

Using Benchmarks as Measurement Tools in the Fund Industry

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Phillip Brzenk, CFA
Director
Global Research & Design

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**S&P Dow Jones
Indices**

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Agenda

- ❖ Brief Introduction: How benchmarks can be used as tools for investors -- its not just active vs passive investing debate
- ❖ SPIVA Scorecard: Global and Latin America
- ❖ Persistence Scorecard: Latin America

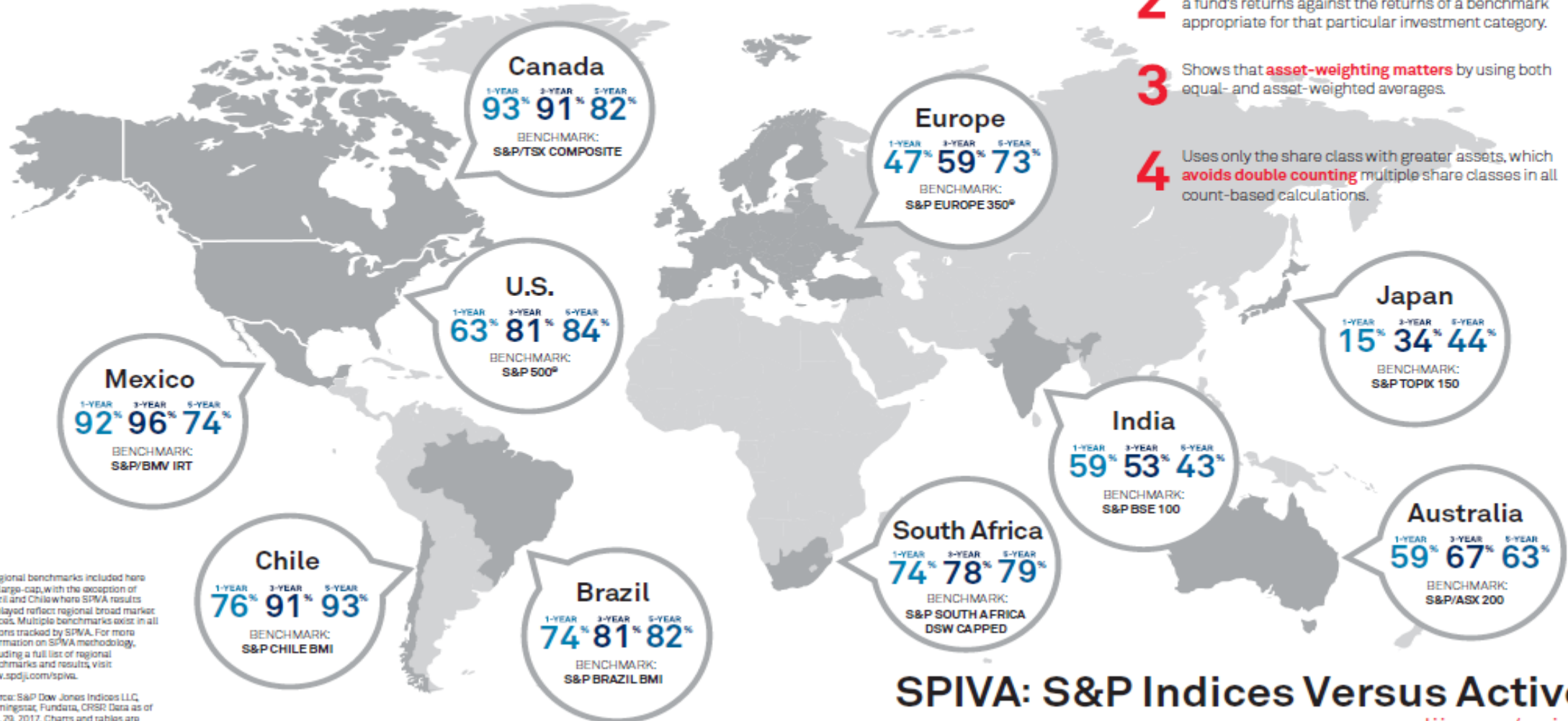
The SPIVA[®] Scorecard

- The S&P Indices Versus Active (SPIVA[®]) Scorecard is a widely followed report which measures the performance of actively managed funds versus their respective benchmarks over near-, mid-, and longer-term investment horizons. The report accounts for:
 - Survivorship correction
 - Apples to apples comparison
 - Asset weighted versus equal weighted returns
 - Style consistency
 - Data cleaning to avoid double counting multiple share classes
- **SPIVA[®] Latin America** measures the performance of active mutual funds in Brazil, Chile, and Mexico

SPIVA[®]: 2017 Global Results

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 and Chile 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.

Source: S&P Dow Jones Indices LLC, Morningstar, Funddata, CRSR Data as of Dec. 29, 2017. Charts and tables are provided for illustrative purposes. Past performance is no guarantee of future results.

SPIVA: S&P Indices Versus Active

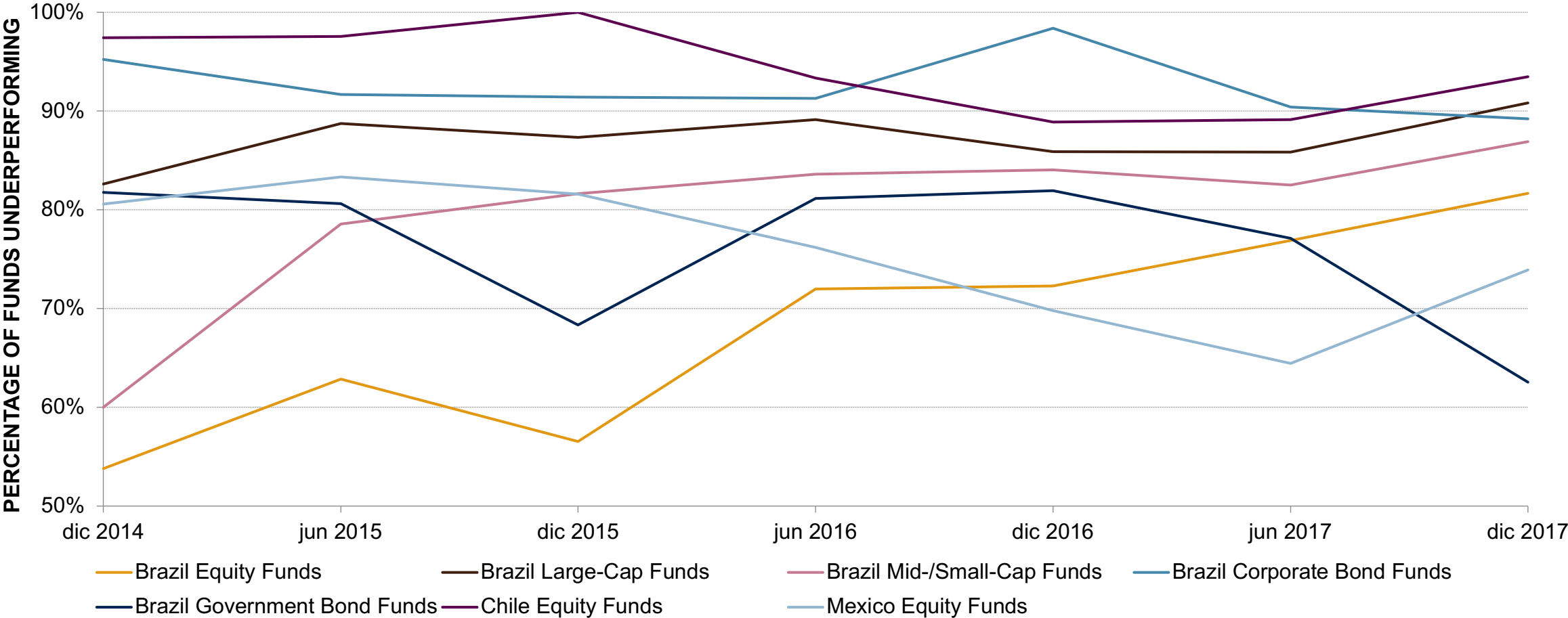
www.spdji.com/spiva

SPIVA Latin America – Fund Performance vs. Benchmark

Percentage of Funds Underperforming the Benchmark				
Fund Category	Comparison Index	One-Year	Three-Year	Five-Year
Brazil Equity Funds	S&P Brazil BMI	74.49	80.57	81.67
Brazil Large Cap Funds	S&P Brazil LargeCap	47.42	72.22	90.83
Brazil Mid-/Small-Cap Funds	S&P Brazil MidSmallCap	47.14	81.61	86.90
Brazil Corporate Bond Funds	Anbima Debentures (IDA)	84.50	83.01	89.22
Brazil Government Bond Funds	Anbima Market (IMA)	89.80	82.59	62.55
Chile Equity Funds	S&P Chile BMI	75.61	90.70	93.48
Mexico Equity Funds	S&P/BMV IRT	92.00	95.74	73.91

Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending December 29, 2017. Outperformance is based on equal-weighted fund counts. Index performance based on total return in local country

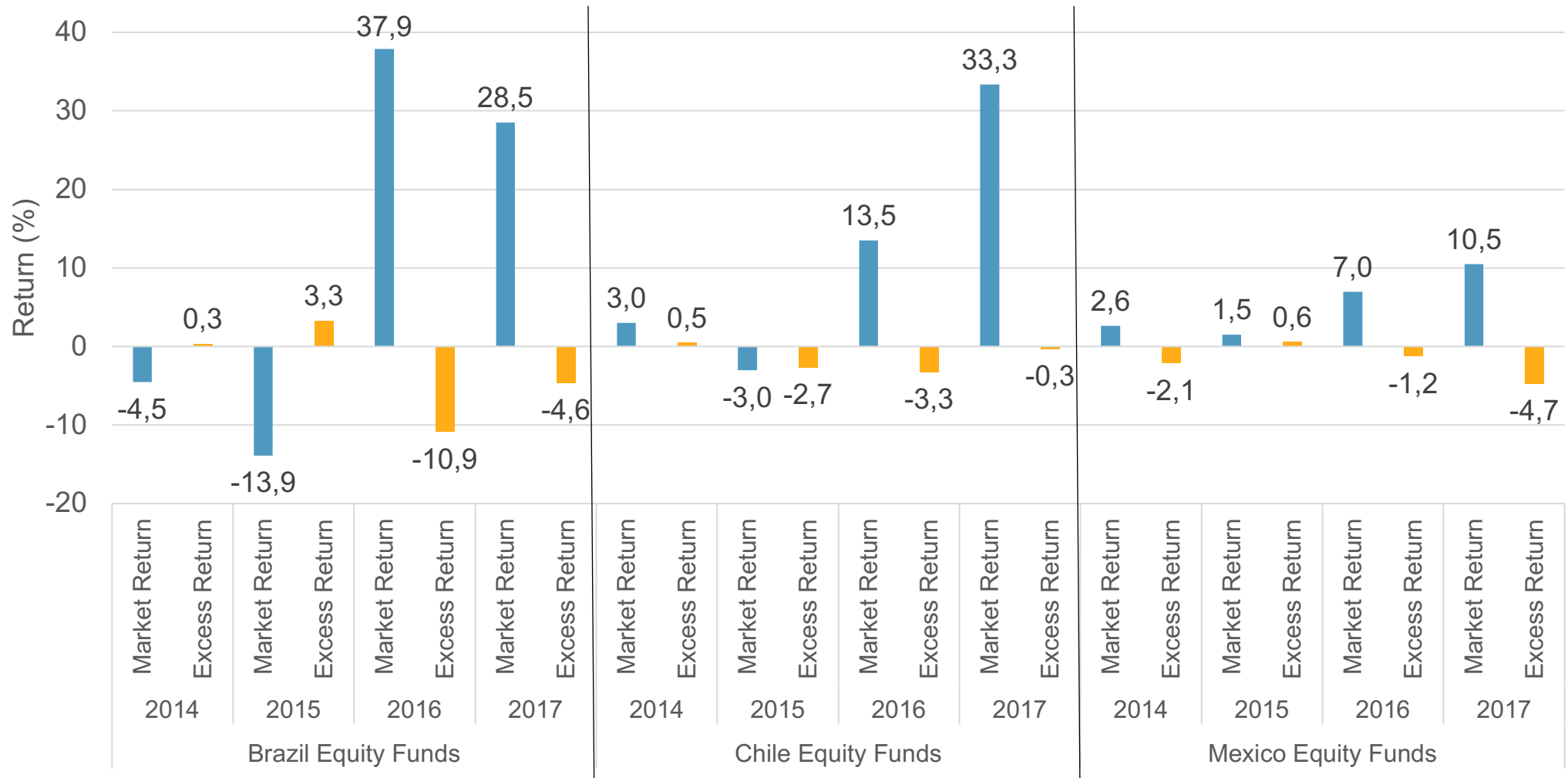
Rolling Five-Year Historical Underperformance (2014-2017)



Source: S&P Dow Jones Indices LLC, Morningstar. Data for five-year periods ending Dec 31, 2014 – Dec 29, 2017. Outperformance is based on equal-weighted fund counts. Index performance based on total return in local country

Calendar Year Performance

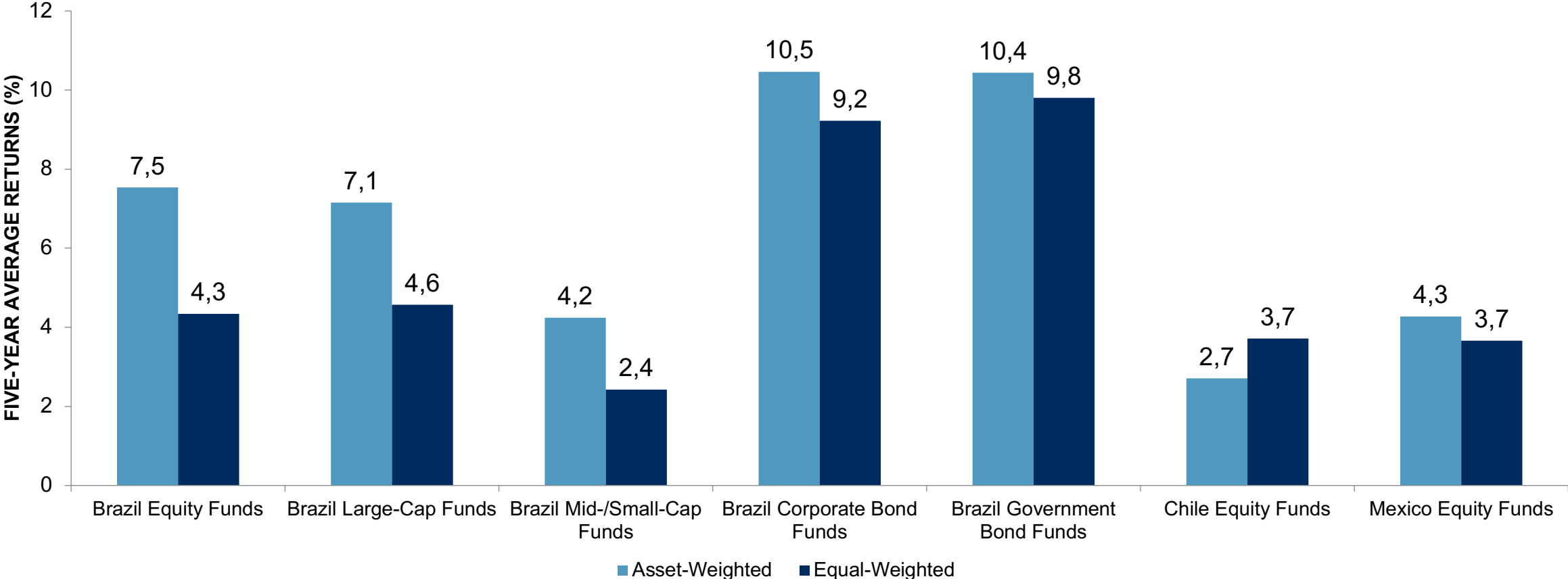
Average Equity Fund Performance vs Market Benchmark



Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 29, 2017. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Does Fund Size Matter?

Asset-Weighted vs Equal-Weighted Fund Category Performance

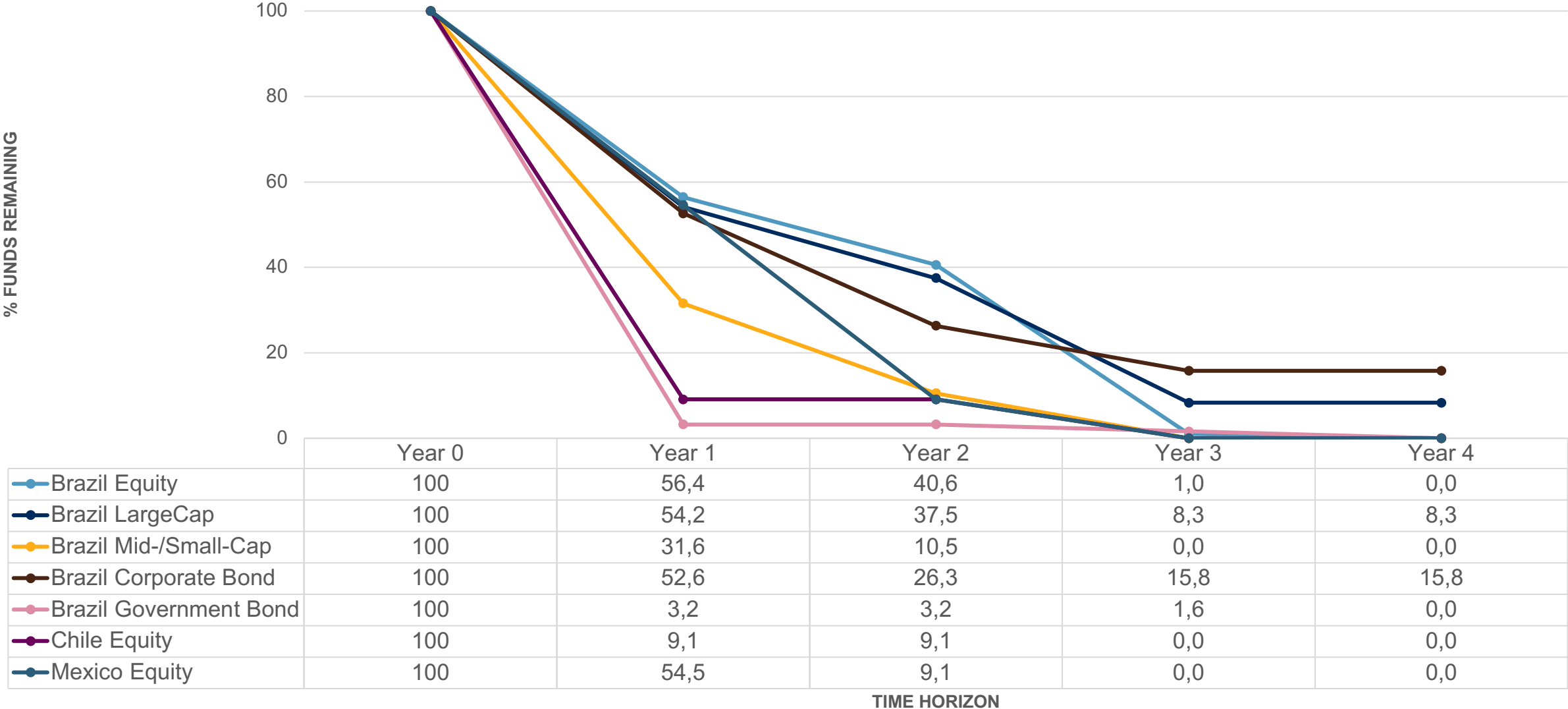


Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 29, 2017. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

The Persistence Scorecard

- The phrase “past performance is not an indicator of future results” (or some variation thereof) can be found in the fine print of most mutual fund literature. Yet, due to either force of habit or conviction, investors and advisors consider past performance and related metrics to be important factors in fund selection. So does past performance really matter?
- To answer this question, this scorecard tracks the consistency of top performers over yearly consecutive periods and measures performance persistence through transition matrices.
- Key features of the scorecard include the following:
 - Same fund universe as SPIVA[®]
 - Survivorship bias correction
 - Data cleaning to avoid double counting multiple share classes
 - Tracking reports of top performers
 - Transition matrices of fund performance over non-overlapping periods

Persistence of Top Performing Funds Over Five Years



Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 29, 2017. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

Three-Year Transition Matrix – Performance Over Two Non-Overlapping, Three-Year Periods (Based on Quartiles)

CATEGORY	FIRST PERIOD QUARTILE	PERCENTAGE AT END OF SECOND PERIOD				
		1ST QUARTILE (%)	2ND QUARTILE (%)	3RD QUARTILE (%)	4TH QUARTILE (%)	MERGED/ LIQUIDATED (%)
BRAZIL EQUITY	1st Quartile	32	28	8	16	15
	2nd Quartile	15	15	15	20	36
	3rd Quartile	9	15	26	18	32
	4th Quartile	14	11	22	15	39
CHILE EQUITY	1st Quartile	30	10	0	0	60
	2nd Quartile	20	20	0	20	40
	3rd Quartile	0	10	20	30	40
	4th Quartile	10	20	30	10	30
MEXICO EQUITY	1st Quartile	10	20	30	40	0
	2nd Quartile	50	30	0	20	0
	3rd Quartile	30	30	20	10	10
	4th Quartile	10	20	40	30	0

Source: S&P Dow Jones Indices LLC, Morningstar. Data for periods ending Dec. 29, 2017. Table is provided for illustrative purposes. Past performance is no guarantee of future results.

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