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# **Notes on Indices and Benchmarking**

## **4<sup>th</sup> Congreso Asofiduciarias**

# Index Highlights

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## Seasoned technology

- Often sponsored by journalists or stock exchanges

## Shorthand for performance of “the market”

## Can be used as

- Benchmark for an active portfolio
- Basis for a passive portfolio

# Outline

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S&P Dow Jones Indices

Why Indexing Grew

Why Index Growth Will Continue

# S&P Dow Jones Indices

# (Abbreviated) History of Indexing

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## Dow Jones Industrials

- 1896, 12 stocks, price-weighted
- Oldest index still in use

## S&P's predecessor, Standard Statistics Company

- A 233 stock *capitalization-weighted* weekly index beginning in 1923
- A 90 stock daily index beginning in 1926

S&P 500<sup>®</sup> replaced 90 stock index in March 1957

# Capitalization Weighting

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Capitalization-weighted indices tell us the performance of the average investor, weighted by the amount of capital invested

Can be held by everyone

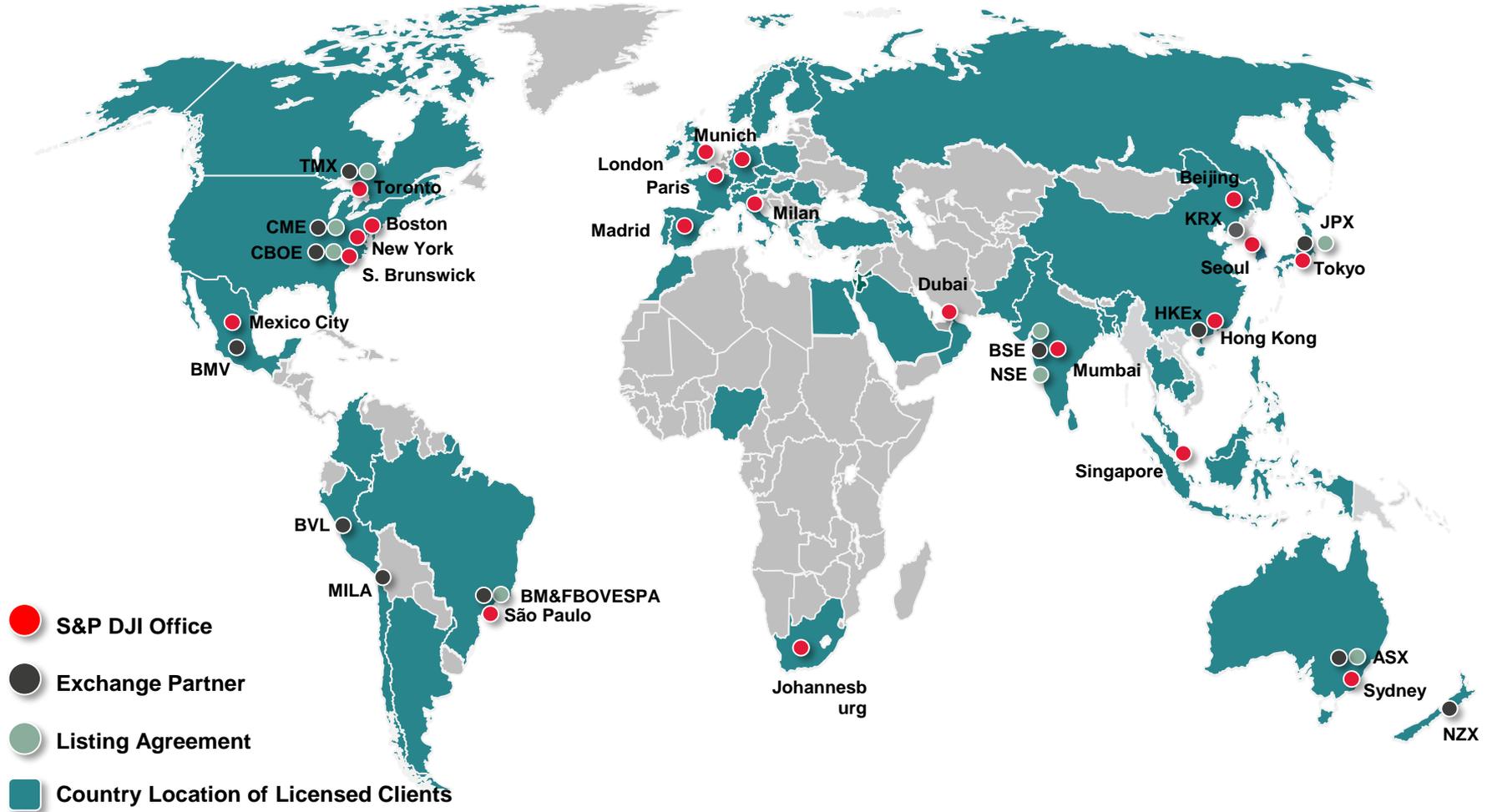
- Does not require offsetting tilt from another investor
- No other portfolio has this characteristic

Cheap and easy to maintain

- Rebalancing required only when index changes

# Global Reach. Local Expertise.

*Clients in 71 Countries, 20 Offices Worldwide, and  
~400 Client-Dedicated Professionals with Local Index Understanding*

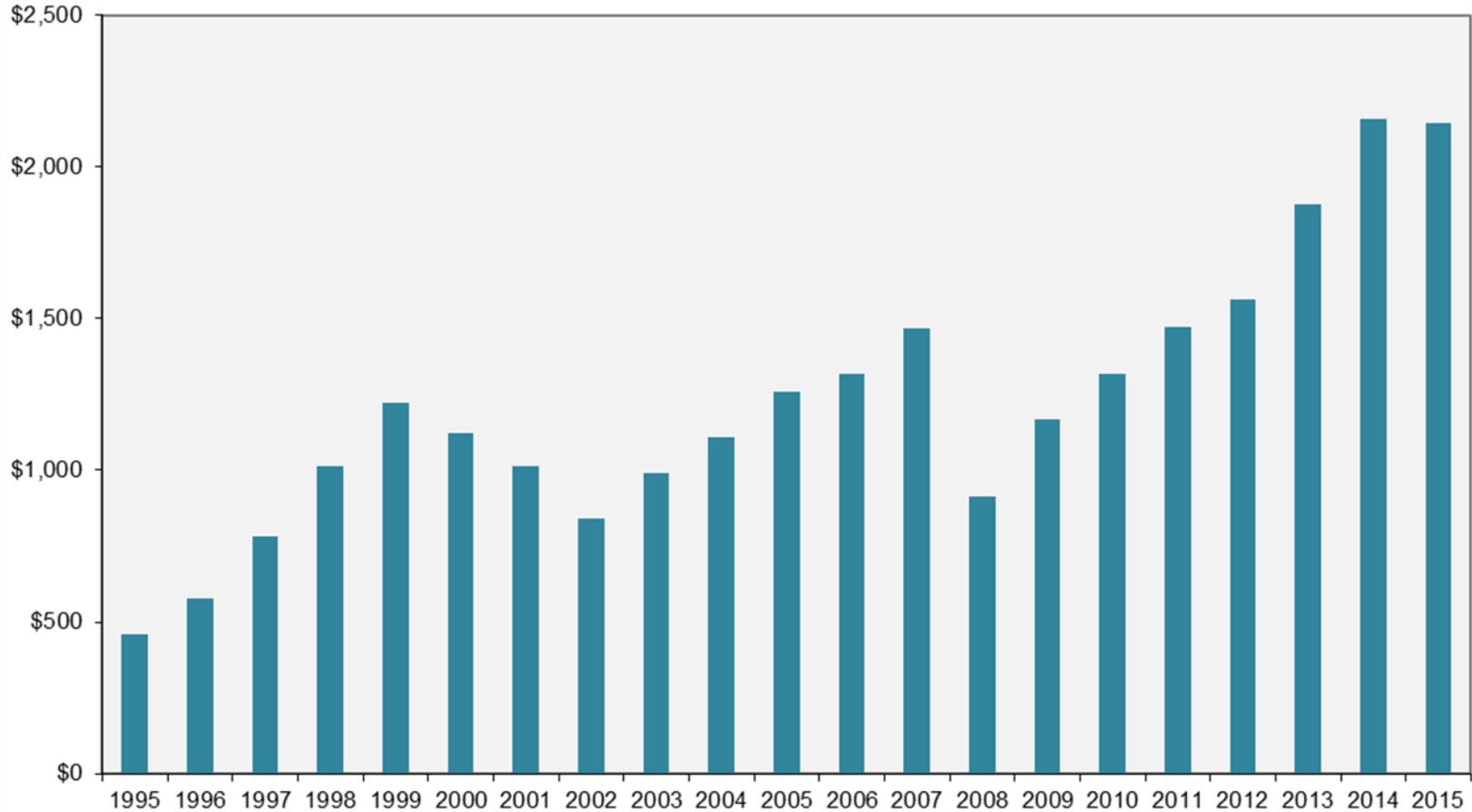


# S&P Dow Jones Indices Client Base

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- Clients in **71** countries; 1,800 data licensees, and nearly 500 IP licensees
- Client relationships with **over 90** of the top **100** asset managers, as measured by assets, and more than **50** of the largest public pension funds
- Over **610** S&P Dow Jones Indices-linked ETFs listed around the globe, with over **USD 832 billion** in AUM
- More than **6,000** headline custom indices are calculated daily for over **150** clients in **45** countries

# Assets Tracking the S&P 500



Source: S&P Dow Jones Indices.

# Why Indexing Grew

# Index Versus Active Performance - US

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## Percentage of U.S. Equity Funds Underperforming Index

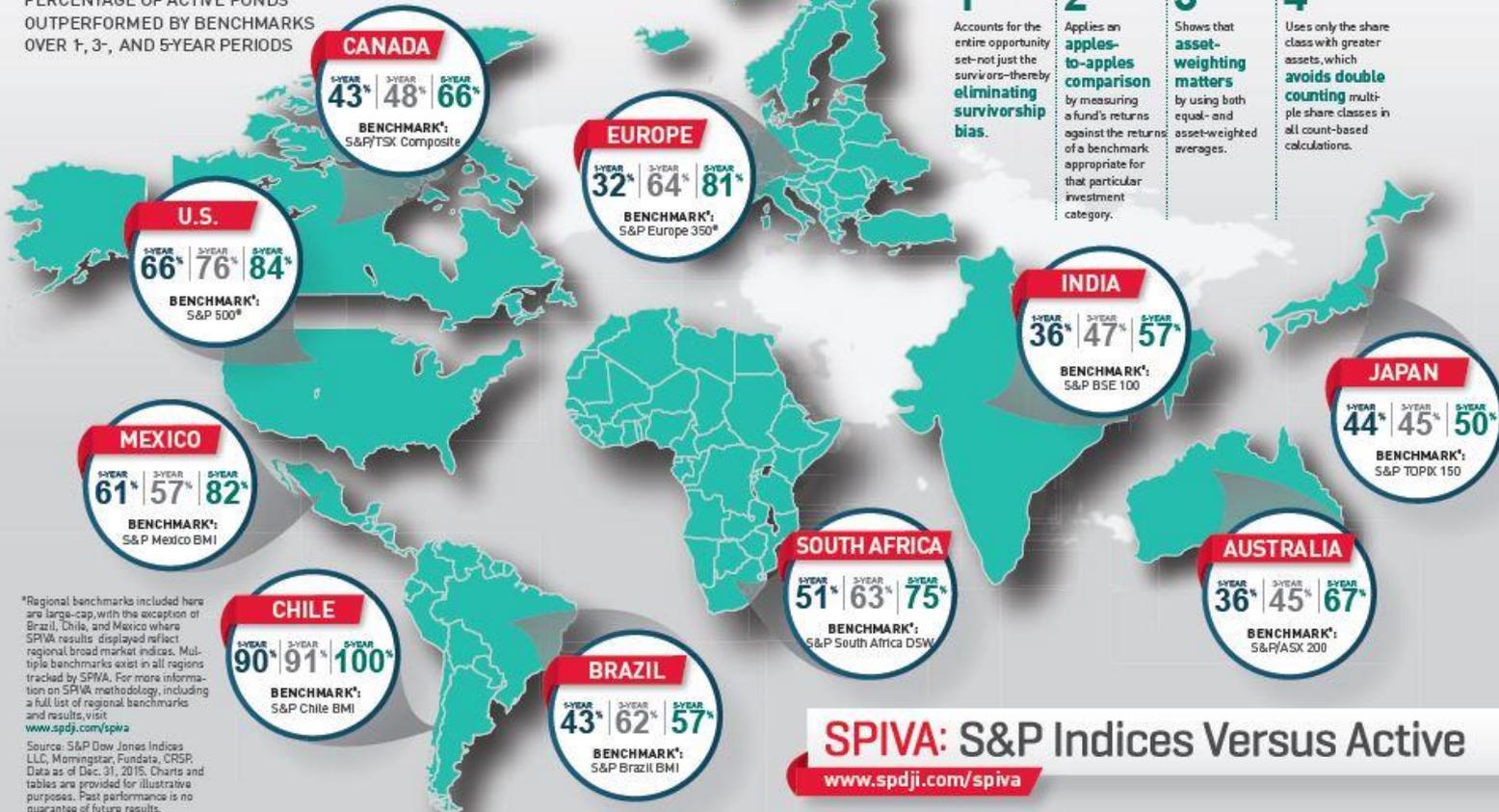
Fund Category	Comparison Index	1 Year	5 Years
All Large Cap Funds	S&P 500	66%	84%
All Mid Cap Funds	S&P MidCap 400	57%	77%
All Small Cap Funds	S&P SmallCap 600	72%	90%

Source: S&P Dow Jones Indices LLC, Center for Research in Security Prices (CRSP). Data as of December 31, 2015. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

# Index Versus Active Performance – Global

## SPIVA® 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.

\*Regional benchmarks included here are large-cap, with the exception of Brazil, Chile, and Mexico where SPIVA results displayed reflect regional broad market indices. 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 [www.spdji.com/spiva](http://www.spdji.com/spiva)  
Source: S&P Dow Jones Indices LLC, Morningstar, Fundata, CRSP. Data as of Dec. 31, 2015. Charts and tables are provided for illustrative purposes. Past performance is no guarantee of future results.

**SPIVA: S&P Indices Versus Active**  
[www.spdji.com/spiva](http://www.spdji.com/spiva)

# SPIVA in “Good” and “Bad” Years

Year	S&P 500 Up	% of Funds Underperformed	Year	S&P 500 Down/Flat	% of Funds Underperformed
2003	28.7%	65	2000	-9.1%	37
2004	10.9%	62	2001	-11.9%	58
2005	4.9%	45	2002	-22.1%	61
2006	15.8%	69	2008	-37.0%	54
2007	5.5%	45	2011	2.1%	81
2009	26.5%	51	2015	1.4%	66
2010	15.1%	62	<b>Average</b>	<b>-12.8%</b>	<b>60</b>
2012	16.0%	63			
2013	32.4%	56			
2014	13.7%	86			
<b>Average</b>	<b>16.9%</b>	<b>60</b>			

Source: S&P Dow Jones Indices LLC, Center for Research in Security Prices (CRSP). Data as of December 31, 2015. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

# Persistence of Active Performance

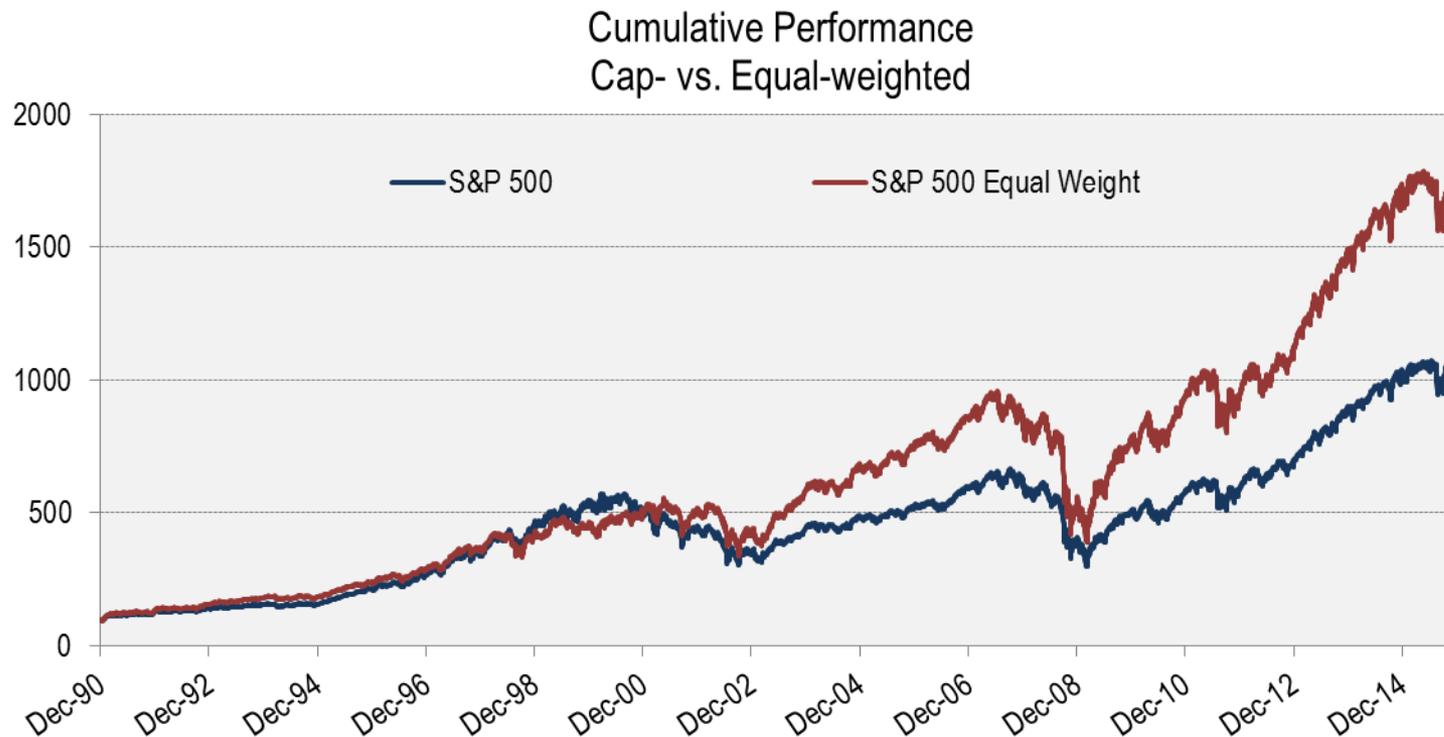
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## Percentage of U.S. Equity Funds in Top Half of Distribution

Fund Category	% in Top Half 5 Consecutive Years
Large Cap Funds	4.82%
Mid Cap Funds	3.45%
Small Cap Funds	7.77%

N.B. Probability of flipping heads four times in a row = 6.25%

# Long-Term Comparative Index Performance (S&P 500 Equal Weight)



Source: S&P Dow Jones Indices. Data from December 31, 1990 through December 31, 2015. Graphs are provided for illustrative purposes only. Past performance is not a guarantee of future results. This graph reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with backtested performance.

# Why Index Growth Will Continue

# No Natural Source of Alpha

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Investor A can be above average only if Investor B is below average.

The total outperformance of the winners must equal the total underperformance of the losers (before costs).

**The source of the winners' positive alpha is the losers' negative alpha.**

If more investors opt for passive management:

- There will be fewer potential losers
- There will be fewer gains for potential winners.

# How Might the Supply of Alpha Shrink?

	A	B
Total Market Cap	\$20.0 T	\$20.0 T
% actively managed	100%	90%
Value Actively Managed	\$20.0 T	\$18.0 T
Value Outperforming	\$10.0 T	\$9.0 T
Value Underperforming	\$10.0 T	\$9.0 T
Average Underperformance (%)	5%	4%
Total Underperformance (\$)	\$500 B	\$360 B

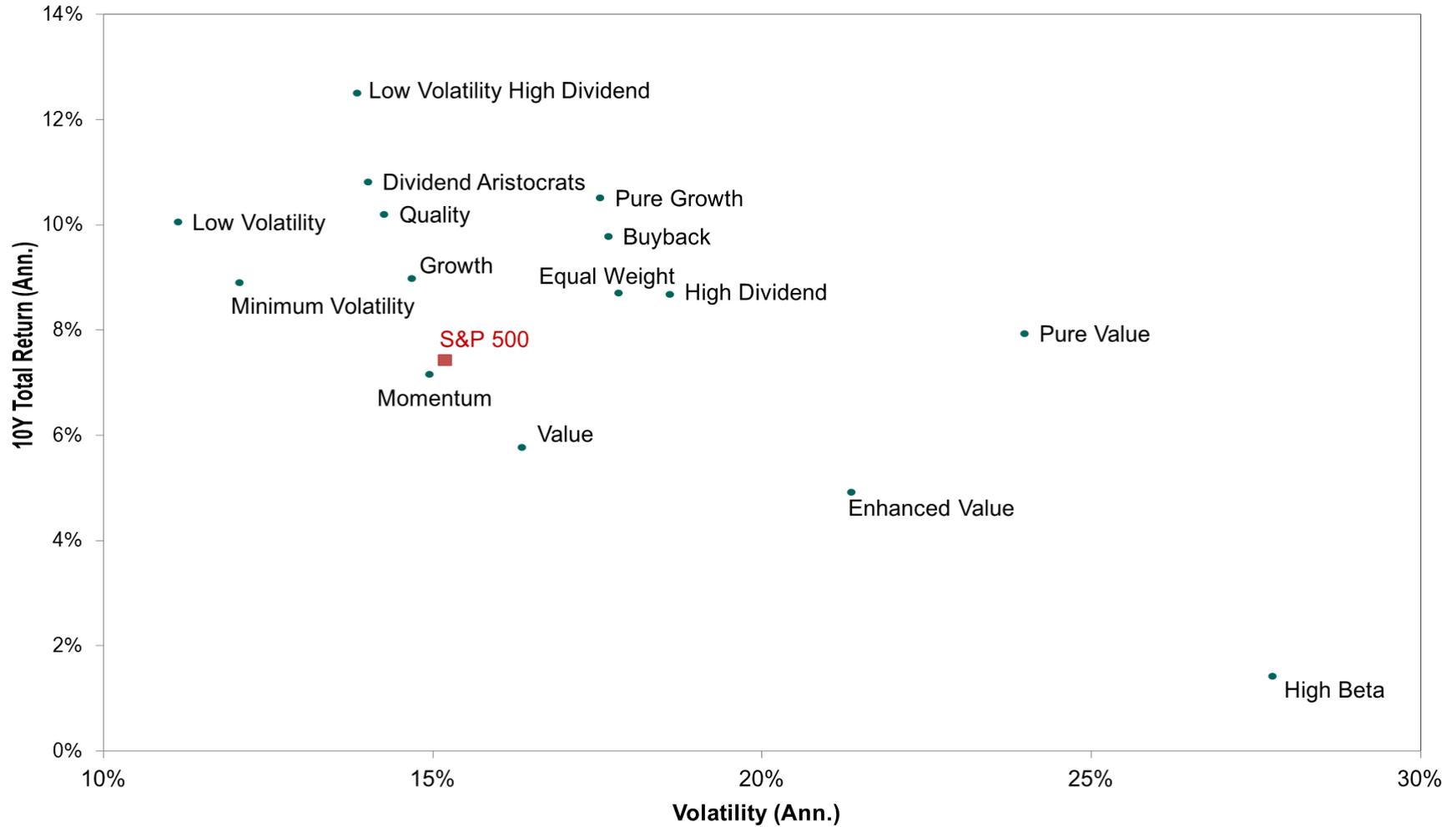
A hypothetical 10% reduction in active AUM led to a hypothetical 28% reduction in outperformance.

Source: S&P Dow Jones Indices. Chart is for illustrative purposes only.

# Index Evolution

Indices	Examples	Attributes
Broad Market	S&P 500 <sup>®</sup> , S&P Global BMI	<ul style="list-style-type: none"><li>• Capitalization-weighted</li><li>• Aim to represent an asset class</li></ul>
Specialized	S&P MidCap 400 <sup>®</sup> , S&P Select Sector indices	<ul style="list-style-type: none"><li>• Focus on a subset of the broader market</li><li>• Most frequently defined in terms of size, sector, or industry</li><li>• Typically capitalization-weighted</li></ul>
Factor/ Smart Beta/ Strategic Beta	S&P 500 Low Volatility, S&P 500 High Beta	<ul style="list-style-type: none"><li>• Focus on specific <i>patterns</i> or <i>characteristics</i></li><li>• Better “indicize” active strategies</li><li>• Typically not capitalization-weighted</li></ul>

# 10-Year Risk & Return - Absolute



Source: S&P Dow Jones Indices LLC and/or its affiliates. Data as of June 30, 2016.

# Factor Indices

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Provide exposure to factors or combinations of factors

By “indicizing” factor tilts

- Provide cheap, transparent, reliable factor exposure
- Require active managers to add value by stock selection
- Make active management harder

# Summary

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Most active managers fail most of the time.

- Index investors have an above-average chance of above-average results.
- Active managers should be benchmarked against appropriate passive standards.

Active management is likely to become even more challenging in the future.

- The growth of cap-weighted indices makes it harder for the active managers who remain.
- The growth of factor indices presents an additional challenge.

# Performance Disclosure

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The S&P 500 Equal Weight Index was launched on January 8, 2003.  
The S&P 500 Low Volatility Index and the S&P 500 High Beta Index were launched on April 4, 2011.  
The S&P 500 Low Volatility High Dividend Index was launched September 17, 2012.  
The S&P 500 Minimum Volatility Index was launched November 9, 2012.  
The S&P 500 Buyback Index was launched November 29, 2012.  
The S&P 500 Quality Index was launched on July 8, 2014.  
The S&P 500 Momentum Index was launched on November 18, 2014.  
The S&P 500 Enhanced Value Index was launched April 27, 2015.  
The S&P 500 High Dividend Index was launched September 21, 2015.

All information presented prior to the launch date is back-tested. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. Complete index methodology details are available at [www.spdji.com](http://www.spdji.com). It is not possible to invest directly in an index.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency on their products. 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 at a fixed value for calculation purposes. The Launch Date designates the date upon which 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 datafeed 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.

Past performance of the Index is not an indication of future results. Prospective application of the methodology used to construct the Index may not result in performance commensurate with the back-test returns shown. The back-test period does not necessarily correspond to the entire available history of the Index. Please refer to the methodology paper for the Index, available at [www.spdji.com](http://www.spdji.com) 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.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

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