

S&P Buyback FCF and PE Indices *Methodology*

January 2019

Table of Contents

Introduction	3
Index Objective and Family	3
Highlights	3
Supporting Documents	3
Eligibility Criteria	4
Index Eligibility	4
Index Construction	5
Approaches	5
Constituent Selection	5
Constituent Weightings	5
Index Calculations	6
Index Maintenance	7
Rebalancing	7
Corporate Actions	7
Other Adjustments	8
Currency, Currency Hedged, and Risk Control Indices	8
Base Date and History Availability	8
Index Data	9
Calculation Return Types	9
Index Governance	10
Index Committee	10
Index Policy	11
Announcements	11
Pro-forma Files	11
Holiday Schedule	11
Rebalancing	11
Unscheduled Exchange Closures	11
Recalculation Policy	11
Contact Information	12

Index Dissemination	13
Tickers	13
Index Data	13
Web site	13
Appendix	14
Methodology Changes	14
Disclaimer	15

Introduction

Index Objective and Family

The S&P 500 Buyback FCF and PE Indices comprise the following:

- **S&P 500 Buyback FCF Index.** The index is designed to measure the performance of the top 30 stocks with the highest free cash flow yields in the S&P 500 Buyback Index.
- **S&P 500 Buyback PE Index.** The index is designed to measure the performance of the top 30 stocks with the highest earnings yields in the S&P 500 Buyback Index.

For more information on the S&P 500 Buyback Index methodology, please refer to the S&P 500 Buyback Index Methodology document at www.spdji.com.

Highlights

The rebalancing reference dates are after the close of the last business day of March, June, September, and December. Using data as of each rebalancing reference date, the 30 members of the S&P 500 Buyback Index that had the highest free cash flow yields are chosen as constituents for the S&P 500 Buyback FCF Index and the 30 members of the S&P 500 Buyback Index that had the highest earnings yields are chosen as constituents for the S&P 500 Buyback PE Index. The rebalancing effective dates are after the close of the third Friday in January, April, July, and October.

Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

Supporting Document	URL
S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology	Equity Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology

This methodology was created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices so that the index continues to achieve its objective.

Eligibility Criteria

Index Eligibility

The index universe is drawn from the S&P 500 Buyback Index.

Data Availability. Data availability rules are as follows:

- **S&P 500 Buyback FCF Index.** Companies without free cash flow data as of the rebalancing reference period are not eligible for index inclusion.
- **S&P 500 Buyback PE Index.** Companies without price to earnings data as of the rebalancing reference period are not eligible for index inclusion.

Excluded Companies. All companies related to, and including, JPMorgan Chase & Co. and Visa, past or present, are excluded from the indices.

Multiple Share Classes and Dual Listed Companies. Each company is represented once by the Designated Listing. For more information regarding the treatment of multiple share classes, please refer to Approach B within the Multiple Share Classes section of the S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Index Construction

Approaches

There are two steps in the creation of the indices. The first is the selection of the companies; the second is the weighting of the index constituents.

Constituent Selection

For each index, the selection of index constituents is done as follows as of each rebalancing reference date:

- 1) If JPMorgan Chase & Co., Visa, and their past or present affiliated companies are in the S&P 500 Buyback Index, they are excluded from the universe.
- 2) For each index, the following is obtained:
 - a. **S&P 500 Buyback FCF Index.** Free Cash Flow data from the latest quarterly report is obtained for all companies not excluded in Step 1. Any company without available free cash flow data is not eligible.
 - b. **S&P 500 Buyback PE Index.** The Price to Earnings ratio is obtained for all companies not excluded in Step 1. Any company without available price to earnings data is not eligible.
- 3) The three-month ADVT, as of the rebalancing reference date, is obtained for all remaining companies. The 50 companies with the highest ADVT are selected as the sub-universe.
- 4) For each index, the following is calculated:
 - a. **S&P 500 Buyback FCF Index.** Free Cash Flow Yield (FCFY) is calculated for the 50 companies in the sub-universe. FCFY is computed by taking the Free Cash Flow divided by the closing price of one share of the company's stock as of the applicable rebalancing reference date. The companies are then ranked by FCFY.
 - b. **S&P 500 Buyback PE Index.** Earnings Yield (EY) is calculated for the 50 companies in the sub-universe. EY is calculated by taking the inverse of the price to earnings ratio. The companies are then ranked by EY.
- 5) Following the FCFY and EY calculations, companies are selected for the index inclusion as follows:
 - **S&P 500 Buyback FCF Index.** The 30 companies with the highest FCFY.
 - **S&P 500 Buyback PE Index.** The 30 companies with the highest EY.

Constituent Weightings

S&P 500 Buyback FCF Index. At each rebalancing reference date, the initial weight, w , for each index constituent, i , is set proportional to its FCFY _{i} to the sum of all constituents' FCFY.

$$w_i = \frac{FCFY_i}{\sum_{i=1}^N FCFY}$$

S&P 500 Buyback PE Index. At each rebalancing reference date, the initial weight, w , for each index constituent, i , is set proportional to its EY_i to the sum of all constituents' EY .

$$w_i = \frac{EY_i}{\sum_{i=1}^N EY}$$

For each index, if the initial weight of any constituent is above 7.5%, the weight is capped at 7.5%, with the excess weight re-distributed to all non-capped constituents on a pro rata basis.

Index Calculations

The indices are all calculated using the divisor methodology used for all S&P Dow Jones' equity indices.

The index is maintained according to the modified market capitalization approach as detailed in the *Non-Market Capitalization Weighted Indices* section of *S&P Dow Jones Indices' Index Mathematics Methodology*.

Index Maintenance

Rebalancing

Index rebalancings occur quarterly, effective after the close on the third Friday of January, April, July, and October of each year. The rebalancing reference dates are after the close of the last business day of December, March, June and September, respectively.

Constituent index shares are calculated using closing prices on the second Friday of the rebalancing month as the reference price. Index shares are calculated and assigned to each stock to arrive at the weights determined on the reference date.

Additions. Except for major corporate actions, such as mergers and spin-offs, companies can only be added to an index at the time of the quarterly rebalancings.

Deletions. Constituents removed from the S&P 500 Buyback Index are removed from the indices simultaneously.

Corporate Actions

Corporate actions (such as stock splits, stock dividends, spin-offs and rights offerings) are applied after the close of trading on the day prior to the ex-date. Share changes resulting from exchange offers are applied on the ex-date.

Corporate Action	Adjustment Made to the Index	Divisor Adjustment?
Spin-off	See below.	
Rights offering	The price is adjusted to the Price of the Parent Company minus (the Price of the Rights Offering/Rights Ratio). Index shares change so that the company's weight remains the same as its weight before the rights offering.	No
Stock Split	Index shares are multiplied by and the price is divided by the split factor.	No
Share issuance or share repurchase	None. Actual shares outstanding of the company play no role in the daily index calculation.	No
Special dividends	The price of the stock making the special dividend payment is reduced by the per share special dividend amount after the close of trading on the day before the dividend ex-date.	Yes
Delisting, acquisition or any other corporate action resulting in the deletion of the stock from the S&P 500 Buyback Index	The stock is dropped from the Index. This will cause the weights of the rest of the stocks in the index to change proportionately. Additions are made to the index only at the time of the quarterly rebalancing.	Yes

Spin-offs. The spun-off company is added to all the indices of which the parent is a constituent, at a zero price at the market close of the day before the ex-date (with no divisor adjustment). The spun-off company is then removed after at least one day of regular way trading (with a divisor adjustment). Please note this differs from the parent S&P 500 Buyback Index spin-off treatment.

For further information on Spin-offs, please refer to the Treatment of Spin-offs in S&P Dow Jones Indices' Equity Indices Policies & Practices document.

For more information on Corporate Actions, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Other Adjustments

In cases where there is no achievable market price for a stock being deleted, it may be removed at a zero or minimal price at the Index Committee's discretion, in recognition of the constraints faced by investors in trading bankrupt or suspended stocks.

Currency, Currency Hedged, and Risk Control Indices

Each index is calculated in U.S. dollars.

Additional currency, currency hedged, and risk control versions of the indices may be available. For a list of available currency, currency hedged, and risk control indices, please contact Client Services at index_services@spglobal.com.

For more information on currency, currency hedged, and risk control indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Base Date and History Availability

Index history availability, base dates and base values are shown in the table below.

Index	Launch Date	First Value Date	Base Date	Base Value
S&P 500 Buyback FCF Index	03/17/2014	01/21/1994	01/21/1994	1000
S&P 500 Buyback PE Index	03/17/2014	01/21/1994	01/21/1994	1000

Index Data

Calculation Return Types

S&P Dow Jones Indices calculates multiple return types which vary based on the treatment of regular cash dividends. The classification of regular cash dividends is determined by S&P Dow Jones Indices.

- Price Return (PR) versions are calculated without adjustments for regular cash dividends.
- Gross Total Return (TR) versions reinvest regular cash dividends at the close on the ex-date without consideration for withholding taxes.
- Net Total Return (NTR) versions, if available, reinvest regular cash dividends at the close on the ex-date after the deduction of applicable withholding taxes.

In the event there are no regular cash dividends on the ex-date, the daily performance of all three indices will be identical.

For a complete list of indices available, please refer to the daily index levels file (“.SDL”).

For more information on the classification of regular versus special cash dividends as well as the tax rates used in the calculation of net return, please refer to S&P Dow Jones Indices’ Equity Indices Policies & Practices Methodology.

For more information on the calculation of return types, please refer to S&P Dow Jones Indices’ Index Mathematics Methodology.

Index Governance

Index Committee

The S&P 500 Buyback FCF and PE Indices are maintained by the Americas Thematic and Strategy Index Committee. All committee members are full-time professional members of S&P Dow Jones Indices' staff. The committee meets monthly. At each meeting, the Committee reviews pending corporate actions that may affect index constituents, statistics comparing the composition of the indices to the market, companies that are being considered as candidates for addition to an index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

S&P Dow Jones Indices considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Index Policy

Announcements

All index constituents are evaluated daily for data needed to calculate index levels and returns. All events affecting the daily index calculation are typically announced in advance via the Index Corporate Events report (.SDE), delivered daily to all clients. Any unusual treatment of a corporate action or short notice of an event may be communicated via email to clients.

For more information on S&P Dow Jones Indices' announcements, please refer to the Announcement Policy found on our Web site, www.spdji.com.

Pro-forma Files

In addition to the corporate events file (.SDE), S&P Dow Jones Indices provides constituent pro-forma files each time the indices rebalance. The pro-forma file is typically provided daily in advance of the rebalancing date and contains all constituents and their corresponding weights and index shares effective for the upcoming rebalancing. Since index shares are assigned based on prices five business days prior to rebalancing, the actual weight of each stock at the rebalancing will differ from these weights due to market movements.

Please visit www.spdji.com for a complete schedule of rebalancing timelines and pro-forma delivery times.

Holiday Schedule

The indices are calculated daily, throughout the calendar year. The only days an index is not calculated are on days when all exchanges where an index's constituents are listed are officially closed.

A complete holiday schedule for the year is available on S&P Dow Jones Indices' Web site at www.spdji.com.

Rebalancing

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

Unscheduled Exchange Closures

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Recalculation Policy

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document located on our Web site, www.spdji.com.

For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Contact Information

For questions regarding an index, please contact: index_services@spglobal.com.

Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at www.spdji.com, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All currency, currency hedged, risk control, and return type versions of the below indices that may exist are also covered by this document. Please contact index_services@spglobal.com for a complete list of indices covered by this document.

Index	Return Type	Bloomberg
S&P 500 Buyback FCF Index	Price Return	SPBUYFUP
	Total Return	SPBUYFUT
	Net Total Return	SPBUYFUN
S&P 500 Buyback PE Index	Price Return	SPBUYPUT
	Total Return	SPBUYPUT
	Net Total Return	SPBUYPUT

Index Data

Daily constituent and index level data are available via subscription.

For product information, please contact S&P Dow Jones Indices, www.spdji.com/contact-us.

Web site

For further information, please refer to S&P Dow Jones Indices' Web site at www.spdji.com.

Appendix

Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Clarification of treatment for Multiple Share Classes and Dual Listed Companies	11/20/2017	--	Some companies may have more than one share class line or listing in the respective underlying universe index. In the S&P Buyback FCF and PE Indices S&P Buyback FCF and PE Indices, each company is represented once by the most liquid share line. Liquidity is measured based on each listing's three-month ADVT.
Removal of Normalization step	11/20/2017	For the S&P 500 Buyback FCF Index , a normalized FCFY is calculated by subtracting the lowest FCFY in the sub-universe from the FCFY of all other companies. For the S&P 500 Buyback PE Index , a normalized EY is calculated by subtracting the lowest EY in the sub-universe from the EY of all other companies.	--
Treatment of Spin-offs	09/30/2015	Spin-offs are generally not added to the indices and there is no weight change to the parent stock. The price of the parent company is adjusted to the Price of the Parent Company minus (the Price of the Spun-off Company/Share Exchange Ratio). Index shares change so that the company's weight remains the same as its weight before the spin-off. There is no index divisor change. However, when the price of the spin-off is not known, the spun-off company is added to the index at a zero price. Once the spun-off company trades, the company is dropped from the index and the parent's index shares are adjusted so that the company's weight remains the same as the combined weight of parent and the spin-off, determined on the first day of trading.	The spun-off company is added to all the indices of which the parent is a constituent, at a zero price at the market close of the day before the ex-date (with no divisor adjustment). The spun-off company is then removed after at least one day of regular way trading (with a divisor adjustment).

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