



BETA FT INTERNET OF THINGS INDEX

GUIDLINE

BETA

FINANCIAL TECHNOLOGIES

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1 COMPLIANCE STATEMENT

BFT oversight committee approved BFTUT Index rules changes and backtest update 11th October 2021.

Following changes took place: RV formula page 8 has been changed to 252 days' convection. Interest rate on page 9. has been changed to 3MLibor.

Since the Libor index is no longer calculating, 3Month Libor rate in BFTUT Index is calculated according to the following formula:

$$\text{3MLibor (BBG Ticker US0003M)} = \text{The Secured Overnight Financing Rate (SOFR)} + 0.26161\%.$$

2 INDEX INTRODUCTION

This document (the "Guideline") is to be used as a guideline with regard to the composition, calculation and maintenance of the BFTUT Index - Beta FT Internet of Things 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 BFTUT Index ("Index") is a USD (the "Index Currency") denominated index that uses a rule-based, quantitative, long only asset allocation strategy index. The Index is Target Volatility momentum based Index, it dynamically allocates across a diversified 16 Industry Portfolios. Each Industry Portfolio consist of up to 5 equally weighted Stock (the "Index Component"). Each Index Component is part of an Industry Portfolio. The weight of each Industry Portfolio is subject to a Basket Cap and a Basket Floor. The Index rebalances quarterly. The Index is Target Volatility with Synthetic Dividends and reflects the weighted performance of the Index Components.

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

1 TERMS AND DEFINITIONS

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

Universe the list of stocks established by Index Calculation Agent that participates in

	Index calculation process, and Universe. The Universe is limited by Stocks listed on SPB and MOEX exchanges as of since 01 January 2021.
Base Universe	is comprised of all stocks which fulfil the Index Universe Requirements set out in Section 2.1 and updates quarterly
Universe Formation Day	the day, on which the data is collected for the following Universe formation.
Stocks	Securities that signify proportionate ownership in the issuing corporation. This entitles the stockholder to that proportion of the corporation's assets and earnings;
Closing price	the price of a security at the end of the day's business on an Exchange;
Trading day	each day that is Index Business Day in respect of all Index Components presented in the Index
Exchange	is with respect to the Index and every Index Component, the respective Exchange where the Index Component has its primary listing
Index	measure that consists of weighted values of the Index Components that make up based on guideline and policies
Index Business Day	each day when all Exchanges are open for business in (USA, New York), Western Europe (Germany, Frankfurt)
Index Component	each security reflected in the Index
FX rates	the fixed foreign exchange rates provided by the WM/Reuters Closing Spot Rates, taken at 4PM London time (WM Company) – for further information refer to Reuters or Bloomberg pages
Index Selection Date Sel	on Selection Day index composition and weights are revised, Index Selection Date k is 15 th Index Business Day (IBD) of each quarter
Index Rebalancing Date	20 th Index Business Day of quarter which is 5 th days after Index Selection Day (k+5) such that all Exchanges are open for business in (USA, New York), Western Europe (Germany, Frankfurt)
The Index Level	is the closing level of the Index in respect of the relevant Index Business Day
Index Basket	all financial securities presented in the Index after selection date
Basket Cap	is in respect to an Index Component the upper percentage weight of Industry Portfolio in the Index
Basket Floor	is in respect to an Index Component the lower percentage weight of Industry Portfolio in the Index

Industry Portfolio Index Components which belong to the same industry in respect of Factset Industry Classification

Industry Basket Group of Industry Portfolios specified in the table in Section 2.1

Index Industry Universe stocks used in Index Base Universe are from industries see **Table (1.1)**

S	Industry	Sector
1	Information Technology Services	Technology Services
2	Packaged Software	Technology Services
3	Internet Software/Services	Technology Services
4	Cable/Satellite TV	Consumer Services
5	Internet Retail	Retail Trade
6	Major Telecommunications	Communications
7	Medical Specialties	Health Technology
8	Major Banks	Finance
9	Aerospace & Defense	Electronic Technology
10	Precious Metals	Non-Energy Minerals
11	Semiconductors	Electronic Technology
12	Telecommunications Equipment	Electronic Technology
13	Electrical Products	Producer Manufacturing
14	Electronics/Appliances	Consumer Durables
15	Movies/Entertainment	Consumer Services
16	Auto Parts: OEM	Producer Manufacturing

Initial Start Date 27 April 2016

Index Start Level 150

Created and live from 15th May 2021

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

Ticker	Name	RIC	ISIN	Currency	Rebalancing
BFTUT	Beta FT Internet of Things Index	.BFTUT	RU000A103EG7	USD	Quarterly
BUTPR	Beta FT Internet of Things Index Price Return	.BUTPR	RU000A103UW0	USD	Quarterly
BUTNTR	Beta FT Internet of Things Index Net Total Return	.BUTNTR	RU000A103UV2	USD	Quarterly
BUTGTR	Beta FT Internet of Things Index Gross Total Return	.BUTGTR	RU000A103UU4	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’ countries of domicile are: North America (USA), Western Europe (Germany)

3.1.2 Stock price of the issuer: > 5 (USD)

3.1.3 Stock Average Daily Trading Volume (ADTV) for last 20 days > 50 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 that the Index can select from **Table (2.1)**:

Ind code	s	Industry	Sector	# Stocks	Max weight	Min weight
3308	1	Information Technology Services	Technology Services	5	50%	2.5%
3310	2	Packaged Software	Technology Services	5	50%	2.5%
3320	3	Internet Software/Services	Technology Services	5	50%	2.5%
3415	4	Cable/Satellite TV	Consumer Services	5	50%	2.5%
3550	5	Internet Retail	Retail Trade	5	50%	2.5%

4905	6	Major Telecommunications	Communications	5	50%	2.5%
2325	7	Medical Specialties	Health Technology	5	50%	2.5%
4805	8	Major Banks	Finance	5	50%	2.5%
1330	9	Aerospace & Defense	Electronic Technology	5	60%	2.5%
1120	10	Precious Metals	Non-Energy Minerals	5	50%	2.5%
1305	11	Semiconductors	Electronic Technology	5	50%	2.5%
1320	12	Telecommunications Equipment	Electronic Technology	5	60%	2.5%
1235	13	Electrical Products	Producer Manufacturing	5	30%	2.5%
1425	14	Electronics/Appliances	Consumer Durables	5	50%	2.5%
3430	15	Movies/Entertainment	Consumer Services	5	60%	2.5%
1225	16	Auto Parts: OEM	Producer Manufacturing	5	50%	2.5%

- 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

The Index allocates dynamically across the 16 different Industry Portfolios with a maximum of 80 Stocks (each, an “Index Component”). Each Index Component is selected based on Z score, which is a combination of seven fundamental Factors specified in Table 3.2.

The 80 stocks with the highest Z score are selected. 5 stocks from each Industry are selected. If less than 80 stocks are available for selection, all available stocks are retained.

Fundamental factors (Factor) Table (3.2)

i	Factor	α_i Weight of Factor in Z-score
1	Free Cash Flow to Equity (FCFE)	22%
2	Market capitalization (CAP)	26%
3	Debt to Assets (DA)	11%
4	Operating Margin (OM)	9%
5	Price To Book Value	13%

6	Price To Earnings (PE)	9%
7	Price To Sales (PSALES)	10%

4.1 Fundamental Factors data source is Factset Inc Quarter Fundamentals.

4.2 Z score is composed of gathered fundamental Factors:

$$(1.1) \quad Z \text{ score} = \sum_{i=1}^7 \alpha_i * Factor_i$$

Z score Score to rank stocks in each Industry Basket from Universe

Factor_i Stocks fundamental factor i in accordance to Table (3.2)

α_i Weight of i Factor in accordance to Table (3.2)

4.3 Each Industry basket is consisting of maximum 5 and minimum 1 stock with top Z score.

5 Index Level calculation

5.1 The Performance of the Index over the relevant Observation Period is calculated in accordance with the following formula:

$$IndexVT_0 = 100$$

$$(1.2) \quad IndexVT_t = IndexVT_{t-1} \times \left(1 + EXP_{t-1} \times \left(\frac{ERindex_t}{ERindex_{t-1}} - 1 \right) - Syn.Div \times \frac{Nday_{t-1,t}}{365} \right),$$

IndexVT_t Index Level of the BFTUT Index for Index Business Day t

IndexVT_{t-1} Index Level of the BFTUT Index for Index Business Day t-1

EXP_{t-1} Level of the Target Exposure for Index Business Day t-1

ERindex_t Level of the Excess Return Index for Index Business Day t

ERindex_{t-1} Level of the Excess Return Index for Index Business Day t-1

Nday_{t-1,t} Number of calendar days from but excluding Index Business Day t-1 to and including Index Business Date t

Syn.Div Synthetic dividend - 2,5% per annum

Index Target Exposure Calculation

$$(1.3) \quad EXP_t = MIN \left(MAX_{EXP}; \frac{TV}{RVMAX_{t-1}(20d;60d)} \right)$$

$$(1.4) \quad RVMAX_{t-1}(20d;60d) = \text{Max}(RV_{t-1}(20), RV_{t-1}(60))$$

TV target volatility level (10%)

Max EXP 200%

Realized Volatility Calculation

$$(1.5) \quad RV_t(VW) = \sqrt{\frac{252}{VW} * \left[\sum_{i=1}^{VW} \left(\ln \left(\frac{ERindex_{t-VW+i}}{ERindex_{t-VW+i-1}} \right) \right)^2 \right]}$$

VW volatility window

Nday_{t-1,t} Number of calendar days from but excluding Index Business Day t-1 to and including Index Business Date t

Excess Return Index Calculation

Initial value of Excess Return Index $ERindex_{t=0} = 100$

On each Index Business Day t, the Excess Return Index will be calculated as follows:

$$(1.6) \quad ERindex_t = ERindex_{t-1} \times (1 + ER_t)$$

Where,

$$(1.7) \quad ER_t = \left(\frac{NI_t}{NI_{t-1}} - 1 \right) - \left(R_{t-1} \times \left(\frac{Nday_{t-1,t}}{365} \right) \right)$$

R_{t-1} 3 Months USD Libor rate at time t-1 (bbg ticker: US0003M Index) which is equivalent to SOFR+0.26161%

NI_t Net Index level at Index Business Day t

NI_{t-1} Net Index level at Index Business Day t-1

Nday_{t-1,t} Number of calendar days from but excluding Index Business Day t-

1 to and including Index Business Date t

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

$$NI_o = 100$$

$$(1.8) \quad NI_t = NI_{t-1} * \left(1 + \left(\frac{PRI}{PRI_{t-1}} - 1\right) + \sum_{j=1}^N w_{j,t} * D_{j,t}\right)$$

NI_t	Net Index Level at Index Business Date t
NI_{t-1}	Net Index Level at Index Business Date t-1
PRI_t	Price Return Index level at Index Business Date t
PRI_{t-1}	Price Return Index level at Index Business Date t-1
$D_{j,t}$	net dividend yield of Index Component j at Index Business Date t
$w_{j,t}$	weight of Index Component j in the Index at Index Business Date t
N	Number of Index Components in Index Basket with reference to section 3.1

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:

$$(1.9) \quad w_{j,t} = IBW_{i, Sel(k)} * \frac{1}{N_{i, Sel(k)}} * \frac{PR_{j,t}}{PR_{j, Sel(k)+5}}$$

$IBW_{i, Sel(k)}$	Industry Portfolio i weight at Index Selection Date k
$PR_{j,t}$	Level of Price Return of Index Component j at Index Business Date t
$PR_{j, Sel(k)+5}$	Level of Price Return of Index Component j 5 Index Business Days After Index Selection Date k

$N_{i, Sel(k)}$ Number of Index Components in Industry portfolio i with reference to section 3.1 at Index Selection Date (k)

Net dividend yield formula:

$$(1.10) D_{j,t} = DivCash_{j,t} * \frac{1 - TaxRate_j}{P_{j,t-1}}$$

$P_{j,t-1}$ 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](#)

1.2 Industry Baskets Level Calculation Formula between Selection and Rebalancing Dates $Sel(k)+3 < t < Sel(k)$

$$IBL_o = 100$$

$$(1.11) PRI_t = PRI_{Sel(k)+5} * (\sum_{i=1}^S IBW_{i, Sel(k)-1} * \frac{1}{N_{i, Sel(k)-1}} * \sum_{j=1}^N \frac{PR_{j,t}}{PR_{j, Sel(k)+5}})$$

PRI_t Price Return Index level at Index Business Date t

$PRI_{Sel(k)+5}$ Level of Price Return of Index Component j 5 days after Index Selection Date k

$IBW_{i, Sel(k)-1}$ Industry portfolio weight i at date immediately preceding Index Selection Date k

$N_{i, Sel(k)}$ Number of Index Components in Industry portfolio i with reference to section 3.1 at date immediately preceding Index Selection Date k

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

$PR_{j, Sel(k)+5}$ Level of Price Return of Index Component j 5 Index Business Days After Index Selection Date k

N Number of Index Components in Industry portfolio i with

reference to section 3.1

s Number of Industry portfolios in the Industry Basket with reference to table 2.1

Sel(k) the date immediately preceding Index Selection Date (k)

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

2 REBALANCE

2.1 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.



Cut-off date for components (k-1)	Index Selection Date (k) Components and weights announcement	Index Rebalancing Date (k+5) 5th IBD after selection	Rebalancing is effective k+6
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- 2.2 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.
- 2.3 Index Rebalancing Date is the day 5 Index Business days after Index Selection Date
- 2.4 For each Index Component and each Observation Period, the following will be computed on the quarterly Selection Date Sel(k)

Price Return of Index Component j during observation period 60 days

$$(1.14) \text{Ret}_{j, Sel(k)} = \frac{PR_{j, Sel(k)}}{PR_{j, Sel(k-60)}}$$

The Performance of Industry Portfolio over relevant Observation Period (60 days) calculated in accordance to formula

$$(1.15) \text{IPR}_{i, Sel(k)}^{Observ} = \text{IBW}_{i, Sel(k)}^{Observ} * \sum_{j=1}^N \frac{1}{N_{i, Sel(k)}} * \text{Ret}_{j, Sel(k)}$$

$\text{IPR}_{i, Sel(k)}^{Observ}$ Performance of Industry Portfolio i over observation period of 60 days

$\text{IBW}_{i, Sel(k)}$ Industry portfolio weight i over observation period as of Index Selection Date k

$N_{i, Sel(k)}$ Number of Index Components in Industry portfolio i with reference to section 3.1 at Index Selection Date k

Momentum Optimization of Industry Basket weights

- 2.5 On Rebalancing Date k and for the Observation Period (60 working days) the optimiser selects Industry Basket Weights such that the Basket has the highest return and variance within Industry Basket Variance Range (the “Variance Range”). Variance Range is 1% from beginning level of 6%.
- 2.6 If there are no Industry Basket Weights corresponding to the above established rules,

then the Variance Range will be relaxed by increments of 0.25% until Industry Basket Weights are found.

2.7 Industry Basket k for the relevant Variance Observation is defined as of follow

$$(1.16) \mathbf{Var}_{sel(k)} = \sum_{i,j=1}^n IBW_{i,sel(k)} * IBW_{j,sel(k)} * Cov_{i,j}$$

$\mathbf{Var}_{sel(k)}$ Variance of Industry Baskets at Index Selection Date k

$\mathbf{IBW}_{i,sel(k)}$ Weight of Industry Portfolio *i* at Index Selection Date k

$\mathbf{IBW}_{j,sel(k)}$ Weight of Industry Portfolio *j* at Index Selection Date k

\mathbf{n} Number of Industry portfolios included in Industry Basket

$\mathbf{Cov}_{i,j}$ Annualized co-variance between Industry portfolio *i* and Industry portfolio *j* over observation period L calculated with the following formula:

$$(1.17) Cov_{i,j} = \frac{252}{(L-1)} \sum_{t=0}^{L-1} \left(\left(\left(\frac{IPR_{i,t}}{IPR_{i,t-1}} - 1 \right) - \bar{R}_i \right) * \left(\left(\frac{IPR_{j,t}}{IPR_{j,t-1}} - 1 \right) - \bar{R}_j \right) \right)$$

with

$$(1.18) \bar{R}_i = \frac{1}{L} * \sum_{t=0}^{L-1} \left(\frac{IPR_{i,t}}{IPR_{i,t-1}} - 1 \right)$$

$$(1.19) IPR_{i,t} = IPR_{i,t-1} * \left(1 + \left(\frac{IPL_{j,t}}{IPL_{j,t-1}} - 1 \right) \right)$$

$$(1.20) IPL_{i,t} = IBW_{i,sel(k)} * \frac{1}{N_{i,sel(k)}} * \sum_{j=1}^N \frac{PR_{j,t}}{PR_{j,sel(k)+5}}$$

$\mathbf{IBW}_{i,sel(k)}$ Industry Portfolio weight *i* at Index Selection Date k

$\mathbf{N}_{i,sel(k)}$ Number of Index Components in Industry portfolio *i* with reference to section 3.1 at Index Selection Date k

$\mathbf{PR}_{j,t}$ Level of Price Return of Index Component *j* at Index Business Date *t*

$\mathbf{PR}_{j,sel(k)+3}$ Level of Price Return of Index Component *j* 3 Index Business Days After Index Selection Date k

$IPR_{i,t}$	return of Industry Portfolio i at Index Business Date t
$IPR_{i,t-1}$	return of Industry Portfolio i at Index Business Date t - 1
$IPL_{i,t}$	level of Industry Portfolio i at Index Business Date t
$IPL_{i,t-1}$	level of Industry Portfolio i at Index Business Date t - 1
L	Length of the relevant Variance Observation period and is equal to 60 Index business days
t	Each Index Business Day within the relevant Variance Observation period
\bar{R}_i	Average return of Industry Basket i in respect of observation period of 60 Index Business Days
\bar{R}_j	Average return of Industry Basket j in respect of observation period of 60 Index Business Days

3 INFORMATION DISCLOSURE

- 3.1 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 .
- 3.2 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.
- 3.3 Information on Index values is disclosed not later than 11:00 A.M. of Moscow time next Trading day.
- 3.4 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.

- 3.5 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.
- 3.6 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.
- 3.7 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.