



The Evolution of Passive Investing

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Index Investment Strategy

**S&P Dow Jones
Indices**

A Division of **S&P Global**

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S&P Dow Jones Indices – For Financial Professionals Only

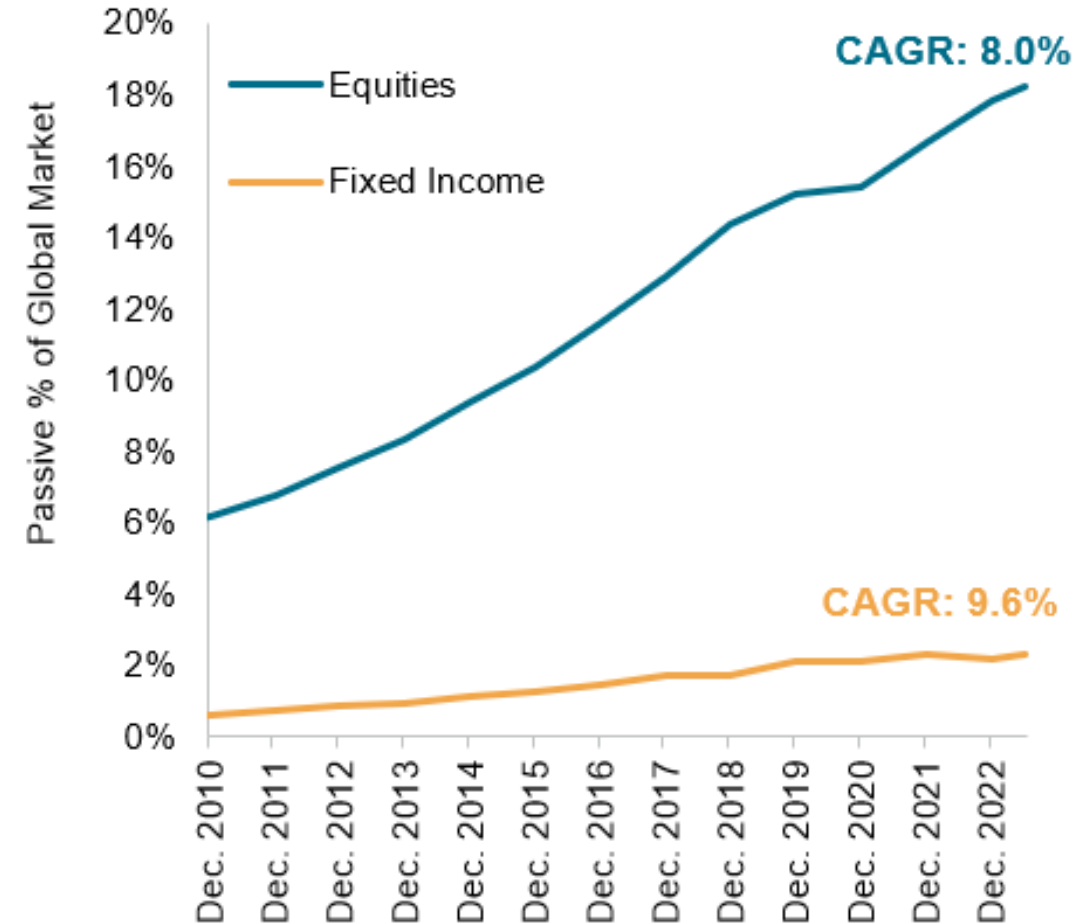
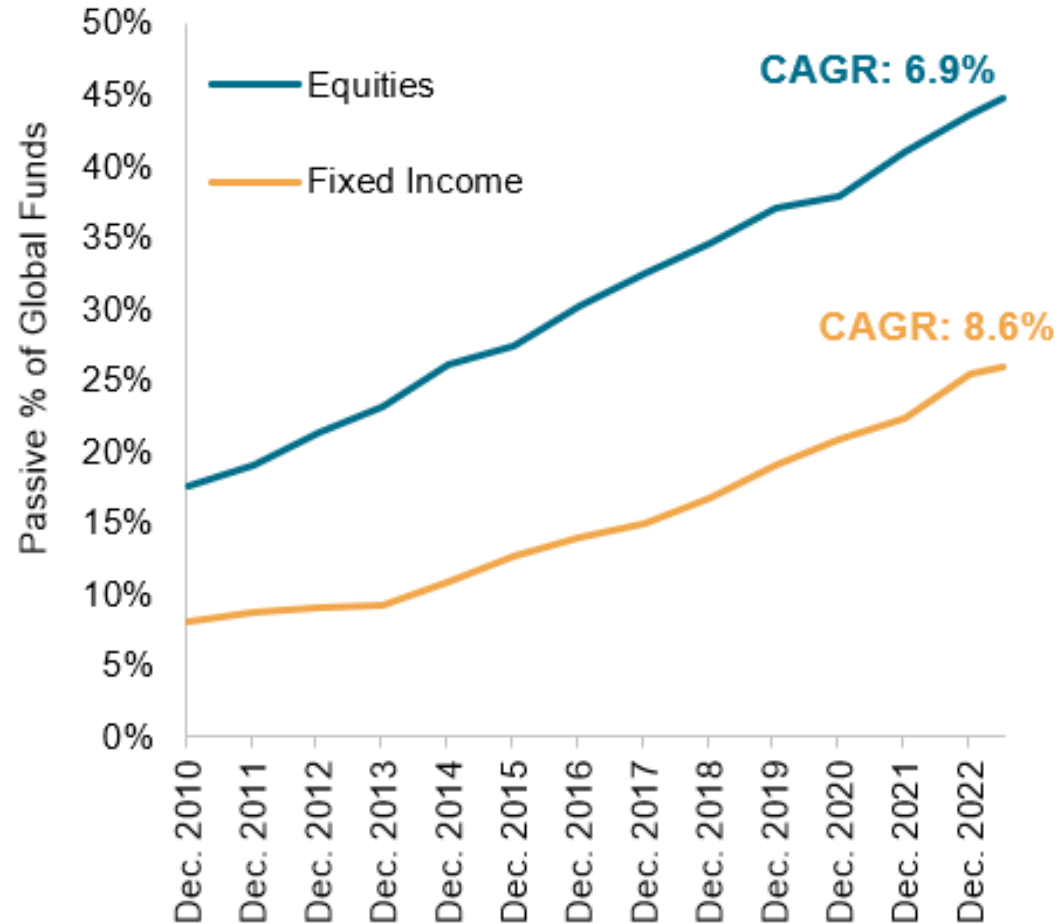
"There are these two young fish swimming along and they happen to meet an older fish swimming the other way, who nods at them and says "Morning, boys. How's the water?" And the two young fish swim on for a bit, and then eventually one of them looks over at the other and goes "What's water?" "

David Foster Wallace (2005)

Agenda

- SPIVA® and the Case for Passive Investing in Equities
- The Evolution of Indices
- Index-Based Investing and Trading
- Fixed Income Perspectives

How Massive is Passive?



Source: Reproduced from "[The Hare & The Tortoise: Assessing Passive's Potential in Bonds](#)"; S&P DJI Research, 2024. Data as of Dec 31, 2023. Past performance is no guide to future performance. Chart is provided for illustrative purposes.

What is SPIVA®?

Examines active fund performances on a semi-annual basis.

- **Simple**: Most quoted statistic is the percentage of funds that beat their assigned S&P DJI benchmark over various time periods
- **Data-led**: where active is working, and where it is not
- **Global**: separate reports for the fund industries in each of U.S., Europe, Australia, Japan, Latin America, Canada, South Africa and India
- **Current**: updated semi-annually, with historical reports available online (20 years for U.S.)
- **Robust**: controls for survivorship bias, with a range of extensions exploring themes such as persistence, net-of-fees and institutional account performance

Resource: [SPIVA® Scorecards: An Overview](#)

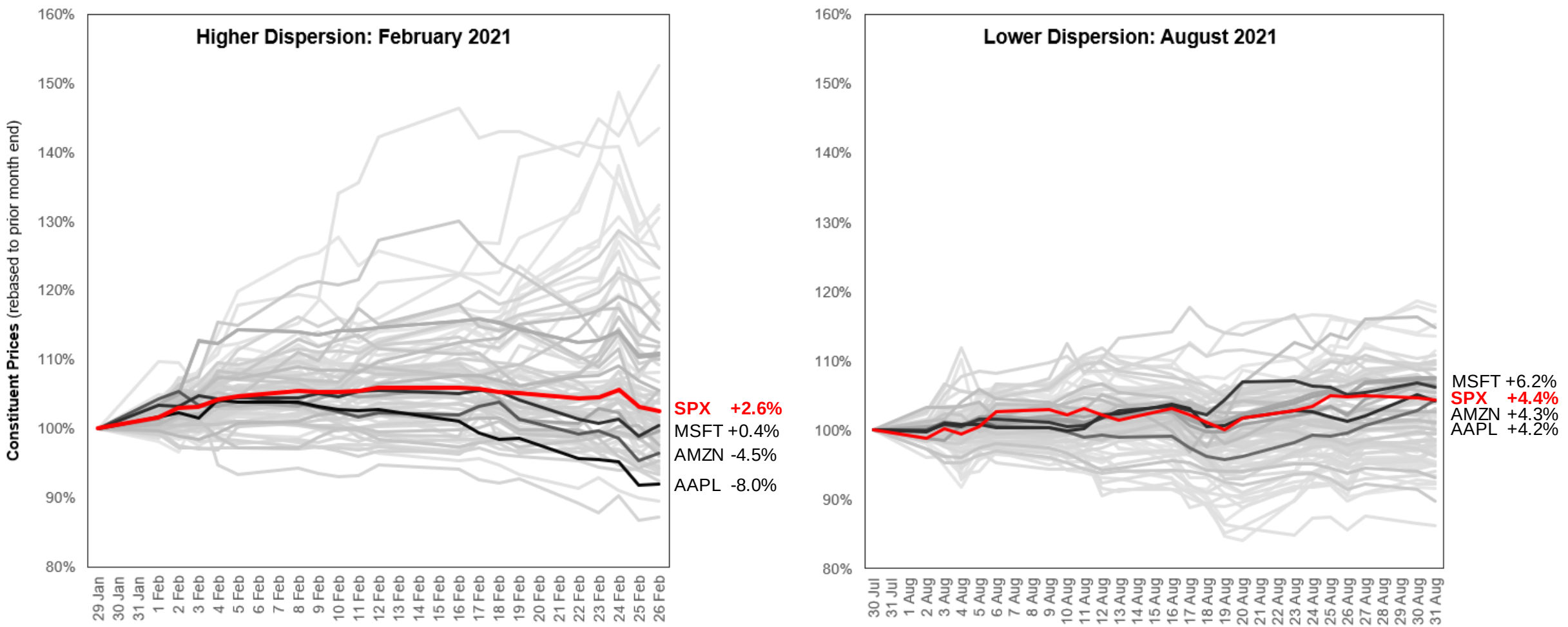
Domestic Equity Fund Underperformance Rates

(to December 2023)

Fund Category	Comparison Index	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)	20-Year (%)
All Domestic Funds	S&P Composite 1500®	75	79	85	91	91	94
All Large-Cap Funds	S&P 500	60	80	79	87	88	93
All Mid-Cap Funds	S&P MidCap 400	50	70	66	80	88	93
All Small-Cap Funds	S&P SmallCap 600	48	64	61	88	87	96
All Multi-Cap Funds	S&P Composite 1500	72	78	83	91	89	94
Large-Cap Growth Funds	S&P 500 Growth	10	72	59	84	87	94
Large-Cap Core Funds	S&P 500	73	79	81	96	95	94
Large-Cap Value Funds	S&P 500 Value	91	94	93	93	94	91
Mid-Cap Growth Funds	S&P MidCap 400 Growth	24	88	45	63	83	90
Mid-Cap Core Funds	S&P MidCap 400	72	59	78	89	94	93
Mid-Cap Value Funds	S&P MidCap 400 Value	75	71	77	94	91	96
Small-Cap Growth Funds	S&P SmallCap 600 Growth	55	87	54	84	85	98
Small-Cap Core Funds	S&P SmallCap 600	52	52	60	93	93	97
Small-Cap Value Funds	S&P SmallCap 600 Value	37	49	62	88	85	94
Multi-Cap Growth Funds	S&P Composite 1500 Growth	42	76	73	90	89	94
Multi-Cap Core Funds	S&P Composite 1500	76	82	88	97	94	94
Multi-Cap Value Funds	S&P Composite 1500 Value	91	89	88	97	92	92
Real Estate Funds	S&P United States REIT	87	95	60	76	87	91

Source: S&P Dow Jones Indices LLC, CRSP. Data as of Dec. 31, 2023. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

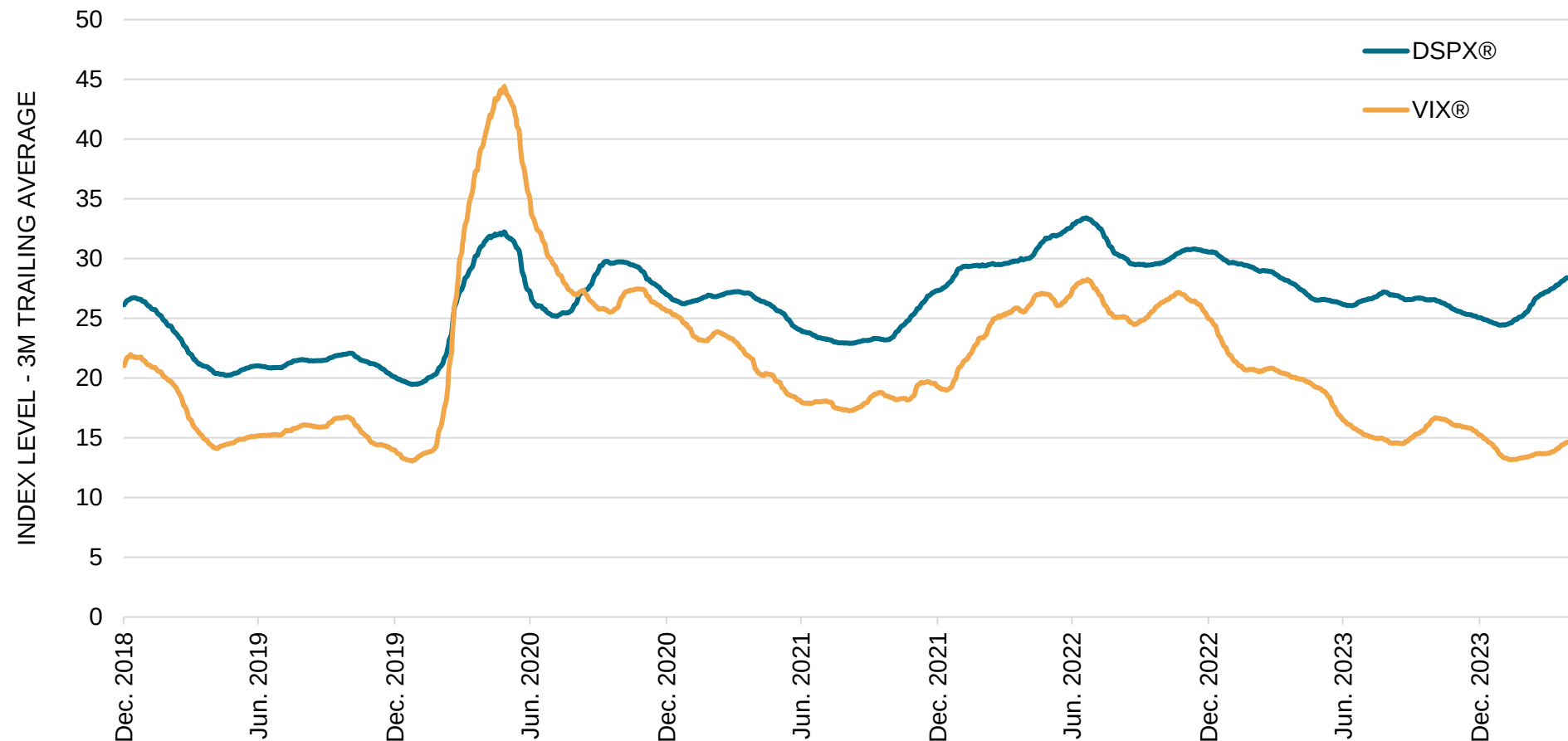
Illustrating Stock-Level Dispersion



Source: S&P Dow Jones Indices. Annualized monthly index dispersion in the S&P 500 was 34.2% and 17.2%, respectively, in February 2021 and August 2021. Shows constituent returns for all then-current constituents of the Cboe S&P 500 Dispersion Basket Index, and the S&P 500 price index return (all rebased). Series coloured according to S&P 500 index weight (darker colours are larger weights). Data as of September 2023. Provided for illustrative purposes only. Past performance is no guarantee of future performance.

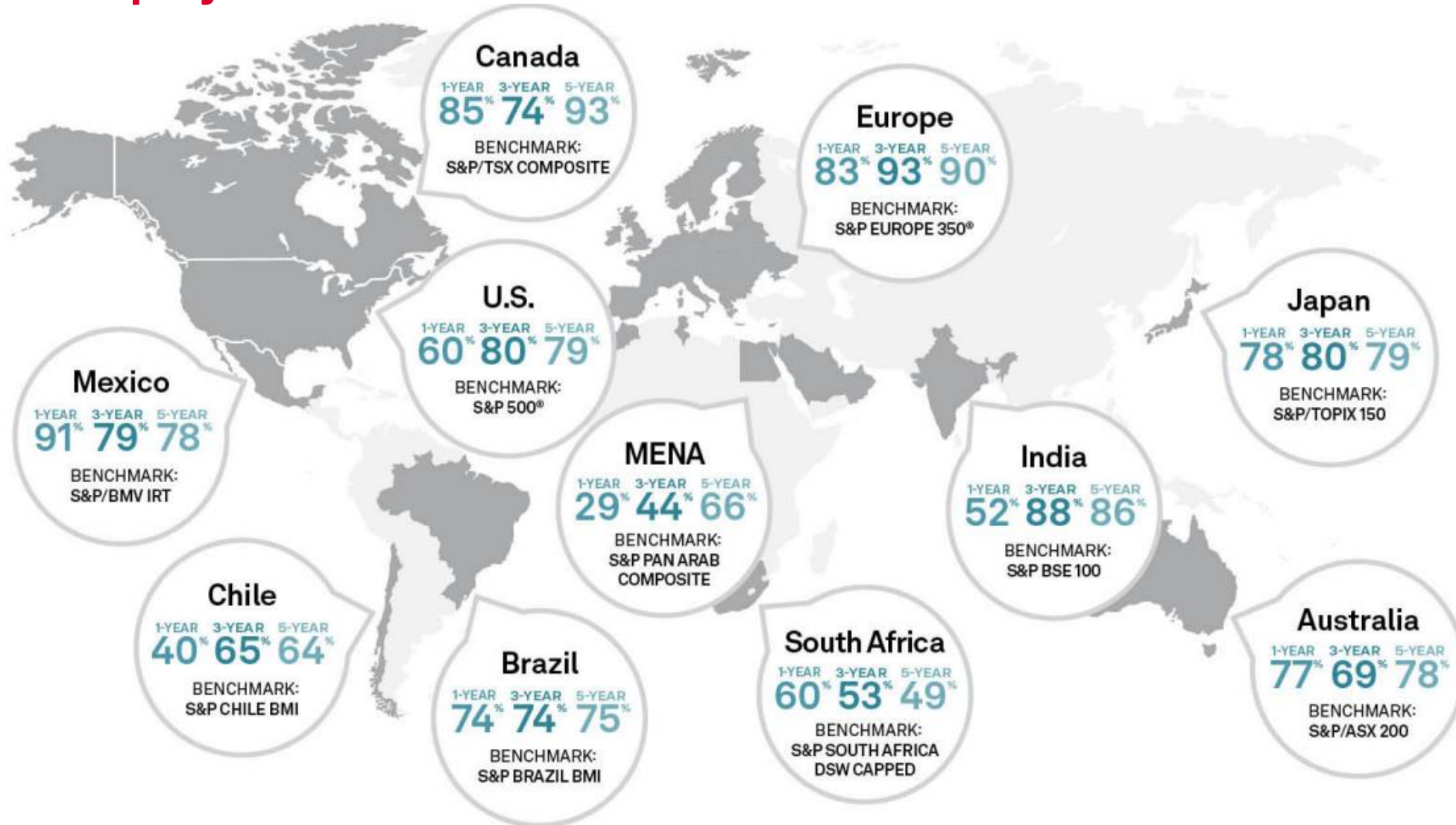


The Balance of U.S. Equity Risk has Evolved



Sources: Cboe, S&P Dow Jones Indices as of April 27, 2024. Illustrative purposes only. Past performance is no guide to future performance. This chart may 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.

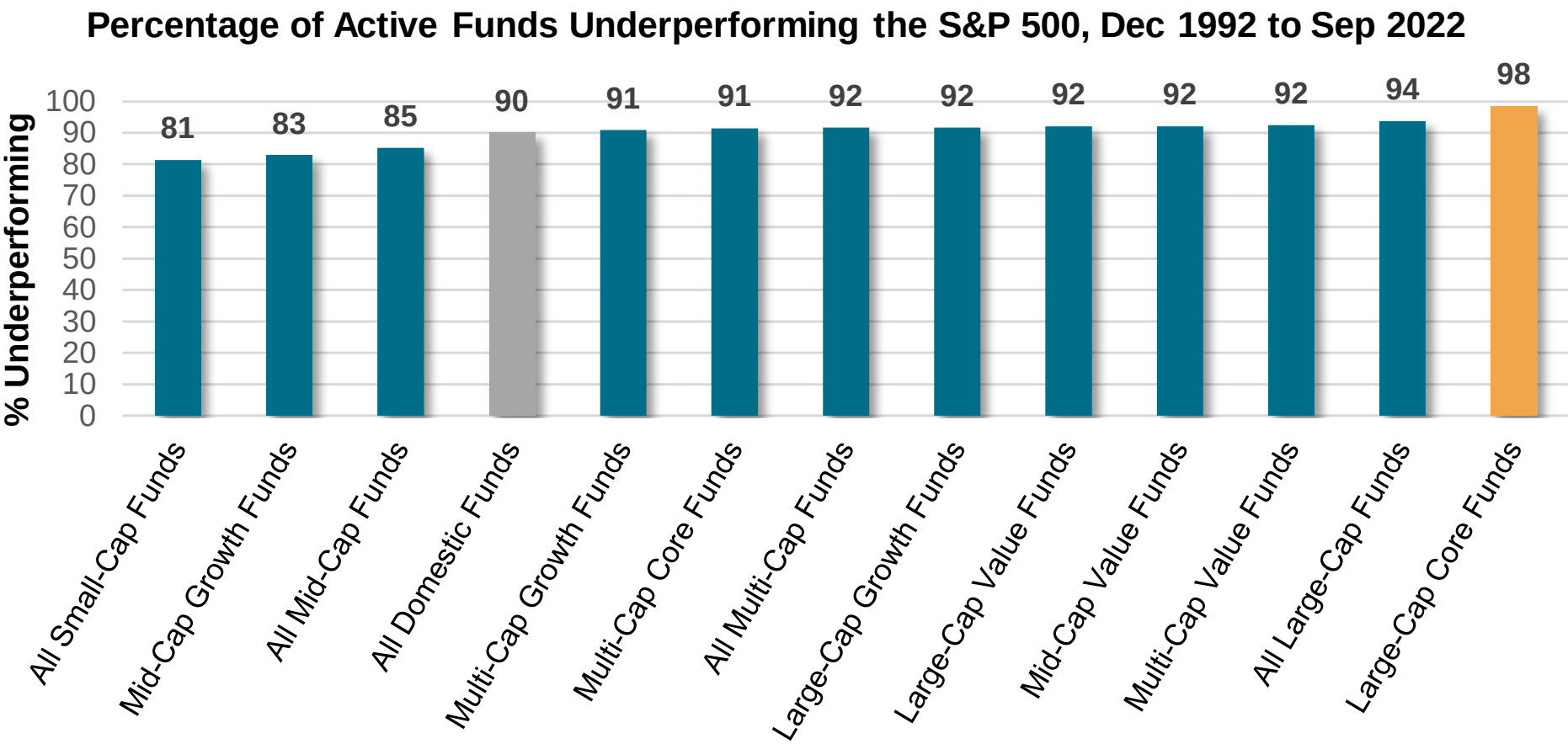
SPIVA® Equity Around the World



* Multiple benchmarks exist in all regions tracked by SPIVA®. For more information on SPIVA® methodology, including a full list of regional benchmarks and results, visit <https://www.spglobal.com/spdji/en/research-insights/spiva>.

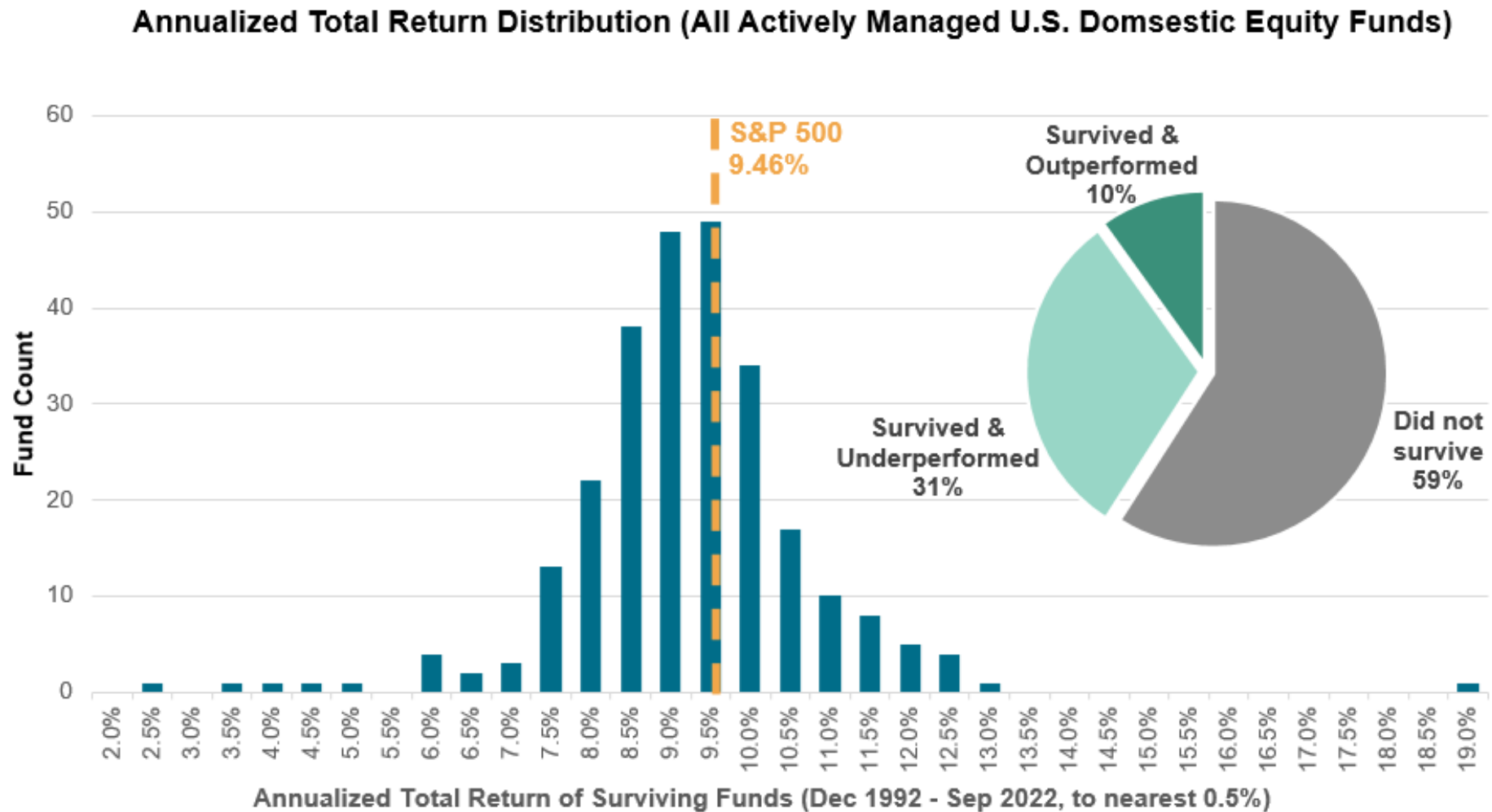
Source: S&P Dow Jones Indices LLC, Morningstar, CRSP. Data as of Dec. 31, 2023. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

A Longer-Term Perspective



Sources: S&P Dow Jones Indices, CRSP. Data for the period Dec 31, 1992 – Sep 30, 2022 as compared to the S&P 500 total return in U.S. dollars. See [“A Spider Spins a SPIVA® Special”](#) for more details. Past Performance is no guide to future performance. Provided for illustrative purposes only.

Behind the Statistics: Distribution of Active Fund Returns



Sources: S&P Dow Jones Indices, CRSP, Lipper. Data for the period Dec 31, 1992 – Sep 30, 2022 as compared to the S&P500 total return in U.S. dollars. For details on the methodology applied, see S&PDJI's U.S. SPIVA® Scorecard. Past Performance is no guide to future performance. Provided for illustrative purposes only.

Annual Survey of Indexed Assets (2022)

For 2022, S&P DJI estimates that USD 11.4 trillion was indexed or benchmarked to the S&P 500 alone¹, with indexed (or passively managed) assets making up approximately USD 5.7 trillion of this total.

S&P Dow Jones Indices Index / Series ⁶	Indexed Asset Value ¹ (USD Millions)			Benchmarked Asset Value ² (USD Millions)	Total Asset Value (USD Millions)
	ETP ³	Non-ETP ⁴	Total		
U.S. Equity – Core	2,386,823	4,413,158	6,799,981	5,868,113	12,668,094
Global Equity – Core	170,637	64,999	235,635	749,128	984,763
Fixed Income	164,666	54,736	219,401	725,053	944,455
Target Date/Target Risk	6,835	24,800	31,635	685,730	717,365
Sectors/Industry	348,551	4,677	353,228	108,545	461,773
Style	185,212	61,904	247,116	51,499	298,615
Dividends	206,495	14,380	220,876	72,350	293,226
Factors, Thematics, Equal Weight	87,552	26,564	114,116	86,738	200,854
Alternatives	40,562	65,349	105,911	90,054	195,966
Sustainable	34,213	2,941	37,154	47,618	84,772
Total	3,631,547	4,733,508	8,365,054	8,484,829	16,849,884

¹ Indexed assets are assets in and/or notional value of institutional funds, ETFs, retail mutual funds, exchange-traded derivatives and other investable products that seek to replicate or capture the performance of the respective S&P DJI indices.

² Benchmark assets are assets in actively managed funds whose performance are compared to or measured against the respective S&P DJI indices.

³ Exchange-Traded Products (ETPs) include Exchange-Traded Funds (ETFs), Exchange-Traded Notes (ETNs), Exchange-Traded Commodities (ETCs) and Exchange-Traded Derivatives.

⁴ Non-ETP assets include mutual funds, institutional funds, separately managed accounts and insurance products.

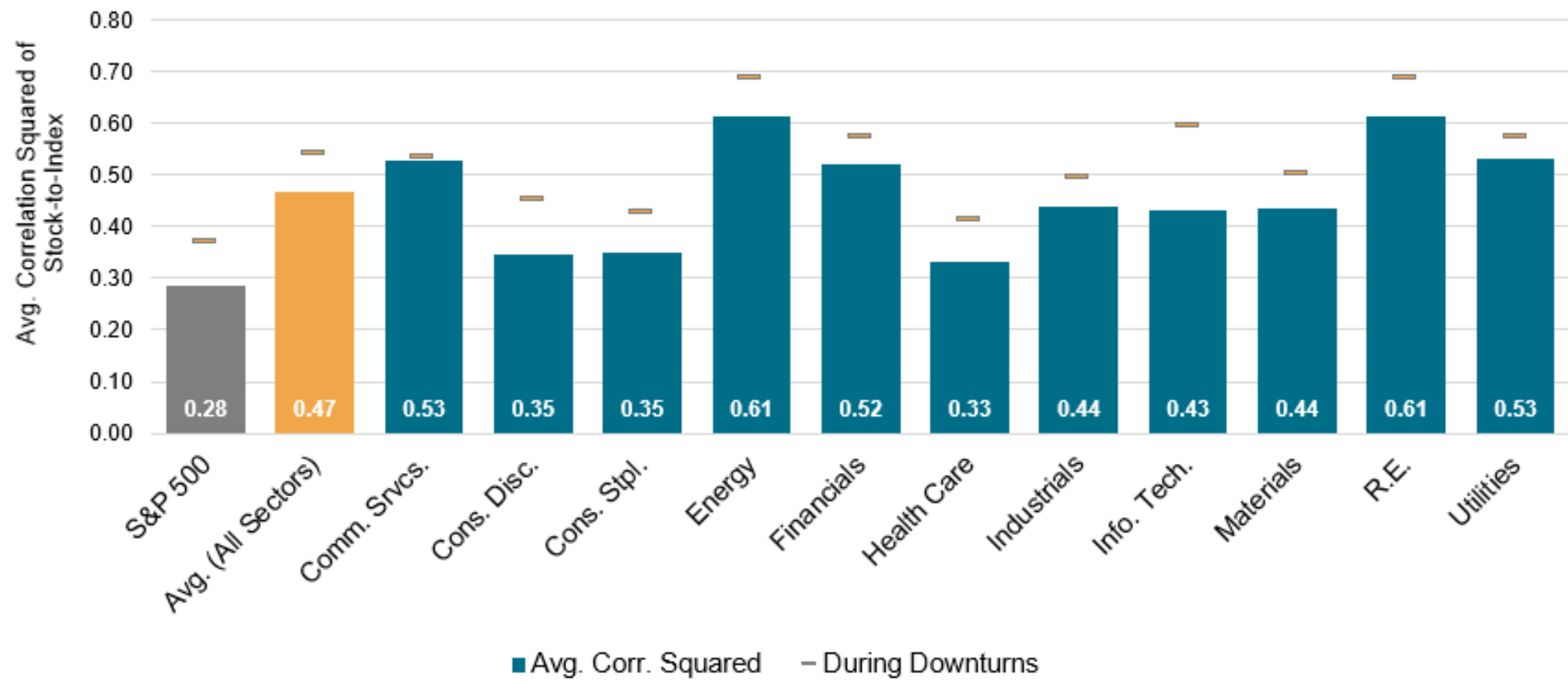
Source: S&P Dow Jones Indices LLC, S&P Dow Jones Indices client-reported data, eVestment, FIA and Morningstar Inc. Asset values as of Dec. 31, 2022. Table is provided for illustrative purposes.

Evolution of Indexing

Indices	Examples	Attributes
Broad Market	S&P 500®, iBoxx USD Overall, S&P GSCI	• Capitalization-weighted • Aim to represent an asset class
Specialized	S&P 500 Energy, iBoxx 7-10Y U.S. Treasury	• Focus on a subset of the broader market • Typically capitalization-weighted
Factor ("Smart Beta" / Alternatively Weighted)	S&P 500 Low Volatility, S&P High Yield Dividend Aristocrats®	• Focus on specific <i>patterns</i> or <i>characteristics</i> • Better "indicize" active strategies • Typically <i>not</i> capitalization-weighted
Sustainability	S&P 500 ESG iBoxx Global Green Bonds	• Express certain values or investment restrictions • Might be broad or specialized

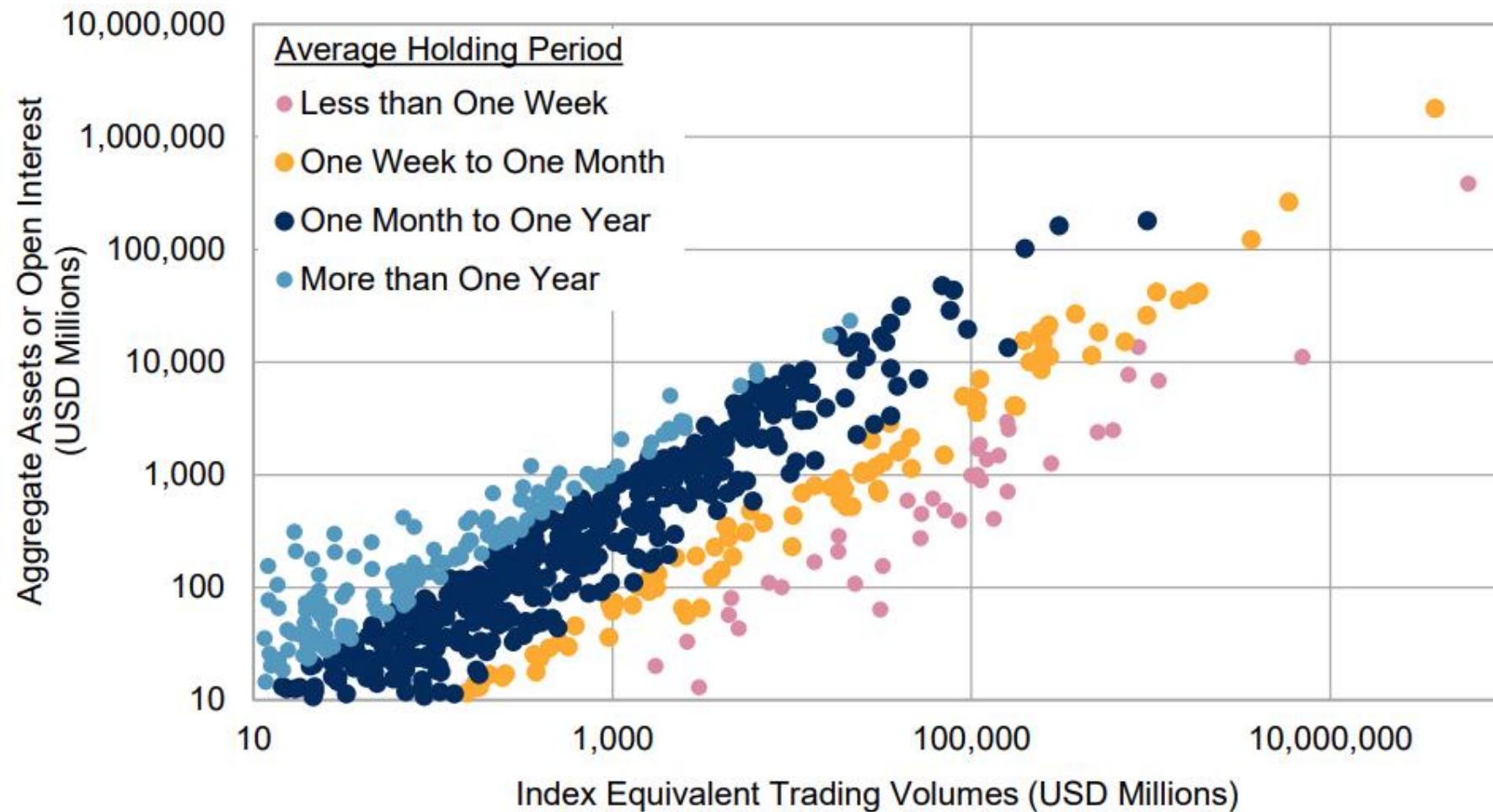
Source: S&P Dow Jones Indices LLC.

Drivers of S&P 500 Stock Price Fluctuations



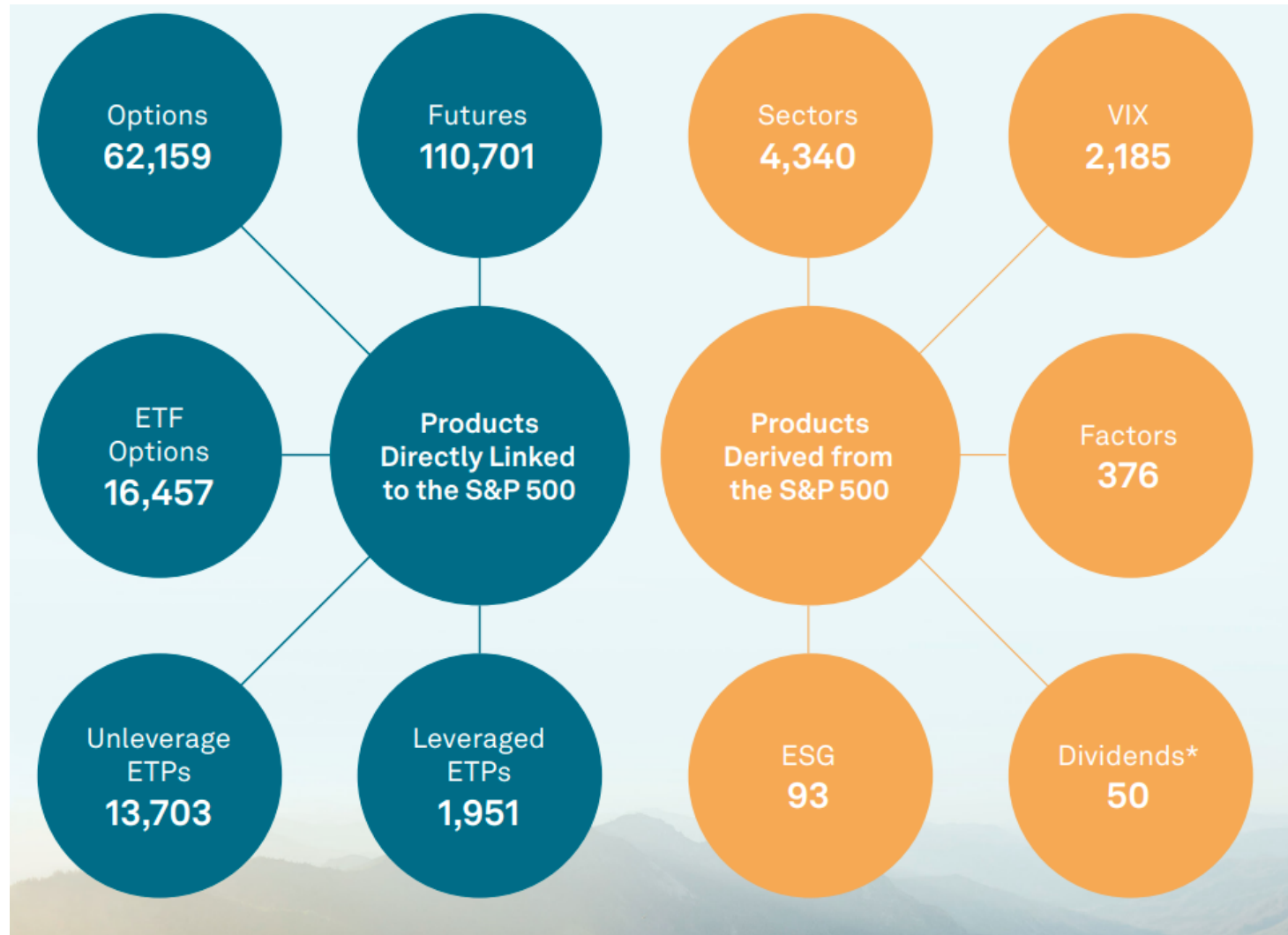
Source: S&P Dow Jones Indices LLC. Data from Dec. 31, 1999 through Dec. 31, 2023. Data based on average of monthly correlation-squared of stocks to sectors and the S&P 500. Downturn average since 1999 includes peak-to-trough performance during dot-com crash, GFC, COVID-19 emergence, and 2022 bear market. See appendix for date details. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Active Usage of Passive Products (2019)



Source: S&P Dow Jones Indices LLC. Average holding period is computed by $(\text{assets}/\text{IET}) \times 365$. Data as of June 30, 2019. See "A Window on Index Liquidity" (S&P DJI research, June 2019) for further details. Chart is provided for illustrative purposes

Annual Trading Volumes Associated to the S&P 500 Ecosystem (2022)



Sources: S&P Dow Jones Indices LLC, Futures Industry Association (FIA), Bloomberg, Options Clearing Corporation (OCC), Cboe. Data as of Dec. 31, 2022, unless otherwise stated. Past performance is no guarantee of future results. Chart is provided for illustrative purposes. For options, a delta adjustment is applied, which is a monthly volumes-weighted average delta provided by Cboe and ranged from 0.21 –0.23 in 2022. Updated from "[A Window on Index Liquidity](#)," S&P Dow Jones Indices (August 2019). Figures in billions of U.S. dollars of index equivalent trading volumes. *In 2019, Index Dividends was focused on product linked to our Dividend Points indices, whereas the new Dividends category also includes dividend-themed products, for example the S&P 500 dividend families including Dividend Aristocrats, High Dividend, Low Volatility High Dividend and others. Data sources have also changed since the original publication of the paper. For further details see "[Mapping the S&P 500 Trading Ecosystem](#)."

Comparative History

	Equities	Fixed Income
First Indices	1884 (Dow Transports) Typically first published by media or exchange companies	1973 (Aggregate) Typically published by brokerage houses
First Index Fund	1973*	1986
First Index Future	1982, followed by S&P 500 in 1983	2007 Lehman Agg (discontinued) 2018 iBoxx \$ IG and \$HY Corporates
First ETF	1990 ⁺	2002
First mention in SPIVA®	2002	2008

Sources: S&P Dow Jones Indices, Various media sources. * Based on the first mutual fund tracking the S&P 500.† The first Equity ETF was launched in Canada; the "SPDR" was launched in 1993

SPIVA® 2023 - Fixed Income Fund Underperformance Rates

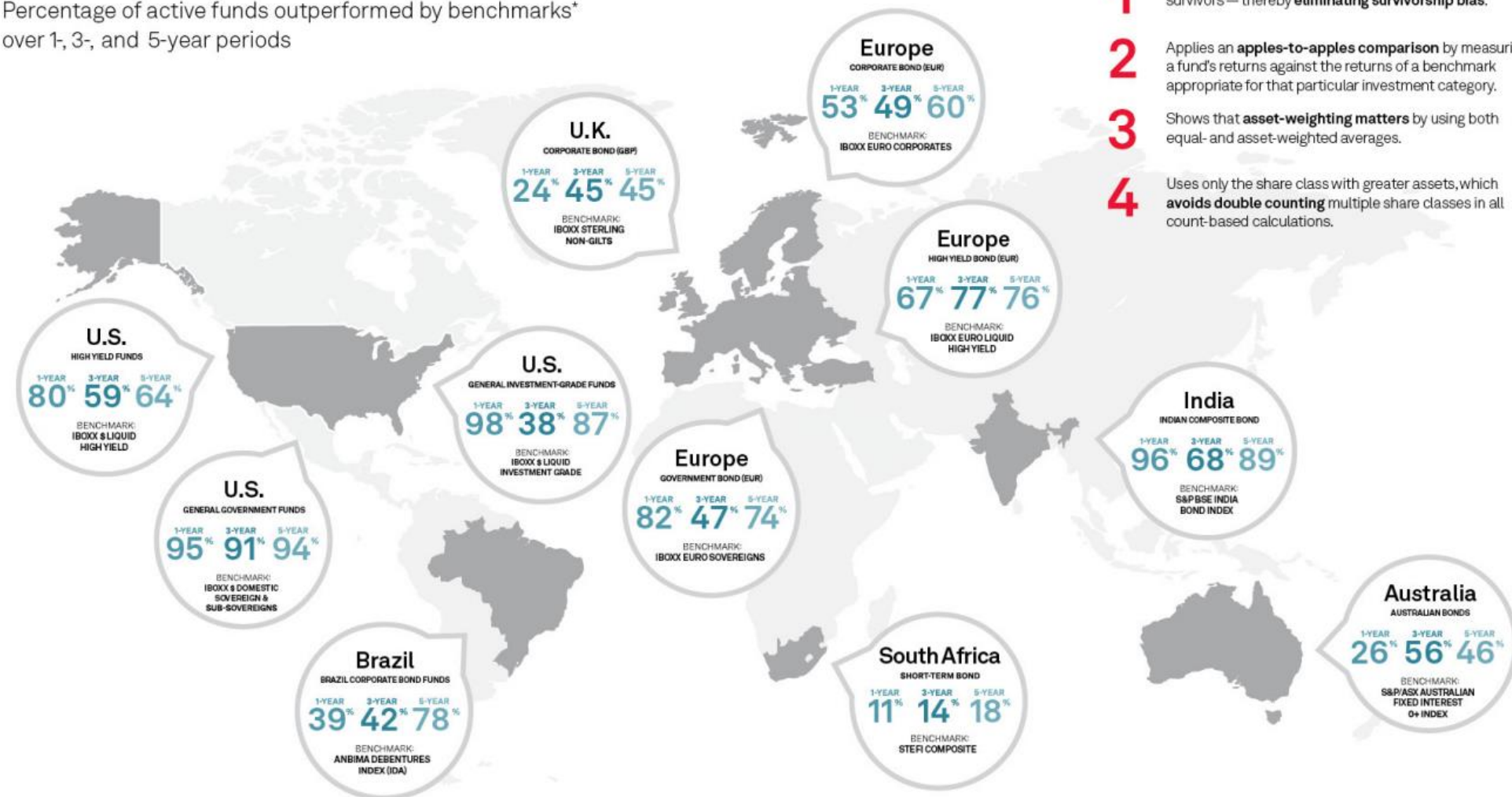
(Dec. 2023)

Fund Category	Comparison Index	1-Year (%)	3-Year (%)	5-Year (%)	10-Year (%)	15-Year (%)
General Government Funds	iBoxx \$ Domestic Sovereign & Sub-Sovereigns	95	91	94	94	82
Government Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-10Y	89	95	90	94	83
Government Short & Short-Intermediate Funds	iBoxx \$ Domestic Sovereigns & Sub-Sovereigns 1-5Y	82	66	86	93	95
General Investment-Grade Funds	iBoxx \$ Liquid Investment Grade	98	38	87	91	82
Investment-Grade Intermediate Funds	Bloomberg U.S. Aggregate	44	62	47	71	59
Investment-Grade Short & Intermediate Funds	iBoxx \$ Overall 1-5Y	30	24	41	64	62
General Bond Funds	iBoxx \$ Overall	31	33	45	64	59
High Yield Funds	iBoxx \$ Liquid High Yield	80	59	64	78	78
Mortgage-Backed Securities Funds	Bloomberg US Aggregate Securitized - MBS	67	58	68	85	76
Inflation-Linked Funds	iBoxx TIPS Inflation-Linked	63	49	78	96	97
Global Income Funds	Bloomberg Global Aggregate	37	42	46	63	58
Emerging Market Debt Funds	Bloomberg Emerging Markets USD Aggregate	29	56	64	91	96
General Municipal Debt Funds	S&P National AMT-Free Municipal Bond	39	92	81	67	58
California Municipal Debt Funds	S&P California AMT-Free Municipal Bond	30	75	71	54	53
New York Municipal Debt Funds	S&P New York AMT-Free Municipal Bond	19	92	81	75	69
Loan Participation Funds	Markit iBoxx USD Leveraged Loans	88	94	93	100	96

Source: S&P Dow Jones Indices LLC, CRSP. Data as of Dec. 31, 2023. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

SPIVA® Fixed Income Around the World

Percentage of active funds outperformed by benchmarks*
over 1-, 3-, and 5-year periods



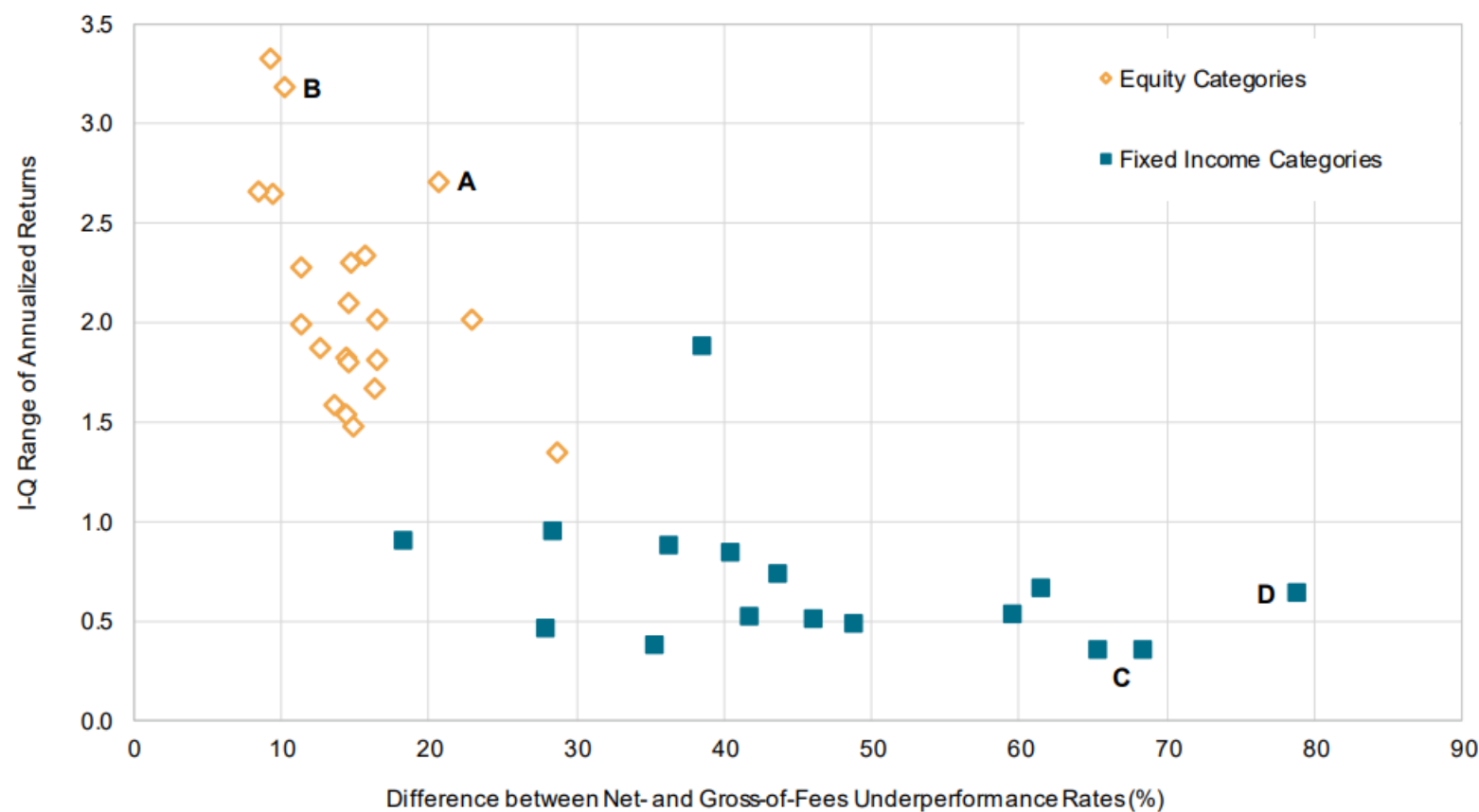
The SPIVA Difference

- 1 Accounts for the entire opportunity set — not just the survivors — thereby **eliminating survivorship bias**.
- 2 Applies an **apples-to-apples comparison** by measuring a fund's returns against the returns of a benchmark appropriate for that particular investment category.
- 3 Shows that **asset-weighting matters** by using both equal- and asset-weighted averages.
- 4 Uses only the share class with greater assets, which **avoids double counting** multiple share classes in all count-based calculations.

* Multiple benchmarks exist in all regions tracked by SPIVA®. For more information on SPIVA® methodology, including a full list of regional benchmarks and results, visit <https://www.spglobal.com/spd/en/research-insights/spiva>.

Source: S&P Dow Jones Indices LLC, Morningstar, CRSP. Data as of Dec. 31, 2023. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Where Fees Mattered More



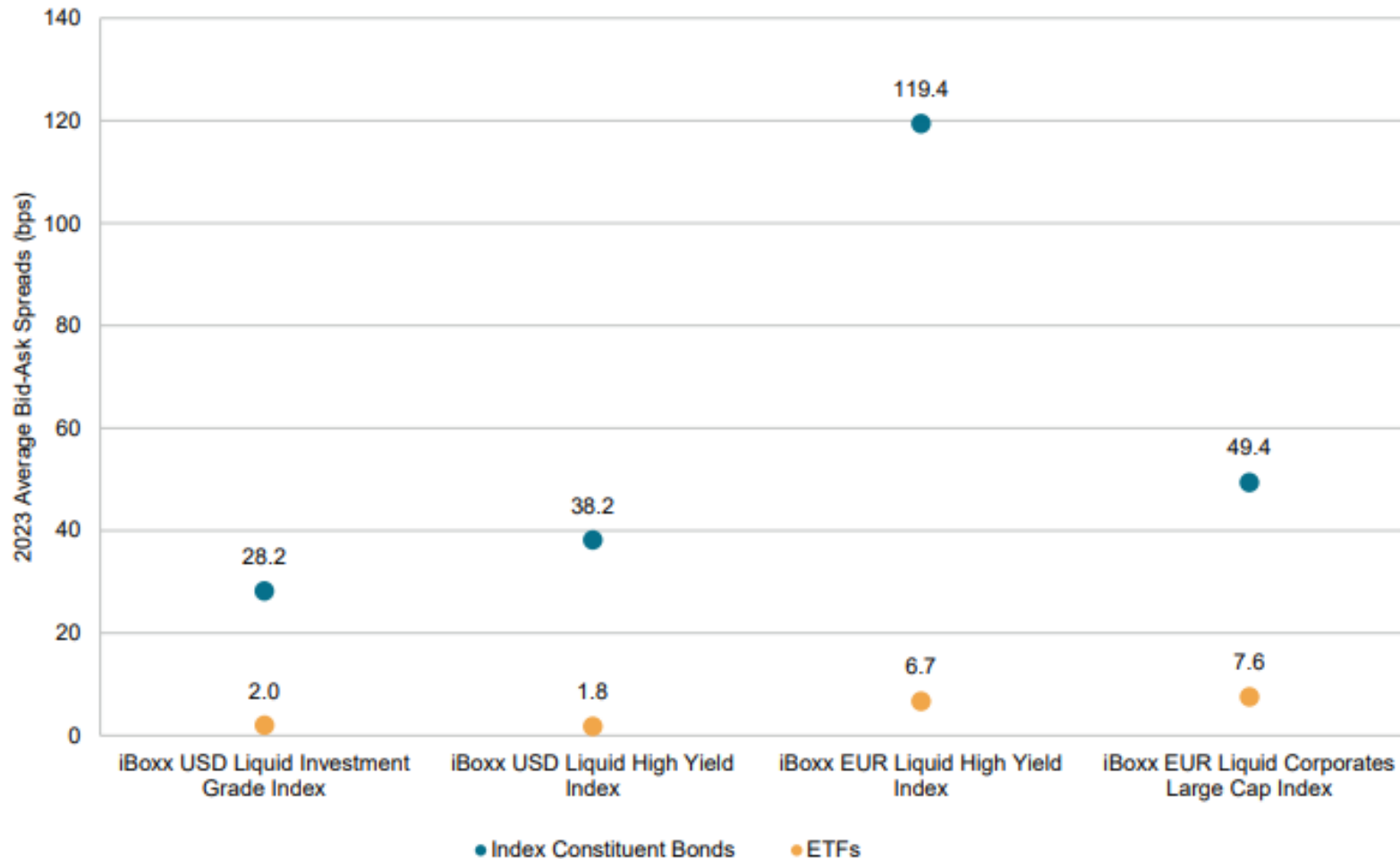
International SmallCap Funds (point “A”), and broader categories, such as All Multi-Cap Funds (point “B”), exemplify a high interquartile range and a low differential between underperformance rates gross- and net-of-fees.

The categories of California, and New York Municipal Debt Funds (point “C”) and Loan Participation Funds (point “D”) display the potential importance of fees in such relatively narrow asset classes.”

[**SPIVA® 2022 Institutional Scorecard**](#)

Source: S&P Dow Jones Indices LLC, CRSP. Data as of Dec. 31, 2022. Based on 10-year statistics for U.S. mutual funds. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Fund and Security Liquidity Comparisons



*“The distance between the top and bottom dots indicates the average cost savings in 2023 from transacting in the ETF tracking a given iBoxx index rather than replicating the index using individual bonds. **In all cases, the ETF had lower bid-ask spreads.** The difference was most notable for the iBoxx Euro Liquid High Yield Index.”*

[2023 S&P DJI Fixed Income Products Annual Report](#)

Source: S&P Dow Jones Indices LLC, S&P Global Market Intelligence. Data as of Dec. 31, 2023. Chart is provided for illustrative purposes.

Additional Resources on SPIVA

Performance Reports

[U.S. Sector Dashboard \(monthly\)](#)

[S&P 500 Factor Dashboard \(monthly\)](#)

Or sign up for our [daily commentary](#)

SPIVA Scorecards

[2023 Europe SPIVA](#)

[2023 U.S. SPIVA](#)

[2023 Sustainability](#)

[2022 U.S. After-Tax](#)

[2022 U.S. Persistence](#)

[2022 Institutional](#)

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Performance Disclosure/Back-Tested Data

S&P 500 ESG Leaders Index was launched Feb 07, 2022]. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance, and is based on the index methodology 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. 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. Complete index methodology details are available at www.spdji.com. 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.

Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices maintains the index and calculates the index levels and performance shown or discussed but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US \$100,000 investment for a 12-month period (or US \$10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US \$1,650), the net return would be 8.35% (or US \$8,350) for the year. Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US \$5,375, and a cumulative net return of 27.2% (or US \$27,200).