t} = PR_{j,t-1} * (1 + (\frac{CCL_{j,t}}{CCL_{j,t-1}} - 1))$$

**$PR_{j,t-1}$**  Level of Price Return of Index Component j at Index Business Date t-1

**$CCL_{j,t}$**  Index Component j closing level at Index Business Date t

**$CCL_{j,t-1}$**  Index Component j closing level at Index Business Date t-1

**Index Component Closing Level formula:**

$$(1.13) CCL_{i,t} = P_{i,t} * FX_t$$

**$CCL_{i,t}$**  Index Component i closing level in at Index Business Date t

**$P_{i,t}$**  Price of Index Component i in local currency at Index Business Date t

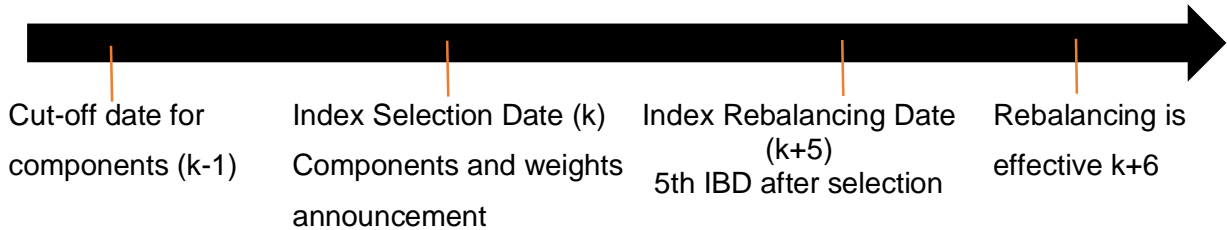
**$FX_t$**  FX closing rate from local index component currency into USD in accordance to section Terms and Definitions

## 6 REBALANCE

### 6.1 Index Review

The Index Components and weighting are reviewed on a regular basis to ensure a transparent and up-to-date index basket. The actual implementation (“the rebalancing”) is usually conducted at

20th Index Business Day of quarter. Index Rebalancing Date is in 5 Index Business Days after Index Selection Date k. For quarters Calculation agent use March, June, September and December convention.



6.2 On each Index Selection Date Calculation Agent will revise the composition and weights of Index Components. The selection of the Index Components is fully rule-based and the BFT has no discretion.

6.3 Index Rebalancing Date is the day 5 Index Business days after Index Selection Date

6.4 For each Index Component and each Observation Period, the following will be computed on the quarterly Selection Date Sel(k)

**Weighting through momentum optimisation**

6.5 On Rebalancing Date k and the optimiser weighting Index Components such that the Components with higher momentum will have higher weight. The Weight of each Index Component is capped by 15%

**Weight calculation**

For the each i Index Component its weight calculated based on its momentum value

$$(1.14) w_{i,k-1} = \frac{FinM_{i,k-1}}{\sum_i^{N_{k-1}} FinM_{i,k-1}}, \text{ such that } \sum_i^N w_{i,k-1} = 100\%$$

$N_{k-1}$  Number of Index Components at the Index rebalancing

$FinM_{i,k-1}$  Final Momentum Value at the Index rebalancing

$$(1.15) FinM_{i,k-1} = \begin{cases} 1 + NormM_{i,k-1}, & \text{If } NormM_{i,k-1} \geq 0 \\ \frac{1}{1 - NormM_{i,k-1}}, & \text{If } NormM_{i,k-1} < 0 \end{cases}$$

$NormM_{i,k-1}$  Normalised Momentum Value at the Index rebalancing

$$(1.16) \text{Norm}M_i = \begin{cases} 3, & \text{If } ZvalM_{i,k-1} \geq 3 \\ -3, & \text{If } ZvalM_{i,k-1} < -3 \\ ZvalM_{i,k-1} & \end{cases}$$

$ZvalM_{i,k-1}$  Z-value Momentum of i-Index Component at the Index rebalancing

$$(1.17) ZvalM_{i,k-1} = \frac{(MF_{i,k-1} - \overline{MF}_{k-1})}{\sigma(MF_{k-1})}$$

$MF_{i,k-1}$  BFT The Momentum Factor Index at the Index rebalancing

$$(1.18) \sigma(MF_{k-1}) = \sqrt{\frac{\sum_i^{N_{k-1}} (MF_{i,k-1} - \overline{MF}_{k-1})^2}{N_{k-1} - 1}}$$

$N_{k-1}$  Number of Index Components at the Index rebalancing

$$(1.19) \text{Where, } MF_{i,k-1} = \frac{1}{2} * MS_{i,k-1,k-182} + \frac{1}{2} * MS_{i,k-1,k-366}$$

$MS_{i,k-1,k-182}$  Momentum Score of i- Component on 181 Index Business Days from day k-1

$MS_{i,k-1,k-366}$  Momentum Score of i- Component on 365 Index Business Days from day k-1

$$(1.20) \overline{MF}_{k-1} = \frac{\sum_i^N MF_{i,k-1}}{N_{k-1}}$$

$N_{k-1}$  Number of Index Components at the Index rebalancing

## 7 INFORMATION DISCLOSURE

7.1 Disclosure of information stipulated by the Methodology is carried out on the page of BFT in the Internet at the address: (hereinafter referred to as the "**official site**") [www.beta-ft.ru](http://www.beta-ft.ru).

7.2 The text of the Methodology is disclosed on the official website one week after it becomes effective, unless otherwise specified by the decision of BFT.

7.3 Information on Index values is disclosed not later than 11:00 A.M. of Moscow time next Trading day.

- 7.4 Information messages about the next revision of the Universe shall be disclosed on the official website one week after the decision of BFT to approve the new Universe comes into effect.
- 7.5 Information messages on the extraordinary revision of the Universe shall be disclosed on the official website one day after the effective date of the decision of BFT to approve the new Universe.
- 7.6 Information subject to disclosure on the official website in accordance with this Methodology may be additionally distributed by other means, including news agencies that distribute data on securities trading on the Exchange.
- 7.7 The application by the Index Calculator of the method described in this document is final and binding. The Index Calculator shall apply the method described above for the composition and calculation of the Index. However, it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require changes to be made to this method. In such cases the BFT may make changes to the terms and conditions of the Index and the method applied to calculate the Index that it deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The Calculation Agent is obliged to provide information on any such modifications or changes to the clients.