

BlueStar Fintech Index

Index Methodology Guide 2.2

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Chapter 1: Introduction and Index Description

This document summarizes the methodology and rules used to construct, calculate, and maintain the BlueStar Fintech Index (“BFNQ”).

BFNQ is a rules-based index that tracks the performance of a group of globally-listed stocks of companies involved in a range of industries, collectively defined, by BlueStar Indexes, as Financial Technology or “Fintech” companies. Index components are reviewed semi-annually for eligibility, and the weights are re-set accordingly.

Companies may not apply, and may not be nominated for inclusion in the Index. Companies are added or removed by BlueStar based on the methodology described herein. The BlueStar Index Advisory Committee advises on index methodology and decisions related to the definition of which companies shall be considered Fintech companies. Whenever possible, BlueStar will publicly announce changes to the index on its website at least five trading days in advance of the actual change. The Index is calculated and maintained by Standard & Poor’s based on a methodology developed by BlueStar.

BFNQ is calculated on a price, total return and net total return basis in real-time. The net total return index is disseminated in real-time via the CME Group, Inc (CME) and market data vendors every day the exchange of at least one index component is open. Real-time index values for the net total return index are available on Bloomberg by entering “BFNQNTR INDEX <GO>”, and end-of-day values are freely available on BlueStar’s website, www.bluestarindexes.com, and/or through market data vendors.

Chapter 2: Index Construction

This chapter outlines and defines the key steps in constructing and calculating the index, including: eligibility requirements, formulas, initial component selection, and special adjustments

2.1 Base Date and Value

BFNQ has the following variants, base dates and values:

Name	Index Symbol	Base Date	Base Value
BlueStar Fintech Index (Price Index)	BFNQ	June 29, 2012	100
BlueStar Fintech Index Total Return	BFNQTR	June 29, 2012	100
BlueStar Fintech Index Net Total Return	BFNQNTR	June 29, 2012	100

2.2 Component Eligibility Requirements

All the following requirements must be met for a company's security to be included in BFNQ:

1. A Global Universe of fintech companies is established by screening globally listed companies whose primary business activity, products, or services include one of the following sub-themes. For a company to be eligible for inclusion the reporting segment related to the following sub-themes must account for at least 33% of the company's annual revenue based on the most recent four quarters of financial information available, or company management must comment or state in the company's most recent annual filing that the related sub-theme is expected to contribute meaningfully to the company's future growth.
 - a. Electronic payment processing or transaction recording
 - b. Credit card issuers (50% of revenue from this sub-theme is required)
 - c. Other: Banking, enterprise accounting or financial management, financial risk and/or compliance, financial services back office or insurance industry software; peer-to-peer lending and money transfer services, or point-of-sale hardware.
2. At each rebalance selection date the Final Constituent List is established by screening the Global Universe for the following investability criteria:
 - a. Float-adjusted market capitalization of \$500 million USD equivalent or greater (\$10 billion for credit card issuers)
 - b. Six-month average daily value traded of \$1 million USD equivalent or greater. If six months of data is unavailable, three months of data will be used and brought to the BlueStar Index Advisory Committee for review.
 - c. Free-float percentage of at least 10%
 - d. Maximum average bid-ask spread of 1%
 - e. Denominated in: USD, EUR, ILS, GBP, CAD, HKD, CHF, DKK, SEK, NOK, JPY, AUD
3. For existing components to be removed from the index, they must fail to meet investability criteria a and b, above, for two consecutive rebalance periods, or any other investability criteria only at the current rebalance period.

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4. Companies that were previously removed from the index must meet investability criteria a and b, above, for two consecutive rebalance periods in order to be eligible for re-entry into the index.

2.3 Initial Component Weighting

The following steps are taken to determine the weight of components of the Final Constituent List at each semi-annual rebalance selection date:

1. Establish the list of index components according to Chapter 2.2 and assign each component to a Group as follows and described in Chapter 2.2.1, above:
 - a. Group 1: Payment Processors
 - b. Group 2: Other
 - c. Group 3: Credit Card Issuers
2. Assign Target Group Weights (TW_g) as follows:
 - a. 50% to Group 1
 - b. 40% to Group 2
 - c. 10% to Group 3
3. Determine the Maximum Weight (MAXW) of each component by finding the minimum of 3% or USD-equivalent of average daily value traded divided by \$200,000,000

4. Determine the Initial Weight of each component as follows:

$$IW' = \frac{FF\ Cap_i}{\sum_{i=1}^{N_G} FF\ Cap_i} * TW_G$$

Where:

FF Cap_i = Float-adjusted market cap of component i

IW_i = Initial Weight of component i

N_G = Number of components included in a given Group

5. For components whose IW is less than 0.50%, adjust the IW to equal 0.50% and reduce the Group's excess weight above its respective TW proportionally among remaining Group components. Repeat this step until no component's weight is less than 0.50 to arrive at each component's First Modified Weight (MW1)
6. If the aggregate IW' of non-USD-denominated securities exceeds 40%, reduce the weight of non-USD-securities on a pro-rata basis such the aggregate weight of non-USD securities equals 40%. Redistribute the weight to USD-denominated securities on a pro-rata basis.
7. For components whose MW1 is greater than its MAXW, set the MW1 equal to its MAXW. Increase the Group's deficient weight below its respective TW equally among remaining Group components (if step six necessitated a change in weights then redistribute the weight to USD-denominated securities only). Repeat this step until no component's weight is greater than its MAXW to arrive at each component's Final Weight FW.

2.4 Dividend Treatment

The price index does not take normal dividend payments into account. Dividends are accounted for by reinvesting them daily. BFNQ uses the ex-dividend date to determine the total daily dividends for each day. Special dividends require an index advisor adjustment, as described in Chapter 3, to prevent such distributions from distorting the price index.

2.5 Index Equations

1. The price index is calculated using the following basic equations:

$$I_{(t)} = \frac{\sum_{i=1}^n P_{i(t)} * S_{i(t)}}{D_{(t)}}$$

Where:

$I_{(t)}$ = Index value at time (t)
 $D_{(t)}$ = Divisor at time (t)
 n = Number of stocks in the index
 t = The time that the index is calculated
 $P_{i(t)}$ = Price of stock i at time t in USD terms
 $S_{i(t)}$ = Number of assigned shares of stock i at time t

Where:

$$D_{(t)} = \frac{\sum_{i=1}^n P_{i(t-1)} * S_{i(t-1)}}{I_{(t-1)}}$$

Where:

$I_{(t-1)}$ = Index value at time $t-1$
 $D_{(t)}$ = Divisor at time t
 n = Number of stocks in the index
 $P_{i(t-1)}$ = Closing price of stock i at time $t-1$ in USD terms
 $S_{i(t-1)}$ = Number of assigned shares of stock i at time $t-1$

Where:

$$D_{(0)} = \frac{\sum_{i=1}^n P_{i(0)} * S_{i(0)}}{I_{(0)}}$$

Where:

$I_{(0)}$ = Index value at time 0 100
 $D_{(0)}$ = Divisor at time 0
 n = Number of stocks in the index
 $P_{i(t-1)}$ = Closing price of stock i at time 0 in USD terms
 $S_{i(t-1)}$ = Number of assigned shares of stock i at time 0

2. Assigned shares are the number of shares needed for each component such that the component conforms to the weighting distribution outlined in Chapter 2.3.2
3. Changes to the index composition require divisor adjustments to retain index continuity before and after specific events, as outlined in Chapter 3. Divisor changes are made according to the following equation:

$$D_{(t+1)} = D_{(t)} * \frac{\sum_{i=1}^n P_{i(t+1)} * S_{i(t+1)}}{\sum_{i=1}^n P_{i(t)} * S_{i(t)}}$$

Where:

$D_{(t+1)}$ = Initial Divisor after changes are made to the index

Chapter 3: Index Maintenance

This chapter describes the circumstances that require index changes, as well as the details on performing those changes

3.1 Divisor Changes

Changes to the index composition due to corporate actions or component eligibility changes will require adjustments to the index divisor, as follows:

*Spinoff**

1. Subtract the following from the price of the parent company:

$$\frac{\text{Spinoff stock price}}{\text{Share exchange ratio}}$$

2. Adjust the component's assigned shares such that its weighting is not changed because of the spinoff

Special Cash Dividend

1. Subtract special dividend from share price

Rights Offering

1. Subtract the following from the price of the parent company:

$$\frac{\text{Price of rights}}{\text{Rights ratio}}$$

2. Adjust the component's assigned shares such that its weighting is not changed because of the rights offering

Divisor changes are usually made on the date the corporate action becomes effective. For example, BFNQ uses the ex-dividend date rather than the payment date to determine when making divisor adjustments.

*If a company being spun-off is only trading on a "when-issued" basis, the "when-issued" price will be used to adjust the parent company's closing price.

3.2 Details of Share Changes

Stock splits and reverse splits do not require index divisor adjustments because the corresponding change to the stock price equally offsets the number of assigned shares, therefore not affecting the component's influence in the index.

3.3 Scheduled Component Changes and Review

BFNQ has a semi-annual review in June and December of each year. Fundamental data, prices and trading volumes are captured on the Selection Date, which is after the close of US markets on first Thursday of June and December. The new number of assigned shares for each component is determined based on the component's weight as determined in 2.3 and the closing price of that component on the Selection Date. Component changes are announced and made available after the close of US markets on the second Thursday of June and December. Component changes are made after the close on the third Thursday of June and December and are effective as of the open on the third Friday of June and December.

3.4 Interim Component Changes

1. Component changes may occur between regularly-scheduled review periods if a specific corporate event makes an existing component ineligible. The following events may require a component's removal or replacement:

Merger or Acquisition

If a merger or acquisition results in one component absorbing another, the resulting company will remain a component and the absorbed company will be removed or replaced. If a non-component company absorbs a component company, the original component will be removed, unless the non-component company, after absorbing the assets of the component company, would be considered a Fintech company as described in Chapter 2.2. If a component is the target of an acquisition BlueStar may decide to remove or reduce the weight of that component after the "go-shop" period concludes in order to reduce potential volatility or liquidity risk in the index.

Spin-Off

If a company splits or spins off a portion of its business to form one or more new companies, the resulting company with the highest market value will remain a component if it meets the eligibility requirement. The remaining companies will be evaluated for eligibility and possible addition to the index.

Bankruptcy

A component company will be removed and replaced immediately after bankruptcy filing. Exceptions are made on a case-by-case basis. For example, a security may not be removed immediately if bankruptcy filing is not the result of operating or financial difficulties.

Delisting

A component company will be removed or replaced immediately after being delisted from its primary market.

Whenever possible, interim component changes are announced on BlueStar's publicly available website at least three trading days prior to component changes becoming effective.

Chapter 4: Index Calculation and Dissemination

This chapter summarizes calculation and dissemination practices, quality assurance practices, and the circumstances requiring calculation corrections.

4.1 Price Calculation

Price, total return, and net total return indexes for BFNQ are calculated by Standard & Poor's on both an end-of-day and real-time basis. The BFNQ is calculated using the last traded price for each company in the Index from the relevant exchanges and markets.

Index values are rounded to two decimal places and divisors are rounded to 14 decimal places.

4.2 Calculation Frequency and Dissemination

BFNQ is calculated on a real-time basis beginning when the first traded price of any of the Index components is received by Standard & Poor's. Prices are delivered to CME every 15 seconds and subsequently published at that frequency. Net total return index values are available on a real-time basis through the Bloomberg information system under the index symbol "BFNQNTR INDEX". End-of-day net total return index values are posted on BlueStar's publicly available website, www.ise.com.

If the exchange a stock is listed on is closed or if trading in a stock is suspended prior to the market opening, the stock's adjusted closing price from the previous day will be used in the Index calculation until trading commences. If trading in a stock is suspended while the relevant market is open, the last traded price for that stock will be used for all subsequent Index calculations until trading resumes.

4.3 Input Data

Standard & Poor's uses various quality assurance tools to audit, monitor, and maintain the accuracy of its input data. While every reasonable effort is taken to ensure high standards of data integrity, there is no guarantee against errors. Please refer to the Data Correction section for more detail.

The index closing price is calculated using the closing prices issued by the primary exchange for each component stock in the index. If the primary exchange changes the closing price of a component stock, the new price will be used to calculate the index closing price. A final check of closing prices is done between one hour and one and one-half hours after the close of markets. This timeframe may be expanded at S&P's discretion on days where trading volume is unusually large at the close. For example, futures and options expiration dates, and large index rebalancing dates often result in unusually large volume. Only changes received prior to this final check are used in the closing price calculation.

Real time index prices are calculated using spot prices for foreign exchange rates throughout each trading day. Official end-of-day index values are calculated using Reuters WM FIX at 4:00 PM GMT.

4.4 Data Corrections

Incorrect index component data, corporate action data, or Index Divisors will be corrected upon detection. If such errors are discovered within five days of occurrence, they will be corrected that same day. If discovered after five days, adjustments will be handled on a case-by-case basis depending on the significance of the error and the feasibility of a correction.

Incorrect intraday index tick data will not be corrected. However, incorrect opening and closing values will be corrected as soon as possible after detection.

Appendices

This section provides additional information related to BFNQ as well as changes to this document.

Appendix A. BlueStar Fintech Index Constituents

As of December 2, 2019

Name	Ticker	Exchange	Weight
Fidelity National Information Services, Inc.	FIS	New York	3.00%
Fiserv, Inc.	FISV	NASDAQ GS	3.00%
FleetCor Technologies, Inc.	FLT	New York	3.00%
Global Payments Inc.	GPN	New York	3.00%
Intuit Inc.	INTU	NASDAQ GS	3.00%
Mastercard Incorporated Class A	MA	New York	3.00%
PayPal Holdings Inc	PYPL	NASDAQ GS	3.00%
Square, Inc. Class A	SQ	New York	3.00%
Verisk Analytics Inc	VRSK	NASDAQ GS	3.00%
Visa Inc. Class A	V	New York	3.00%
Workday, Inc. Class A	WDAY	NASDAQ GS	3.00%
Wirecard AG	WDI	Xetra	2.79%
Adyen NV	ADYEN	EN Amsterdam	2.54%
Broadridge Financial Solutions, Inc.	BR	New York	2.18%
WEX Inc.	WEX	New York	2.13%
SS&C Technologies Holdings, Inc.	SSNC	NASDAQ GS	2.08%
Worldline SA	WLN	EN Paris	1.88%
Jack Henry & Associates, Inc.	JKHY	NASDAQ GS	1.85%
Western Union Company	WU	New York	1.82%
StoneCo Ltd. Class A	STNE	NASDAQ GS	1.81%
PagSeguro Digital Ltd. Class A	PAGS	New York	1.77%
Alliance Data Systems Corporation	ADS	New York	1.73%
ACI Worldwide, Inc.	ACIW	NASDAQ GS	1.73%
Afterpay Touch Group Ltd.	APT	ASE	1.73%
Bottomline Technologies (de), Inc.	EPAY	NASDAQ GS	1.73%
EML Payments Ltd.	EML	ASE	1.73%
EVERTEC, Inc.	EVTC	New York	1.73%
EVO Payments, Inc. Class A	EVOP	NASDAQ GM	1.73%
Lightspeed POS, Inc.	LSPD	Toronto	1.73%
Network International Holdings Plc	NETW	London	1.73%
Nexi S.p.A.	NEXI	Brsaltaliana	1.73%
Sage Group plc	SGE	London	1.66%
Guidewire Software, Inc.	GWRE	New York	1.62%
Temenos AG	TEMN	SIX Swiss Ex	1.56%
American Express Company	AXP	New York	1.53%
Coupa Software, Inc.	COUP	NASDAQ GS	1.52%
Black Knight, Inc.	BKI	New York	1.49%
Euronet Worldwide, Inc.	EEFT	NASDAQ GS	1.37%
Xero Limited	XRO	ASE	1.13%
Ingenico Group SA	ING	EN Paris	1.11%
Cass Information Systems, Inc.	CASS	NASDAQ GS	0.99%
Avalara Inc	AVLR	New York	0.94%
Capital One Financial Corporation	COF	New York	0.88%
NCR Corporation	NCR	New York	0.83%
Discover Financial Services	DFS	New York	0.79%
Synchrony Financial	SYF	New York	0.79%
PayPoint plc	PAY	London	0.79%
BlackLine, Inc.	BL	NASDAQ GS	0.76%
Cardtronics plc Class A	CATM	NASDAQ GS	0.76%
Diebold Nixdorf AG	DBD	New York	0.76%
Ebix, Inc.	EBIX	NASDAQ GS	0.76%
Investnet, Inc.	ENV	New York	0.76%
GB Group PLC	GBG	London	0.76%
Green Dot Corporation Class A	GDOT	New York	0.76%
Hypoport AG	HYQ	Xetra	0.76%
LendingClub Corp	LC	New York	0.76%
PROS Holdings, Inc.	PRO	New York	0.76%
Q2 Holdings, Inc.	QTWO	New York	0.76%
Sapiens International Corporation NV	SPNS	NASDAQ CM	0.76%
Workiva, Inc. Class A	WK	New York	0.76%

Appendix B. Document Change History

A history of significant changes to this document is shown in the table below

Issue	Effective Date	Change
1.0	October 26, 2017	Initial publication
1.1	December 21, 2017	Specification of FX rate used for end of day values
1.2	October 10, 2018	Change FX rate capture time to 15:30 GMT
1.3	December 14, 2018	Add maximum bid-ask spread for inclusion, updated text on category inclusion.
2.0	December 10, 2019	<ol style="list-style-type: none"> 1- Change FX Rate capture to 4 pm WM FIX 2- Minor changes to sub-theme inclusion criteria including addition of credit card issuers 3- Change of weighting strategy from equal weight to tiered modified market cap weight 4- Increase liquidity and market cap thresholds for inclusion 5- Change of rebalance schedule. 6- Eliminate FX concentration constraint
2.1	June 1, 2020	Change to currencies eligible for inclusion
2.2	June 17, 2020	Add 40% weight limit for non-USD securities