

The S&P/B3 Ingenius Index: Bringing Global Innovation to the Brazilian Market

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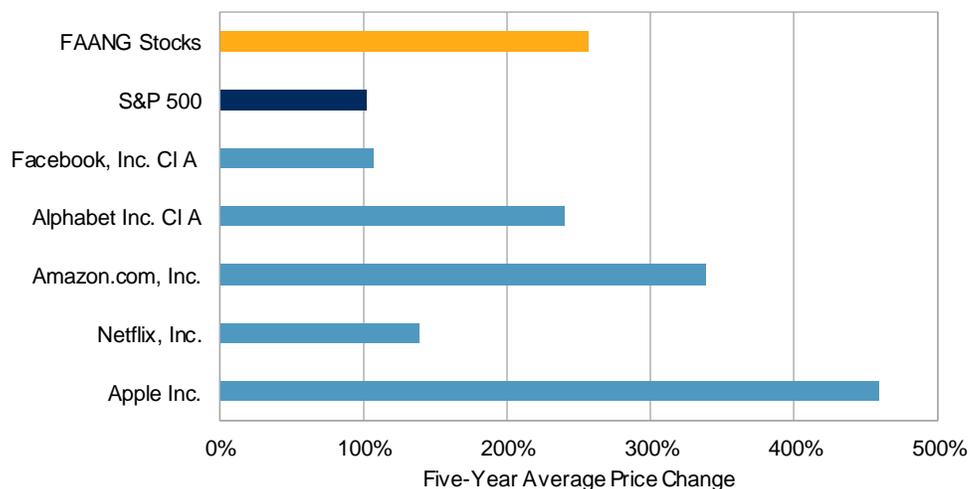
INTRODUCTION

Over the past five years, the world witnessed the dramatic rise in the market capitalization of technology-driven companies like Facebook, Amazon, Apple, Netflix, and Google (now Alphabet), collectively known as the FAANG stocks. The growth rates of these stocks over the past five years have been quite remarkable, with the average price change exceeding 250% and outperforming the [S&P 500®](#) by 15.5% (see Exhibit 1).

On May 11, 2020, S&P Dow Jones Indices (S&P DJI) and B3 introduced the [S&P/B3 Ingenius Index](#) to the Brazilian market. The index seeks to measure the performance of global companies creating many of the innovative products and services that permeate today's modern world and are transforming almost every aspect of daily life, including the way we communicate, work, entertain, and shop, and nearly everything in between.

By launching the S&P/B3 Ingenius Index, S&P DJI is providing an index that is designed to measure the performance of 15 innovative global companies trading on B3 as Brazilian Depositary Receipts (BDRs), giving local investors access to foreign securities.

Exhibit 1: Five-Year Average Price Change



Source: S&P Dow Jones Indices LLC. Data as of July 30, 2021. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

INDEX CONSTRUCTION

The index constituents come from a broad universe of global growth-oriented companies within the Global Industry Classification Standard (GICS®) sectors of Communication Services, Consumer Discretionary, and Information Technology (see Exhibit 2).

Over the past five years, the world witnessed the dramatic rise in the market capitalization of technology-driven companies...

... with the average price change of the FAANG stocks exceeding 250% and outperforming the S&P 500 by 15.5%

Exhibit 2: Eligible GICS Sectors and Sub-Industries

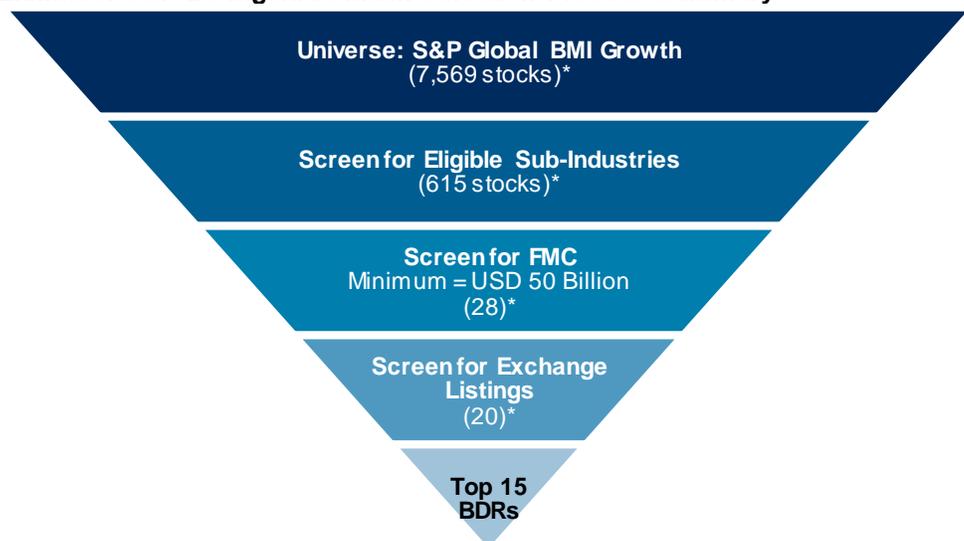
GICS SECTOR	GICS SUB-INDUSTRY
Communication Services	Interactive Media & Services
	Movies & Entertainment
Consumer Discretionary	Internet & Direct Marketing Retail
	Data Processing & Outsourced Services
Information Technology	Semiconductors
	Systems Software
	Technology Hardware, Storage & Peripherals

Source: S&P Dow Jones Indices LLC. Table is provided for illustrative purposes.

The underlying universe for the S&P/B3 Ingenius Index is the [S&P Global BMI Growth](#), which includes more than 7,500 companies from developed and emerging markets. The [S&P Global BMI Style Methodology](#) employs a multi-factor approach based on three growth factors and four value factors. All stocks with a growth score of 0.6 or greater are eligible. Additionally, the stocks must be listed on the NYSE or NASDAQ exchanges, while meeting a minimum float-adjusted market capitalization (FMC) of USD 50 billion as of the rebalancing reference date. The final selection is based on a ranking that combines a stock’s growth score multiplied by their respective FMC. The top 15 stocks that trade on the B3 exchange as BDRs form the index.

S&P DJI launched the S&P/B3 Ingenius Index, which seeks to measure the performance of 15 innovative global companies trading on B3 as BDRs, giving local investors access to foreign securities.

Exhibit 3: S&P/B3 Ingenius Index Selection Process Summary



* Hypothetical screening outcome is based on data from May 31, 2021. The actual annual index rebalancing is effective on the third Friday of September.
Source: S&P Dow Jones Indices LLC. Chart is provided for illustrative purposes.

Exhibit 4: Index Composition

CONSTITUENT NAME	INDEX WEIGHT (%)	COUNTRY	SUB-INDUSTRY
PayPal Holdings Inc. BDR	13	U.S.	Data Processing & Outsourced Services
Nvidia Corp BDR	12	U.S.	Semiconductors
Alphabet Inc A BDR	12	U.S.	Interactive Media & Services
Apple Inc. BDR	11	U.S.	Technology Hardware, Storage & Peripherals
Broadcom Inc BDR	11	U.S.	Semiconductors
Walt Disney Co BDR	8	U.S.	Movies & Entertainment
Texas Instruments Inc BDR	7	U.S.	Semiconductors
Booking Holdings Inc BDR	5	U.S.	Hotels, Resorts & Cruise Lines*
Facebook Inc A BDR	5	U.S.	Interactive Media & Services
Microsoft Corp BDR	4	U.S.	Systems Software
Amazon.com Inc BDR	3	U.S.	Internet & Direct Marketing Retail
Mastercard Inc A BDR	3	U.S.	Data Processing & Outsourced Services
Visa Inc A BDR	3	U.S.	Data Processing & Outsourced Services
Netflix Inc BDR	2	U.S.	Movies & Entertainment
Alibaba Group Holding Ltd BDR	2	China	Internet & Direct Marketing Retail

* On March 22, 2021, Booking Holdings' sector classification changed from Internet & Direct Marketing Retail to Hotels, Resorts & Cruise Lines, which is not a qualifying sector. Its inclusion will be reassessed in the next rebalancing in September.

Source: S&P Dow Jones Indices LLC. Data as of July 30, 2021. Table is provided for illustrative purposes.

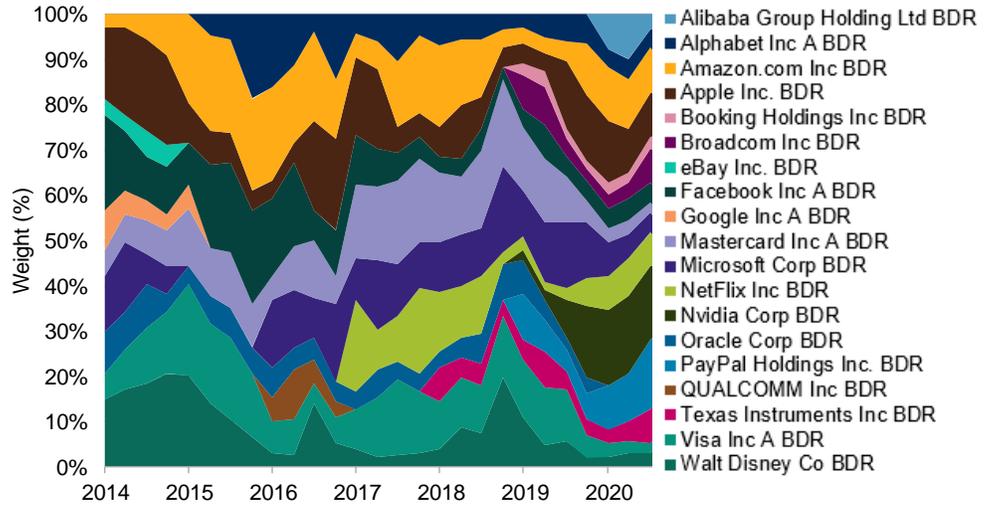
The index constituents come from the S&P Global BMI Growth universe and are classified within the GICS Communication Services, Consumer Discretionary, or IT sectors.

WEIGHTING SCHEME

The S&P/B3 Ingenius Index uses momentum weighting to capture the stocks' persistence in their relative price performance.

After constituent selection, the next step is to weight the components. We use momentum weighting to capture the stocks' persistence in their relative price performance, which means that the 15 stocks in the index are weighted by their 12-month momentum score, calculated as the 12-month price change, excluding the most recent month, in Brazilian reais (BRL). If there are less than 12 months of price change history, then the momentum score is calculated using nine months of price change history. In addition, the index applies a single stock weight cap of 20% to reduce concentration and improve diversification (see Exhibit 5).

Exhibit 5: Index Constituent Weights

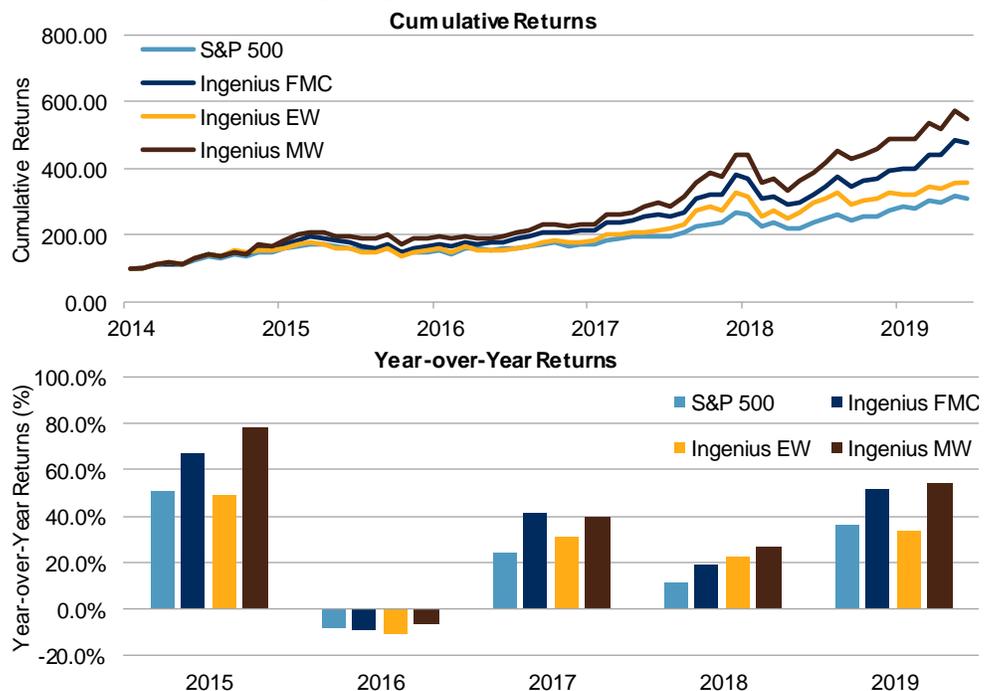


The index applies a single stock weight cap of 20% to reduce concentration and improve diversification.

Source: S&P Dow Jones Indices LLC. Data as of July 30, 2021. Table is provided for illustrative purposes.

In trying to determine the optimum weighting option, we compared the performance of different weighting mechanisms using hypothetical portfolios of the S&P/B3 Ingenius Index Methodology. These alternative weighting schemes were equal weighting (Ingenius EW), float-adjusted market capitalization weighting (Ingenius FMC), and momentum weighting (Ingenius MW).

Exhibit 6: Alternative Weighting Index Historical Performance



We compare the performance of the S&P/B3 Ingenius Index with alternative weighting mechanisms.

Source: S&P Dow Jones Indices LLC. Data as of Feb. 28, 2020. Index performance based on total return in BRL. The Ingenius FMC, EW, and MW are hypothetical portfolios. Past performance is no guarantee of future results. Charts are provided for illustrative purposes and reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Exhibit 7: Risk/Return Profile of Alternative Weighting Indices

Over all time periods studied, the momentum weighting scheme had the highest risk-adjusted returns.

PERIOD	S&P 500	INGENIUS FMC	INGENIUS EW	INGENIUS MW
ANNUALIZED RETURN (%)				
Three-Year	24.36	38.19	31.11	40.91
Five-Year	19.66	29.85	22.14	33.60
Since Inception	22.52	32.88	25.56	36.21
ANNUALIZED VOLATILITY (%)				
Three-Year	18.20	22.45	22.97	24.43
Five-Year	18.81	22.45	22.62	23.85
Since Inception	19.08	22.74	22.88	23.73
RETURN/RISK				
Three-Year	1.34	1.70	1.35	1.67
Five-Year	1.05	1.33	0.98	1.41
Since Inception	1.18	1.45	1.12	1.53

Source: S&P Dow Jones Indices LLC. Data from Sept. 30, 2014, to Feb. 28, 2020. Index performance based in total return in BRL. The Ingenius FMC, EW, and MW are hypothetical portfolios. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Based on the back-tested results, the momentum weighting scheme had higher risk-adjusted returns than the other weighting mechanisms. Weighting the stocks by their momentum scores, the index gives higher weight to constituents with greater relative price strength.

COMPARISON TO PEER GROUP INDICES

We compare the S&P/B3 Ingenius Index with the NASDAQ 100 Index and NYSE FANG+ Index, which also measure technology-driven and innovative companies.

Currently, there are several indices of other providers that also track the performance of technology-driven and innovative companies. Two of the most prominent are the Nasdaq-100 Index and the NYSE FANG+ Index. The Nasdaq-100 Index measures the performance of the largest 100 non-financial companies listed on the Nasdaq.¹ The NYSE FANG Index tracks “the performance of highly-traded growth stocks of technology and tech-enabled companies in the technology, media & communications and consumer discretionary sectors,” as detailed in the NYSE FANG+ Index Methodology.²

Each of these indices capture innovative, tech-oriented companies, however a deeper dive into the respective methodologies shows how each arrives at different compositions. The S&P/B3 Ingenius Index uses an industry selection that is replicable based on the well-known GICS system, while the others use a combination of discretionary selection (NYSE FANG+ Index) and broad exclusions (Nasdaq-100 Index).

¹ https://indexes.nasdaq.com/docs/Methodology_NDX.pdf

² https://www.theice.com/publicdocs/data/NYSE_FANGplus_Index_Methodology.pdf

Each of these indices capture innovative, tech-oriented companies, however a deeper dive into the respective methodologies shows how each arrives at different compositions.

Another difference between the Nasdaq-100 Index, NYSE FANG+ Index, and S&P/B3 Ingenius Index is the number of components in each index. The Nasdaq-100 Index is composed of 100 companies, while the NYSE FANG+ Index is the narrowest, with 10. While also highly focused, the S&P/B3 Ingenius Index is broader than the NYSE FANG+ Index, with 15 stocks. The objective of the index is to have focused and efficient representation of the most important companies within the eligible sub-industries and also allow for additional companies that may meet this objective. Refer to Appendix I for more details on the respective methodologies.

Exhibit 8: Methodology Comparisons of the S&P/B3 Ingenius Index and Peer Group Indices

CATEGORY	S&P/B3 INGENIUS INDEX	NASDAQ 100 INDEX	NYSE FANG+ INDEX
Industries Used for Selection	GICS Sub-Industries: <ul style="list-style-type: none"> • Interactive Media & Services • Movies & Entertainment • Internet & Direct Marketing Retail • Systems Software • Technology Hardware Storage & Peripherals • Data Processing & Outsourced Services • Semiconductors 	Classified as a Non-Financial company (any industry other than Financials, according to Industry Classification Benchmark)	Significant revenue exposures to: social networking, autonomous driving, electric vehicles, smartphones, mobile payments, e-commerce, online games, streaming media, online entertainment, cryptocurrencies and blockchain, big data, artificial intelligence, machine learning, digital advertising, cloud services and other innovative technologies
Selection	Eligible BDRs are ranked in descending order based on the product of their respective stock growth score multiplied by their FMC.	The top 75 ranked issuers will be selected for inclusion in the index, based on their market cap. Index members ranked between 76 and 100 remain in the index.	Index advisory committee is responsible for the selection of a minimum of 10 securities meeting eligibility criteria.
Number of Companies	Minimum of 6 Maximum of 15	100 issuers	Minimum of 10
Weighting	<ul style="list-style-type: none"> • Constituents are weighted by momentum score • Subject to a single stock weight cap of 20% 	<ul style="list-style-type: none"> • Modified market cap weighted • Subject to a single stock cap of 14% • Aggregate weight of the five largest stocks capped at 40% with additional quarterly reweights if thresholds are breached 	Constituents are equally weighted
Rebalancing	Annually in September with quarterly reweights in March, June, and December	Annual reconstitution in December, with quarterly rebalances in March, June, September, and December.	Quarterly in March, June, September, and December

Source: S&P Dow Jones Indices LLC, Nasdaq, and NYSE. Table is provided for illustrative purposes.

The Nasdaq-100 Index is composed of 100 companies, while the S&P/B3 Ingenius Index and NYSE FANG+ Index are more focused, with 15 and 10 stocks, respectively.

BACK-TESTED PERFORMANCE ANALYSIS

The S&P/B3 Ingenius Index outperformed the S&P 500 and Nasdaq-100 Index over all periods studied, albeit with higher volatility.

The S&P/B3 Ingenius Index outperformed the S&P 500 and Nasdaq-100 Index over all periods studied, albeit with higher volatility. While the NYSE FANG+ Index posted the strongest absolute returns, it was also the most volatile. The Nasdaq-100 Index was less volatile than both peer indices but underperformed them in almost every period analyzed. Overall, the S&P/B3 Ingenius Index has provided a middle ground, outperforming the Nasdaq-100 Index, while maintaining lower volatility than the NYSE FANG+ Index.

While the NYSE FANG+ Index posted the strongest absolute returns, it was also the most volatile.

Exhibit 9: Risk/Return Profile of the S&P/B3 Ingenius Index and Peer Group Indices

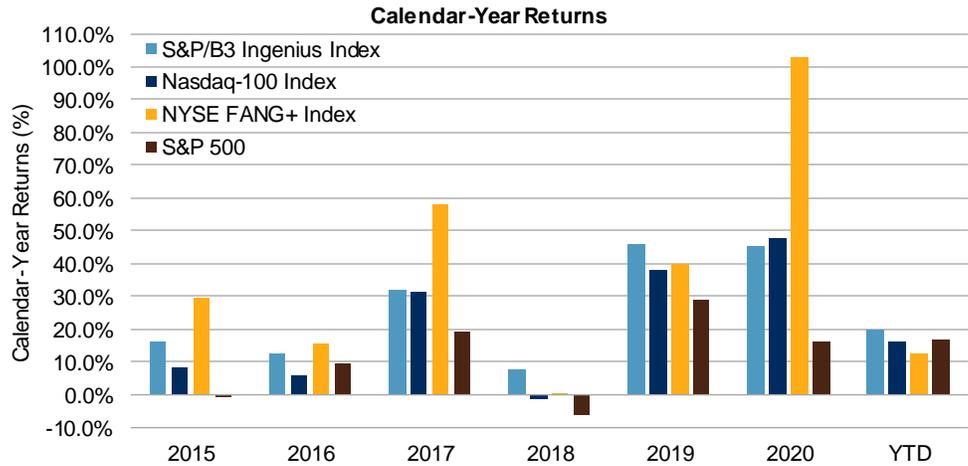
PERIOD	S&P/B3 INGENIUS INDEX	NASDAQ-100 INDEX	NYSE FANG+ INDEX	S&P 500
ANNUALIZED RETURNS (%)				
YTD	20.2	16.1	12.8	17.0
One-Year	39.8	37.2	52.0	34.4
Three-Year	30.6	27.4	37.4	16.0
Five-Year	30.0	25.9	41.5	15.1
Since Inception	26.4	20.8	33.6	12.3
RISK (%)				
Three-Year	22.8	20.3	27.7	18.5
Five-Year	19.1	16.6	23.7	14.8
Since Inception	18.8	16.6	22.9	14.2
RISK-ADJUSTED RETURNS				
Three-Year	1.34	1.35	1.35	0.87
Five-Year	1.57	1.56	1.75	1.02
Since Inception	1.40	1.26	1.47	0.87

For additional information and more recent data on the S&P/B3 Ingenius Index, please see the latest month-end [factsheet](#).

Source: S&P Dow Jones Indices LLC, FactSet, and NYSE. Data from Sept. 30, 2014, to July 30, 2021. Index performance based on price return³ in USD. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

³ The performance data are based on price return, which is the data publicly available for the NYSE FANG+ Index.

Exhibit 10: Historical Performance of the S&P/B3 Ingenius Index and Peer Group Indices



The Nasdaq-100 Index was less volatile than both peer indices but underperformed them in almost every period analyzed.

For additional information and more recent data on the S&P/B3 Ingenius Index, please see the latest month-end [factsheet](#).

Source: S&P Dow Jones Indices LLC, FactSet, and NYSE. Data as of July 30, 2021. Index performance based on price returns in USD. Past performance is no guarantee of future results. Charts are provided for illustrative purposes and reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

CONCLUSION

While indices measuring the performance of large, global tech companies exist in the marketplace, the S&P/B3 Ingenius Index is the first designed exclusively for Brazilian investors.

The S&P/B3 Ingenius Index is designed to capture some of the most innovative companies that create the products and services that affect many aspects of our everyday life. The index includes locally listed BDRs, providing access to the domestic Brazilian market.

While indices measuring the performance of large, global tech companies exist in the marketplace, the S&P/B3 Ingenius Index is the first designed exclusively for Brazilian market participants.

APPENDIX I

Exhibit 11: Detailed Methodology Comparison of the S&P/B3 Ingenius Index to Peer Indices			
CATEGORY	S&P/B3 INGENIUS INDEX	NASDAQ-100 INDEX	NYSE FANG+ INDEX
Universe	Members of the S&P Global BMI Growth with a growth score greater than 0.6. Includes common stocks, American Depositary Receipts (ADRs), and Global Depositary Receipts (GDRs). Must also be trading on the B3 as BDRs.	ADRs, common stocks, ordinary shares, and tracking stocks listed on the Nasdaq.	Common stocks, ADRs or GDRs of companies listed on the NYSE, Nasdaq, NYSE American, NYSE Arca, or CBOE BZX.
Sectors	GICS: Communication Services and Information Technology Sectors	FTSE International Ltd.'s Industry Classification Benchmark	ICE Uniform Sector Classification schema: Consumer Discretionary, Media & Communications or Technology sectors
Industries	Selection focus on the following GICS sub-industries: Interactive Media & Services, Movies & Entertainment, Internet & Direct Marketing Retail, Systems Software, Technology Hardware, Storage & Peripherals, Data Processing & Outsourced Services, Semiconductors	The security must be classified as a Non-Financial company (any Industry other than Financials) according to ICB	Qualifying companies have significant revenue exposures to one or more of the areas of search, social networking, autonomous driving, electric vehicles, smartphones, mobile payments, e-commerce, online games, streaming media, online entertainment, cryptocurrencies and blockchain, big data, artificial intelligence, machine learning, digital advertising, cloud services and other innovative technologies
Market Capitalization	Float adjusted market cap of USD 50 billion	There is no market capitalization eligibility criterion	Full company market cap (all listed and unlisted share classes) of at least USD 5 billion
Liquidity (As of Rebalance/Reference Date)	12-month median value traded ratio of 10% (emerging markets [EM]) 20% (developed markets [DM]) plus six-month median daily value traded of USD 100,000 (EM), USD 250,000 (DM)	Each security must have a minimum average daily trading volume of 200,000 shares (measured over three calendar months)	Securities must have a trailing six-month average daily traded value (ADTV or daily turnover) of at least USD 50 million on the specific share class included in the index
Multiple Share Classes	Each company is represented once by the most liquid share class line based on six-month ADVT	If an issuer has listed multiple security classes, all security classes are eligible, subject to meeting all other security eligibility criteria	For any securities with multiple qualifying share classes, the most liquid share class is included in the index based on its trailing six-month ADTV
Selection	Eligible BDRs are ranked in descending order based on the product of their respective stock growth score multiplied by their FMC.	The top 75 ranked issuers will be selected for inclusion in the index, based on their market cap. Index members ranked between 76 and 100 remain in the index.	Index advisory committee is responsible for the selection of a minimum of 10 securities meeting eligibility criteria. The advisory committee's selections are subject to the review and approval of the ICE Data Indices (IDI) Governance Committee.
Number of Selected Companies	Minimum of 6 Maximum of 15	100 issuers	Minimum of 10, but may be more, or less subject to the discretion of the IDI Governance Committee
Weighting	Constituents are weighted by momentum score Subject to a single stock weight cap of 20%	Modified market cap weighted Subject to a single stock cap of 14% The aggregate weight of the five largest stocks capped at 40%. Quarterly reweights if single stock cap exceeds 24% and the aggregate weight of stocks weighting 4.5% or more exceeds 48%.	Constituents are equally weighted
Rebalancing	Annually in September with quarterly reweights in March, June, and December	Annual reconstitution in December, with quarterly rebalances in March, June, September, and December.	Quarterly in March, June, September, and December

Source: S&P Dow Jones Indices LLC. Table is provided for illustrative purposes.

PERFORMANCE DISCLOSURE/BACK-TESTED DATA

The S&P/B3 Ingenius Index was launched May 11, 2020. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index 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. Complete index methodology details are available at www.spglobal.com/spdji. Past performance of the Index is not an indication of future results. 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. 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. Back-tested performance is for use with institutions only; not for use with retail investors.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate S&P DJI's ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the [FAQ](#). The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used.

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