S&P Dow Jones Indices

A Division of S&P Global

S&P GARP Indices
Methodology

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Introduction

Index Objective and Highlights

The S&P GARP (Growth at a Reasonable Price) Indices measure the performance of the top growth stocks with high quality and value composite scores selected from the respective underlying index universe.

For the S&P 500 GARP Index, S&P MidCap 400 GARP Index, S&P SmallCap 600 GARP Index, and S&P 500 GARP 100 Index, the indices select constituents based on earnings-per-share (EPS) and/or sales-per-share (SPS) growth, as well as financial leverage, return on equity, and earnings to price valuations. Index constituents are Growth Score weighted, subject to the capping constraints defined in *Constituent Weightings*.

For the S&P 500 Innovation GARP Index, the index selects constituents based on earnings-per-share (EPS), sales-per-share (SPS) growth, and R&D expenditure to enterprise value ratio, as well as free cash flow to revenue ratio, free cash flow to debt ratio and earnings to price valuations. Index constituents are Growth Score weighted.

For the S&P/ASX 200 GARP Index, the index selects constituents based on earnings-per-share (EPS) and/or sales-per-share (SPS) growth, as well as return on equity and earnings to price valuations. Index constituents are float-adjusted market capitalization (FMC) * QV Score weighted, subject to the capping constraints defined in *Constituent Weightings*.

For the S&P World Ex-Australia GARP Index, the index selects constituents based on earnings-per-share (EPS) and/or sales-per-share (SPS) growth, as well as financial leverage, return on equity, and earnings to price valuations. Index constituents are FMC * Growth Score weighted, subject to the capping constraints defined in *Constituent Weightings*.

Index Family

- **S&P 500 GARP Index.** The index measures the performance of the top 75 growth stocks with high quality and value composite scores within the S&P 500 (the underlying index).
- **S&P MidCap 400 GARP Index**. The index measures the performance of the top 60 growth stocks with high quality and value composite scores within the S&P MidCap 400 (the underlying index).
- **S&P SmallCap 600 GARP Index**. The index measures the performance of the top 90 growth stocks with high quality and value composite scores within the S&P SmallCap 600 (the underlying index).
- **S&P 500 GARP 100 Index**. The index measures the performance of the top 100 growth stocks with high quality and value composite scores within the S&P 500 (the underlying index).
- **S&P 500 Innovation GARP Index.** The index measures the performance of the top 100 growth stocks with high R&D expenditure, FCF quality, and value composite scores within the S&P 500 (the underlying index).
- **S&P/ASX 200 GARP Index.** The index measures the performance of the top 50 growth stocks with high quality and value composite scores within the S&P/ASX 200 (the underlying index).
- **S&P World Ex-Australia GARP Index**. The index measures the performance of the top 250 growth stocks with high quality and value composite scores within the S&P Developed LargeMidCap (the underlying index), excluding stocks from Korea and Australia.

For information on the underlying indices, please refer to their respective methodologies, available at www.spglobal.com/spdji.

For information on Growth Score calculation, please refer to Appendix B.

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, are 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
S&P Dow Jones Indices' Global Industry Classification Standard (GICS) Methodology	GICS 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 Universe

As of each rebalancing reference date, the index universe for each index is all constituents of the underlying index.

Index	Underlying Index
S&P 500 GARP Index	S&P 500
S&P MidCap 400 GARP Index	S&P MidCap 400
S&P SmallCap 600 GARP Index	S&P SmallCap 600
S&P 500 GARP 100 Index	S&P 500
S&P 500 Innovation GARP Index	S&P 500
S&P/ASX 200 GARP Index	S&P/ASX 200
S&P World Ex-Australia GARP Index	S&P Developed LargeMidCap

Eligibility Factors

As of the rebalancing reference date, stocks in the respective index universe must satisfy the following to be eligible:

- **Growth and Quality & Value (QV) Composite Scores:** have both a growth z-score and QV z-score.
- **Positive Underlying Current Three-Year Fiscal Year EPS**: have positive underlying EPS current fiscal year data point for a given stock's three-year EPS Growth.
- **Trading History:** have been trading for at least 10 months.
- **Multiple Share Classes.** 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 S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Index-Specific Eligibility Factors

S&P 500 GARP Index, S&P MidCap 400 GARP Index, S&P SmallCap 600 GARP Index, S&P 500 GARP 100 Index, S&P/ASX 200 GARP Index, and S&P World Ex-Australia GARP Index. Stocks in the respective index universe must satisfy the following additional criteria to be eligible:

- **Positive Return on Equity (ROE):** have positive underlying EPS or book value per share (BVPS) for a given stock's ROE.

S&P 500 Innovation GARP Index. Companies classified under the GICS Code listed in the table below are not eligible:

GICS Code	GICS Name
60	Real Estate
40101010	Diversified Banks
40101015	Regional Banks
40201040	Specialized Finance
40203010	Asset Management & Custody Banks
40203020	Investment Banking & Brokerage
40204010	Mortgage REITs

GICS Code	GICS Name
40301010	Insurance Brokers
40301020	Life & Health Insurance
40301030	Multi-line Insurance
40301040	Property & Casualty Insurance
40301050	Reinsurance

S&P World Ex-Australia GARP Index. Stocks in the index universe must satisfy the following additional criteria to be eligible:

- **Domicile:** not be domiciled in South Korea or Australia.

Index Construction

S&P 500 GARP Index, S&P MidCap 400 GARP Index, S&P SmallCap 600 GARP Index, and S&P 500 GARP 100 Index

Constituent Selection. At each rebalancing, the index selects constituents according to the following process:

1. For all eligible stocks in the index universe compute a Growth z-score and Quality & Value (QV) composite z-score using the styles and factor components below:

Style	Factor Components[1]
Growth	(1) Three-year EPS growth (2) Three-year SPS growth
Quality & Value (QV) Composite	(1) Financial leverage ratio (Quality Factor) (2) Return on Equity (Quality Factor) (3) Earnings to Price Ratio (Value Factor)

   Calculate the Growth z-score as the winsorized z-score[2] average of two factors: three-year EPS growth and three-year SPS growth. If the z-score for one factor cannot be properly calculated, use the z-score of the other factor as the growth z-score.

2. Calculate the QV composite z-score as the winsorized z-score average of three factors: financial leverage ratio, return on equity, and earnings to price ratio. A stock must have at least one of the quality factors and the value factor to calculate the QV composite score. If the z-score for one of the quality scores can't be properly calculated, use the z-score of the other quality factor. Rank stocks by Growth z-scores, with only the index-specific counts of Growth stocks defined below remaining eligible for index inclusion.

3. Rank the remaining eligible stocks by QV composite z-score, selecting the highest-ranking index-specific count of QV stocks defined below to form the index, subject to the selection buffer defined below.

Index	Growth Count	QV Count	Automatic Selection by QV Score	Current Constituents Selected by QV Score
S&P 500 GARP Index	150	75	60	61 - 90
S&P MidCap 400 GARP Index	120	60	48	49 - 72
S&P SmallCap 600 GARP Index	180	90	72	73 - 108
S&P 500 GARP 100 Index	200	100	80	81 - 120

Buffer Rule. The index applies a 20% selection buffer according to the following process:

1. Rank the top Growth z-score stocks by QV composite z-score, automatically selecting the highest ranking 80% for index inclusion.
2. Select current constituents ranking between the top 80% and top 120% by order of QV composite z-score until the target QV count is reached.
3. If the target QV count has not yet been met, select the highest ranking non-constituents in rank order, based on QV composite z-score, until the target count is reached.

[1] For more information on Fundamental Ratios calculations, please see *Appendix A*.
[2] For more information on z-score calculations, please see *Appendix B*.

Constituent Weightings. At each rebalancing, except for the S&P 500 GARP 100 Index, the indices Growth Score weight constituents, subject to the following constraints:

- a minimum security weight of 0.05%
- a single security weight cap of 5%
- a single GICS sector weight cap of 40%

Optimization Procedure. The weighting process uses an optimization procedure that chooses final weights in such a way to minimize the sum of the squared difference of capped weight and uncapped weight, divided by the uncapped weight for each stock.

S&P 500 GARP 100 Index

At each rebalancing, the index Growth Score * FMC weights constituents, subject to the following constraints:

- a minimum security weight of 0.05%
- a single security weight cap of 4.5%
- a single GICS sector weight cap of 40%

Optimization Procedure. The weighting process uses an optimization procedure that chooses final weights in such a way to minimize the sum of the squared difference of capped weight and uncapped weight, divided by the uncapped weight for each stock.

S&P 500 Innovation GARP Index

Constituent Selection. At each rebalancing, the index selects constituents according to the following process:

1. For all eligible stocks in the index universe, calculate a Growth and R&D z-score and FCF Quality & Value (QV) composite z-score using the styles and factor components below:

Style	Factor Components
Growth and R&D	(1) Three-year EPS growth (2) Three-year SPS growth (3) R&D to Enterprise Value
FCF Quality & Value (QV) Composite	(1) Free Cash Flow to Revenue ratio (Quality Factor) (2) Free Cash Flow to Debt ratio (Quality Factor) (3) Earnings to Price Ratio (Value Factor)

   Calculate the Growth and R&D z-score as the winsorized z-score average of three factors: three-year EPS growth, three-year SPS growth, and R&D to Enterprise Value. A stock must have at least one of the EPS or SPS growth factor to calculate the Growth & R&D score. If the z-score for one factor cannot be properly calculated, use the z-score of the other Growth and R&D factor.

   Calculate the FCF QV composite z-score as the winsorized z-score average of three factors: free cash flow to revenue ratio, free cash flow to debt ratio, and earnings to price ratio. A stock must have at least one of the quality factors and the value factor to calculate the FCF QV composite score. If the z-score for one of the quality scores cannot be properly calculated, use the z-score of the other quality factor.

2. Rank eligible stocks by Growth and R&D z-scores and select the 200 highest ranking stocks.
3. Rank the stocks from Step 2 by FCF QV composite z-score and select the 100 highest ranking stocks.

Constituent Weightings. At each rebalancing, the index Growth and R&D Score weights constituents.

S&P/ASX 200 GARP Index

Constituent Selection. At each rebalancing, the index selects constituents according to the following process:

1. For all eligible stocks in the index universe, calculate a Growth z-score and Quality & Value (QV) composite z-score using the styles and factor components below:

Style	Factor Components[3]
Growth	(1) Three-year EPS growth (2) Three-year SPS growth
Quality & Value (QV) Composite	(3) Return on Equity (Quality Factor) (4) Earnings to Price Ratio (Value Factor)

   Calculate the Growth z-score as the winsorized z-score[4] average of two factors: three-year EPS growth and three-year SPS growth. If the z-score for one factor cannot be properly calculated, use the z-score of the other factor as the growth z-score.

2. Calculate the QV composite z-score as the winsorized z-score average of two factors: return on equity and earnings to price ratio. A stock must have both quality factor and the value factor to calculate the QV composite score. Rank stocks by Growth z-scores, with only the index-specific counts of Growth stocks defined below remaining eligible for index inclusion.

3. Rank the remaining eligible stocks by QV composite z-score, selecting the highest-ranking index-specific count of QV stocks defined below to form the index, subject to the selection buffer defined below.

Index	Growth Count	QV Count	Automatic Selection by QV Score	Current Constituents Selected by QV Score
S&P/ASX 200 GARP Index	150	50	40	41-60

Buffer Rule. The index applies a 20% selection buffer according to the following process:

1. Rank the top Growth z-score stocks by QV composite z-score, automatically selecting the highest ranking 80% for index inclusion.
2. Select current constituents ranking between the top 80% - 120% by order of QV composite z-score until the target QV count is reached.
3. If at this point there are still not enough constituents to meet the QV count, select the highest-ranking non-constituents in rank order, based on QV composite z-score, until the target count is reached.

Constituent Weightings. At each rebalancing, the index FMC * QV Score weights constituents, subject to the following constraints:

- a minimum security weight cap of 0.1%
- a single security weight cap of 10%
- a single GICS sector weight cap cannot exceed the sector weight in the S&P/ASX 200 plus 10%.

Optimization Procedure. The weighting process uses an optimization procedure that chooses final weights in such a way to minimize the sum of the squared difference of capped weight and uncapped weight, divided by the uncapped weight for each stock.

[3] For more information on Fundamental Ratios calculations, please see *Appendix A*.
[4] For more information on z-score calculations, please see *Appendix B.*

S&P World Ex-Australia GARP Index

Constituent Selection. At each rebalancing, the index selects constituents according to the following process:

1. For all eligible stocks in the index universe, calculate a Growth z-score and Quality & Value (QV) composite z-score using the styles and factor components below:

Style	Factor Components[5]
Growth	(3) Three-year EPS growth (4) Three-year SPS growth
Quality & Value (QV) Composite	(4) Financial leverage ratio (Quality Factor) (5) Return on Equity (Quality Factor) (6) Earnings to Price Ratio (Value Factor)

Calculate the Growth z-score as the winsorized z-score[6] average of two factors: three-year EPS growth and three-year SPS growth. If the z-score for one factor cannot be properly calculated, use the z-score of the other factor as the growth z-score.

Calculate the QV composite z-score as the winsorized z-score average of three factors: financial leverage ratio, return on equity, and earnings to price ratio. A stock must have at least one of the quality factors and the value factor to calculate the QV composite score. If the z-score for one of the quality scores can't be properly calculated, use the z-score of the other quality factor.

2. Rank stocks by Growth z-scores, with only the index-specific counts of Growth stocks defined below remaining eligible for index inclusion.

3. Rank the remaining eligible stocks by QV composite z-score, selecting the highest-ranking index-specific count of QV stocks defined below to form the index, subject to the selection buffer defined below.

Index	Growth Count	QV Count	Automatic Selection by QV Score	Current Constituents Selected By QV Score
S&P World Ex-Australia GARP Index	500	250	200	201-300

Buffer Rule. The index applies a 20% selection buffer according to the following process:

1. Rank the top Growth z-score stocks by QV composite z-score, automatically selecting the highest ranking 80% for index inclusion.
2. Select current constituents ranking between the top 80% - 120% by order of QV composite z-score until the target QV count is reached.
3. If at this point there are still not enough constituents to meet the QV count, select the highest-ranking non-constituents in rank order, based on QV composite z-score, until the target count is reached.

Constituent Weightings. At each rebalancing, the index FMC * Growth Score weights constituents, subject to the following constraints:

- a minimum security weight cap of 0.1%
- a single security weight cap of 5%
- a single GICS sector weight cap of 40%

[5] For more information on Fundamental Ratios calculations, please see *Appendix A*.
[6] For more information on z-score calculations, please see *Appendix B*.

Optimization Procedure. The weighting process uses an optimization procedure that chooses final weights in such a way to minimize the sum of the squared difference of capped weight and uncapped weight, divided by the uncapped weight for each stock.

Index Maintenance

Index Calculations

For more information on the index calculation methodology, please refer to the Non-Market Capitalization Weighted Indices section of S&P Dow Jones Indices' Index Mathematics Methodology.

Rebalancing

The indices rebalance semi-annually after the close on the third Friday of June and December. The fundamental data reference date is five weeks prior to the rebalancing date. The rebalancing reference date is the last business day of May and November, respectively. Weights calculated as a result of the reference date data are implemented in the index using closing prices as of the Wednesday prior to the second Friday of June and December.

Rebalancing Schedule	
Rebalancing Frequency	Semi-annually
Rebalancing Date	After the close on the third Friday of June and December
Fundamental Data Reference Date	Five weeks prior to the rebalancing date
Reference Date	The last business day of May and November
Weights Reference Date	Closing prices as of the Wednesday prior to the second Friday of June and December

Additions and Deletions

Additions. Except for spin-offs (see *Corporate Actions* below), no additions are made to the index between rebalancings.

Spin-Offs. Spin-offs are added to the index at a zero price prior to the open on the ex-date and removed after at least one day of regular way trading.

For more information Spin-offs, please refer to the Non-Market Capitalization Indices Section of S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Deletions. Index constituents removed from the index universe are removed from the index simultaneously.

Corporate Actions

For more information on Corporate Actions, please refer to the Non-Market Capitalization Indices Section of S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Currency of Calculation and Additional Index Return Series

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available, including, but not limited to: currency, currency hedged, decrement, fair value, inverse, leveraged, and risk control versions. For a list of available indices, please refer to the *S&P DJI Methodology & Regulatory Status Database*.

For information on the calculation of different types of indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

For the inputs necessary to calculate certain types of indices, including decrement, dynamic hedged, fair value, and risk control indices, please refer to the Parameters documents available at www.spglobal.com/spdji.

Other Adjustments

In cases where there is no achievable market price for a stock being deleted, the stock can 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.

Base Date and History Availability

Index history availability, base date, and base value are shown in the table below.

Index	Launch Date	First Value Date	Base Date	Base Value
S&P 500 GARP Index	02/25/2019	06/16/1995	06/16/1995	100
S&P MidCap 400 GARP Index	05/01/2023	12/20/1991	12/20/1991	100
S&P SmallCap 600 GARP Index	05/01/2023	06/16/1995	06/16/1995	100
S&P 500 Innovation GARP Index	06/24/2024	06/19/1998	06/19/1998	100
S&P/ASX 200 GARP Index	08/09/2024	06/18/2004	06/18/2004	100
S&P World Ex-Australia GARP Index	08/09/2024	06/18/2004	06/18/2004	100
S&P 500 GARP 100 Index	11/04/2024	06/19/1998	06/19/1998	100

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.
- Excess Return (ER) versions will be equal to the gross total return less the associated borrowing costs (as represented by SOFR)

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

An Index Committee maintains the index. All committee members are full-time professional members of S&P Dow Jones Indices' staff. The Index Committee meets regularly. At each meeting, the Index Committee may review 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 the methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

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, please refer to the Announcements section of S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

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 prior to the rebalancing, the actual weight of each stock at the rebalancing will differ from these weights due to market movements.

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

Holiday Schedule

The index is calculated on all days when at least one of the underlying exchanges is open.

A complete holiday schedule for the year is available at www.spglobal.com/spdji.

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.

Unexpected Exchange Closures

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

Recalculation Policy

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

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

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.spglobal.com/spdji*, 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 versions of the below indices that may exist are also covered by this document. Please refer to the *S&P DJI Methodology & Regulatory Status Database* for a complete list of indices covered by this document.

Index	Return Type	BBG	RIC
S&P 500 GARP Index (USD)	Price Return Total Return Net Total Return	SPXGARPP SPXGARPT SPXGARPN	.SPXGARPP .SPXGARPT .SPXGARPN
S&P MidCap 400 GARP Index (USD)	Price Return Total Return Net Total Return	SP4GRPUP SP4GRPUT SP4GRPUN	.SP4GRPUP .SP4GRPUT .SP4GRPUN
S&P SmallCap 600 GARP Index (USD)	Price Return Total Return Net Total Return	SP6GRPUP SP6GRPUT SP6GRPUN	.SP6GRPUP .SP6GRPUT .SP6GRPUN
S&P 500 GARP 100 Index (USD)	Price Return Total Return Net Total Return	SPXGPOUP SPXGPOUT SPXGPOUN	.SPXGPOUP .SPXGPOUT .SPXGPOUN
S&P 500 Innovation GARP Index (USD)	Price Return Total Return Net Total Return	SPGROWP SPGROWT SPGROWN	SPGROWP SPGROWT SPGROWN
S&P 500 Innovation GARP Index (SOFR) (USD)	Excess Return	SPGROWER	.SPGROWER
S&P/ASX 200 GARP Index (AUD)	Price Return Total Return Net Total Return	SPAUGPAP SPAUGPAT SPAUGPAN	.SPAUGPAP .SPAUGPAT .SPAUGPAN
S&P World Ex-Australia GARP Index (AUD)	Price Return Total Return Net Total Return	SPWHGPAP SPWHGPAT SPWHGPAN	.SPWHGPAP .SPWHGPAT .SPWHGPAN

Index Data

Daily constituent and index level data are available via subscription.

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

Website

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

Appendix A

Fundamental Ratios Calculation

As of the rebalancing reference date, fundamental ratios are calculated for each security in the index universe. They are defined as follows.

- **Three-Year EPS Growth:** calculate as a company's three-year EPS compound annual growth rate (CAGR).

$$\text{CAGR} = \left(1 + \frac{\text{EPS FY current} - \text{EPS FY three year ago}}{\text{Absolute (EPS FY three year ago)}}\right)^{\frac{1}{3}} - 1$$

- **Three-Year SPS Growth:** calculate as a company's three-year SPS compound annual growth rate (CAGR).
- **Financial Leverage Ratio (FLR):** calculate as a company's latest total debt divided by its book value.

$$\text{Leverage} = \frac{\text{Total Debt}}{\text{BVPS x Common Shares Outstanding}}$$

- **Return on Equity (ROE):** calculate as a company's trailing 12-month month basic earnings per share (EPS) excluding discontinued operations & extraordinary item divided by latest book value per share (BVPS).

$$\text{ROE} = \frac{\text{EPS}}{\text{BVPS}}$$

- **Earnings-to-Price Ratio:** calculate as a company's trailing 12-month diluted earnings per share excluding discontinued operations & extraordinary items divided by price.

$$\text{Earnings to Price} = \frac{\text{EPS}}{\text{P}}$$

- **R&D to Enterprise Value:** calculate as a company's latest research and development expenditure divided by its enterprise value including cash.

$$\text{R\&D to Enterprise Value Including Cash} = \frac{\text{R\&D Expenditure}}{\text{Enterprise Value Including Cash}}$$

- **Free Cash Flow to Revenue ratio:** calculate as a company's trailing 12-month free cash flow divided by its trailing 12-month revenue.

$$\text{Free Cash Flow to Debt} = \frac{\text{FCF}}{\text{Revenue}}$$

- **Free Cash Flow to Debt ratio:** calculate as a company's trailing 12-month free cash flow divided by its latest total debt.

$$\text{Free Cash Flow to Debt} = \frac{\text{FCF}}{\text{Total Debt}}$$

Outlier Handling and Winsorization. Outlier fundamental ratios are winsorized to ensure that the average values used to calculate the overall component score are less distorted by extreme values. For a given fundamental variable, the values for all securities are first ranked in ascending order. Then, for securities that lie above the 97.5 percentile rank or below the 2.5 percentile rank, their value is set as equal to the value of the 97.5 percentile ranked or the 2.5 percentile ranked security, whichever is applicable.

- **Return on Equity.** If the underlying earnings per share ("EPS") or book value per share ("BVPS") for a given stock's ROE is negative, its ROE value will be excluded, and the stock will be assigned an ROE Z-score set as equal to the ROE Z-score value of the 2.5 percentile ranked security.
- **Financial Leverage Ratio.** If the underlying data point for a given stock's BVPS is negative, leading to a negative Leverage, its Leverage value will be excluded, and the stock will be assigned a Leverage Z-score set as equal to the Leverage Z-score value of the 2.5 percentile ranked security.
- **R&D expenditure.** If the underlying data point for a given stock's R&D expenditure is not available, its value is replaced with 0.

Appendix B

Z-score and Growth (*or* Growth and R&D) Score Computation

Z-score Computation. Computing a z-score is a widely adopted method of standardizing a variable in order to combine it with other variables that may have a different scale or unit of measurement. After winsorizing all the fundamental ratios, the z-score for each of the relevant ratios for each security is calculated using the mean and standard deviation of the relevant variable within each of the index universes.

In general, the z-score is calculated as follows:

$$z\alpha = (x\alpha - \mu\alpha)/\sigma\alpha$$

Financial Leverage Ratios. The z-score is calculated as follows:

$$z\alpha = -(x\alpha - \mu\alpha)/\sigma\alpha$$

where:

$z\alpha$ = Z-score for a given security

$x\alpha$ = Winsorized variable for a given security

$\mu\alpha$ = Arithmetic mean of the winsorized variable in a given index universe, excluding any missing values

$\sigma\alpha$ = Standard deviation of the winsorized variable in a given index universe

Average Z-score Computation. For each security, the average z-score is computed by taking a simple average of the relevant scores. Where there is a missing value, the average z-score is computed by taking a simple average of the remaining scores.

Outlier Handling and Winsorization. Outlier average z-scores are winsorized to ensure that the overall growth scores are less distorted by extreme values. To do this, for a given average z-score, the values for all securities are first ranked in ascending order. Then, for securities that lie above 4 or below -4, their value is set as equal to 4 or -4, whichever is applicable.

Growth (*or* Growth and R&D) /QV (*or* FCF Quality & Value (QV) Composite) Score Computation. Using the winsorized z-score, calculate a score for each of the securities. For a given security, if its winsorized z-score is above 0, then its score is the addition of 1 and the winsorized z-score. If its winsorized z-score is below 0, then its score is the result of the reciprocal of 1 subtracted by its winsorized z-score.

If average Z > 0, Score = 1 + Z

If average Z < 0, Score = (1 / (1 – Z))

If average Z = 0, Score = 1

Appendix C

Methodology Changes

Methodology changes since February 25, 2019, are as follows:

Change	Effective Date (After Close)	Methodology: Previous	Methodology: Updated
Constituent Selection	12/16/2022	The Growth z-score is calculated as the winsorized z-score average of two factors: three-year EPS growth and three-year SPS growth. If the z-score for one factor cannot be properly calculated, the z-score of the other factor will be used as the growth z-score. The QV composite z-score is calculated as the winsorized z-score average of three factors: financial leverage ratio, return on equity, and earnings to price ratio. A stock needs to have at least one of the quality factors and the value factor to calculate the QV composite score. If the z-score for one of the quality scores can't be properly calculated, the z-score of the other quality factor will be used.	Calculate the Growth z-score as the winsorized z-score average of two factors: three-year EPS growth and three-year SPS growth. If the z-score for one factor cannot be properly calculated, use the z-score of the other factor as the growth z-score. If the underlying EPS current fiscal year data point for a given stock's three-year EPS Growth is negative, the stock is ineligible for index inclusion. Calculate the QV composite z-score as the winsorized z-score average of three factors: financial leverage ratio, return on equity, and earnings to price ratio. A stock must have at least one of the quality factors and the value factor to calculate the QV composite score. If the z-score for one of the quality scores can't be properly calculated, use the z-score of the other quality factor. If the underlying EPS or book value per share ("BVPS") for a given stock's return on equity ("ROE") is negative, the stock is ineligible for index inclusion.
Outlier Handling and Winsorization: Return on Equity ("ROE")	12/16/2022	If the underlying data points for a given stock's ROE are both negative, leading to a positive ROE, its ROE value will be excluded, and the stock will be assigned an ROE Z-score set as equal to the ROE Z-score value of the 2.5 percentile ranked security.	If the underlying earnings per share ("EPS") or book value per share ("BVPS") for a given stock's ROE is negative, its ROE value will be excluded, and the stock will be assigned an ROE Z-score set as equal to the ROE Z-score value of the 2.5 percentile ranked security.

Appendix D

ESG Disclosures

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY[7]		
1.	**Name of the benchmark administrator.**	S&P Dow Jones Indices LLC.
2.	**Underlying asset class of the ESG benchmark.**[8]	N/A
3.	**Name of the S&P Dow Jones Indices benchmark or family of benchmarks.**	S&P DJI Equity Indices Benchmark Statement
4.	**Do any of the indices maintained by this methodology take into account ESG factors?**	No
Appendix latest update:		January 2021
Appendix first publication:		January 2021

[7] The information contained in this Appendix is intended to meet the requirements of the European Union Commission Delegated Regulation (EU) 2020/1817 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the minimum content of the explanation of how environmental, social and governance factors are reflected in the benchmark methodology and the retained EU law in the UK [The Benchmarks (amendment and Transitional Provision) (EU Exit) Regulations 2019].

[8] The 'underlying assets' are defined in European Union Commission Delegated Regulation (EU) 2020/1816 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the explanation in the benchmark statement of how environmental, social and governance factors are reflected in each benchmark provided and published.

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Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Information presented prior to an index's launch date is hypothetical back-tested performance, not actual performance, and is based on the index methodology in effect on the launch date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. In addition, forks have not been factored into the back-test data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Also, the treatment of corporate actions in back-tested performance may differ from treatment for live indices due to limitations in replicating index management decisions. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results.

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