Mutual Fund Landscape
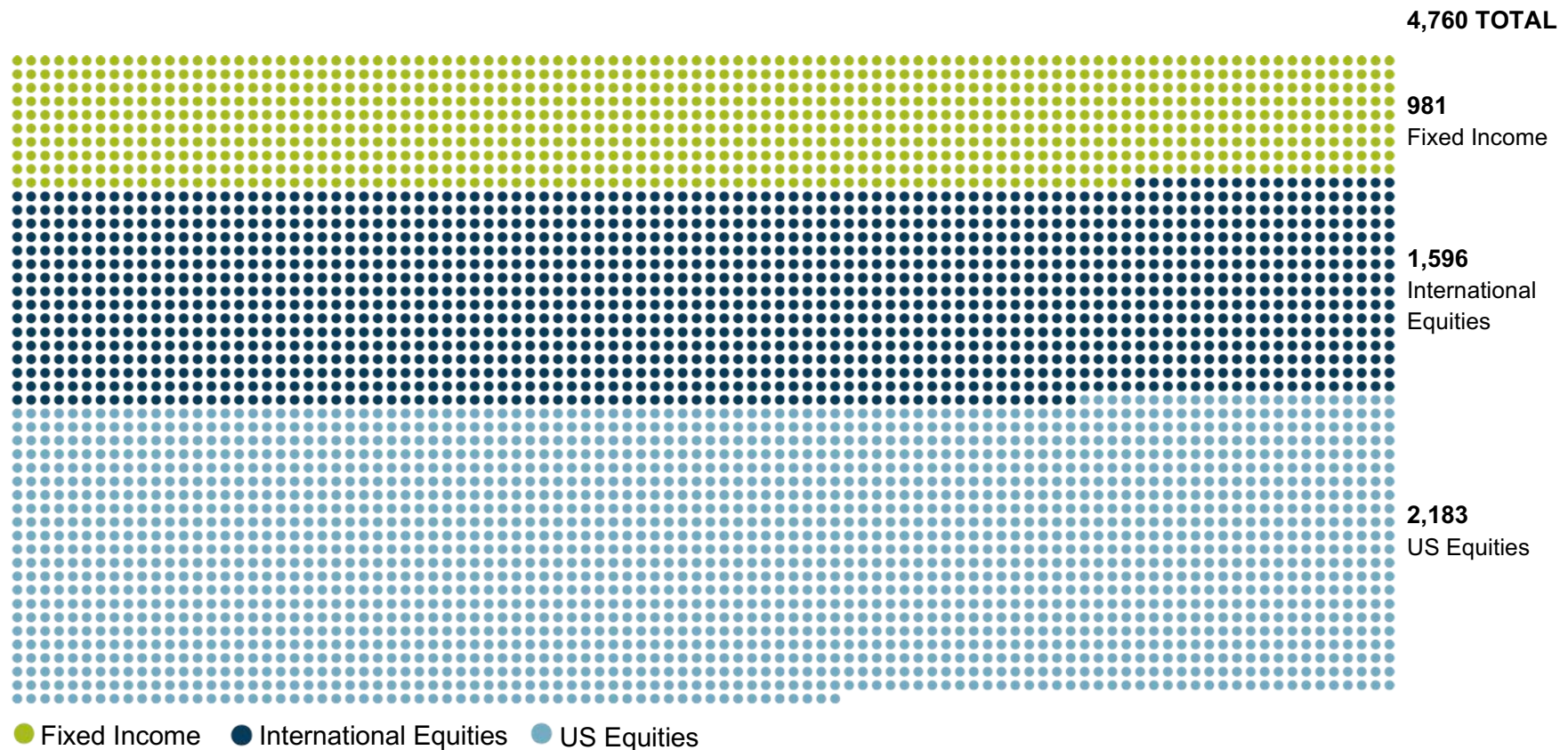
2018 report

US-Based Mutual Funds, 2017
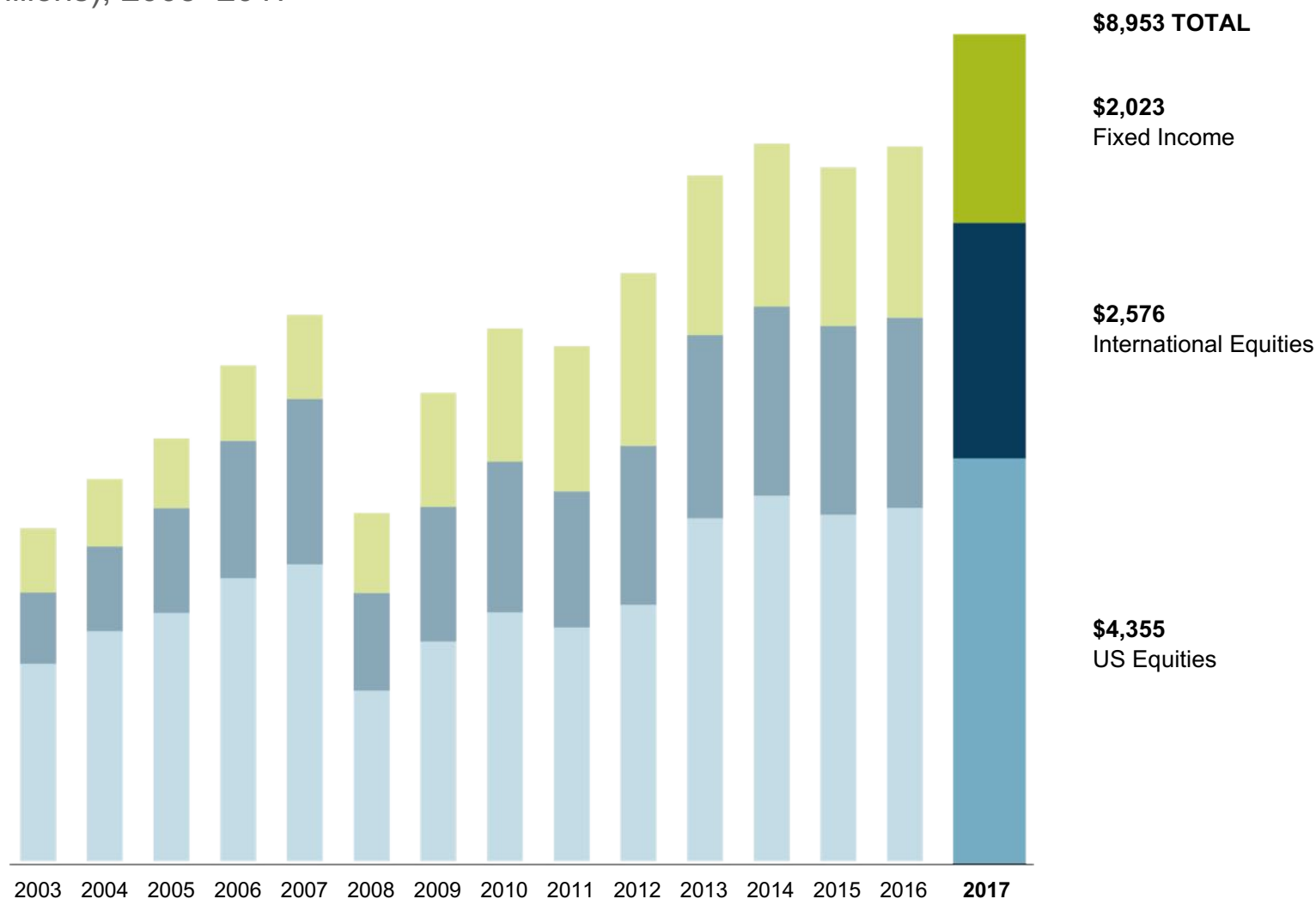
Number of equity and fixed income funds in the study

4,760 TOTAL

981
Fixed Income

1,596
International
Equities

2,183
US Equities

● Fixed Income   ● International Equities   ● US Equities

Assets under Management

In USD (billions), 2003–2017

$8,953 TOTAL

$2,023
Fixed Income

$2,576
International Equities

$4,355
US Equities

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 **2017**

Total value of assets in the representative fund samples over the past 15 years. Numbers may not sum due to rounding. US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. **See Data Appendix for more information.**

3

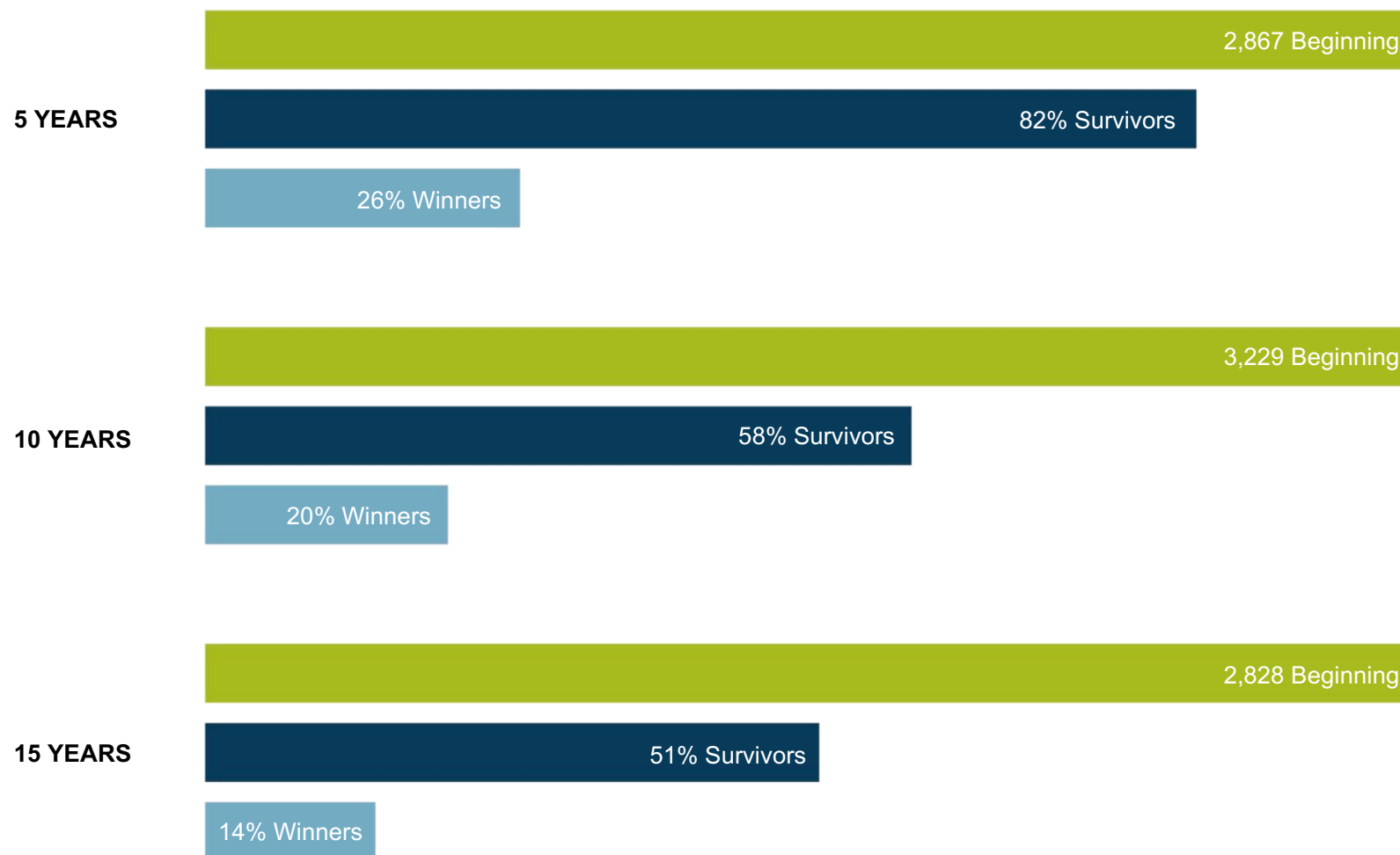# Few Equity Funds Have Survived and Outperformed

Performance periods ending December 31, 2017

5 YEARS
- 2,867 Beginning
- 82% Survivors
- 26% Winners

10 YEARS
- 3,229 Beginning
- 58% Survivors
- 20% Winners

15 YEARS
- 2,828 Beginning
- 51% Survivors
- 14% Winners

The sample includes funds at the beginning of the 5-, 10-, and 15-year periods ending December 31, 2017. Survivors are funds that had returns for every month in the sample period. Winners are funds that survived and outperformed their respective Morningstar category index over the period. US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. **Past performance is no guarantee of future results. See Data Appendix for more information.**

4

Past Performance Is Not Enough to Predict Future Results

Percentage of funds that were top-quartile performers in consecutive three-year periods

EQUITY FUNDS
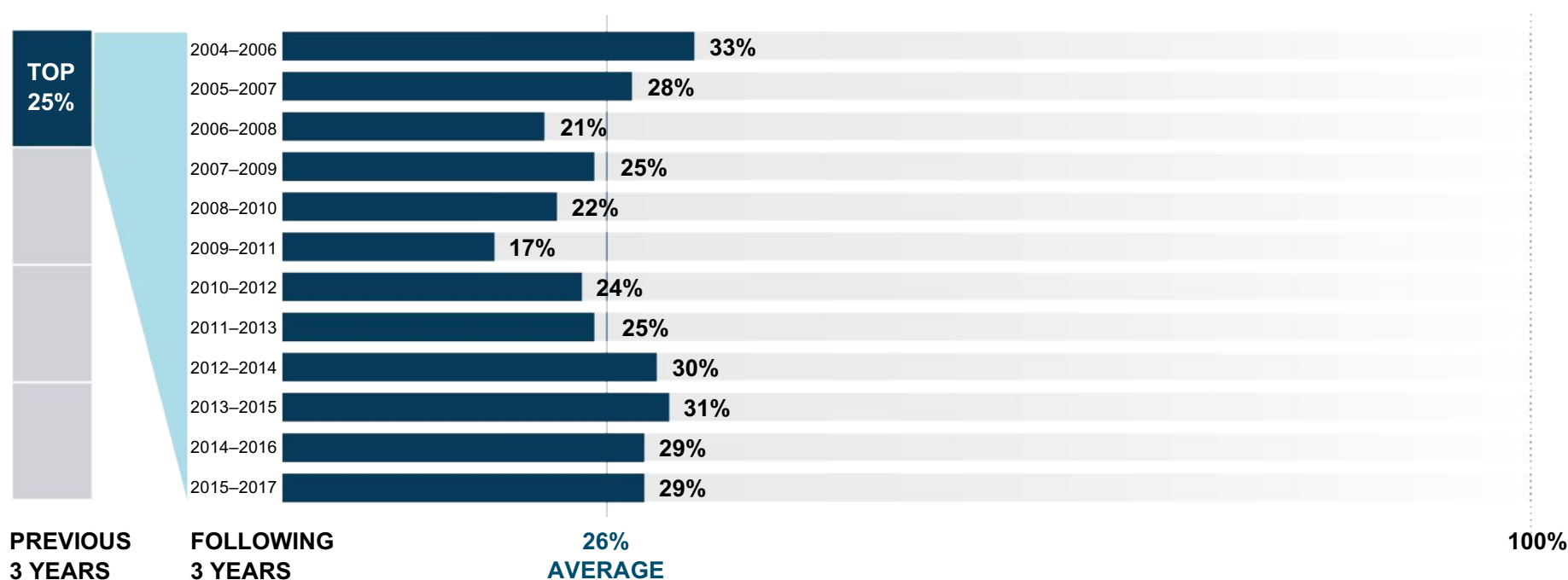
Period	Percentage
2004–2006	33%
2005–2007	28%
2006–2008	21%
2007–2009	25%
2008–2010	22%
2009–2011	17%
2010–2012	24%
2011–2013	25%
2012–2014	30%
2013–2015	31%
2014–2016	29%
2015–2017	29%

TOP 25%

PREVIOUS 3 YEARS

FOLLOWING 3 YEARS

26% AVERAGE

100%

At the end of each year, funds are sorted within their category based on their three-year total return. The tables show the percentage of funds in the top quartile (25%) of three-year performance that ranked in the top quartile of performance over the following three years. Example: For 2017, only 29% of equity funds were ranked in the top quartile of performance in their category in both the previous period (2012–2014) and subsequent period (2015–2017). US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. **Past performance is no guarantee of future results. See Data Appendix for more information.**

Past Performance Is Not Enough to Predict Future Results

Percentage of funds that were top-quartile performers in consecutive three-year periods

FIXED INCOME FUNDS

TOP 25%	Period	Percentage
	2004–2006	35%
	2005–2007	36%
	2006–2008	13%
	2007–2009	16%
	2008–2010	29%
	2009–2011	3%
	2010–2012	21%
	2011–2013	31%
	2012–2014	51%
	2013–2015	46%
	2014–2016	48%
	2015–2017	53%

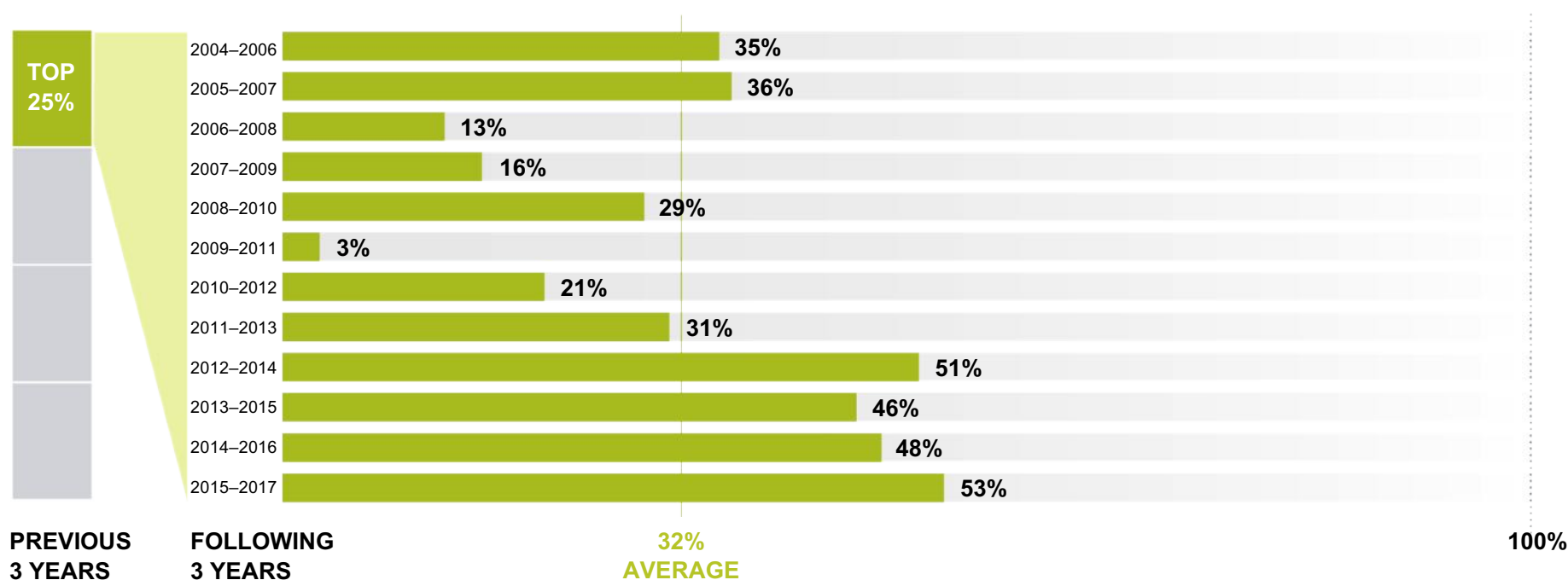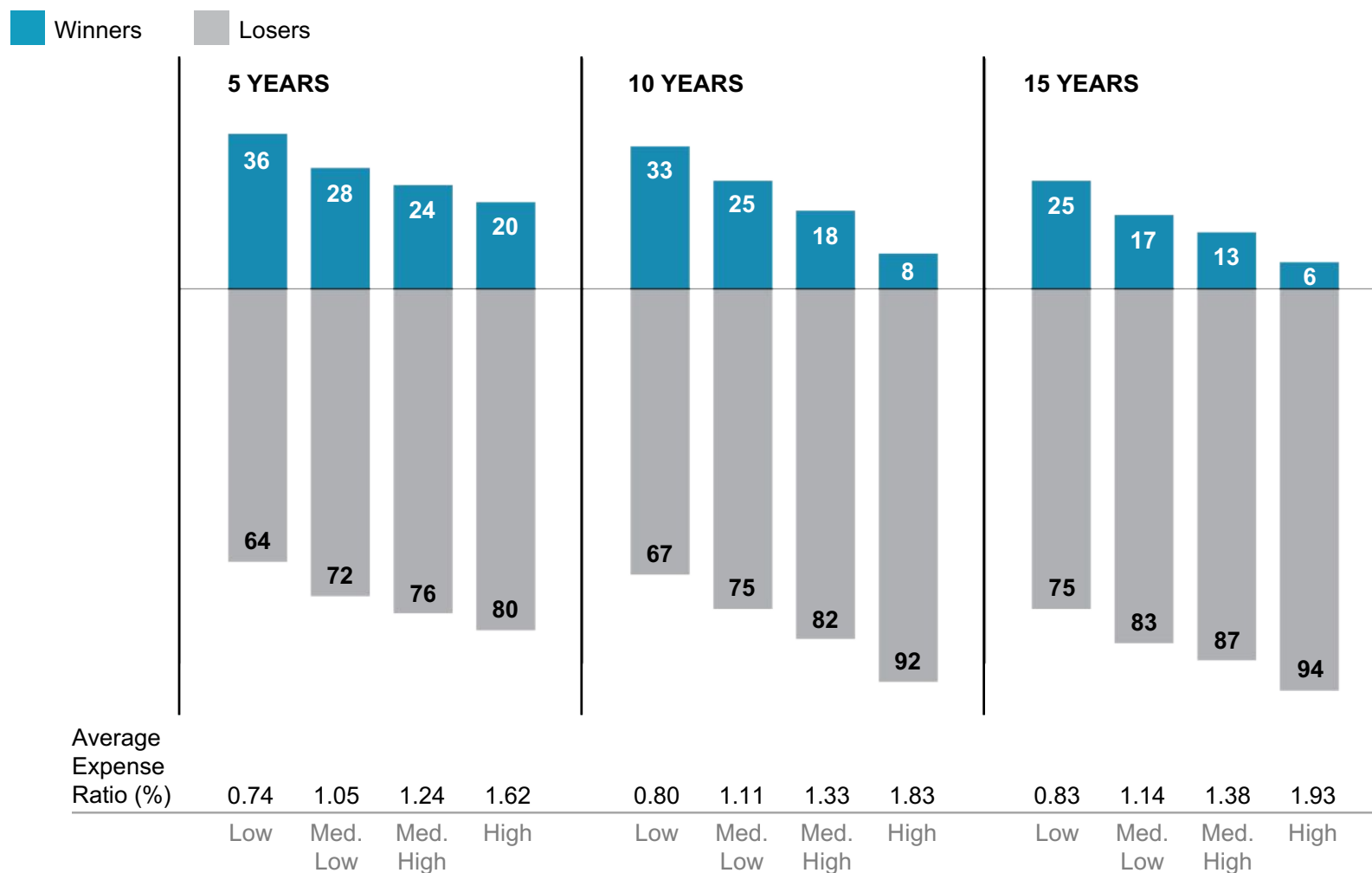**PREVIOUS 3 YEARS** **FOLLOWING 3 YEARS** **32% AVERAGE** **100%**

At the end of each year, funds are sorted within their category based on their three-year total return. The tables show the percentage of funds in the top quartile (25%) of three-year performance that ranked in the top quartile of performance over the following three years. Example: For 2017, 53% of fixed income funds were ranked in the top quartile of performance in their category in both the previous period (2012–2014) and subsequent period (2015–2017). US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. **Past performance is no guarantee of future results. See Data Appendix for more information.**

High Costs Can Reduce Performance

Equity fund winners and losers based on expense ratios (%)

Winners **Losers**

	5 YEARS				10 YEARS				15 YEARS			
Winners	36	28	24	20	33	25	18	8	25	17	13	6
Losers	64	72	76	80	67	75	82	92	75	83	87	94

Average Expense Ratio (%)	0.74	1.05	1.24	1.62	0.80	1.11	1.33	1.83	0.83	1.14	1.38	1.93
	Low	Med. Low	Med. High	High	Low	Med. Low	Med. High	High	Low	Med. Low	Med. High	High

High Costs Can Reduce Performance

Fixed income fund winners and losers based on expense ratios (%)

■ Winners ■ Losers

	5 YEARS				10 YEARS				15 YEARS		

Winners: 33, 30, 28, 22 (5 YEARS); 25, 20, 24, 15 (10 YEARS); 17, 14, 14, 9 (15 YEARS)

Losers: 67, 70, 72, 78 (5 YEARS); 75, 80, 76, 85 (10 YEARS); 83, 86, 86, 91 (15 YEARS)

Average Expense Ratio (%)	0.45	0.66	0.81	1.05	0.48	0.70	0.84	1.10	0.50	0.72	0.87	1.15
	Low	Med. Low	Med. High	High	Low	Med. Low	Med. High	High	Low	Med. Low	Med. High	High

The sample includes funds at the beginning of the 5-, 10-, and 15-year periods ending December 31, 2017. Funds are sorted into quartiles within their category based on average expense ratio over the sample period. The chart shows the percentage of winner and loser funds by expense ratio quartile for each period. Winners are funds that survived and outperformed their respective Morningstar category index, and losers are funds that either did not survive or did not outperform their respective Morningstar category index. US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. **Past performance is no guarantee of future results. See Data Appendix for more information.**
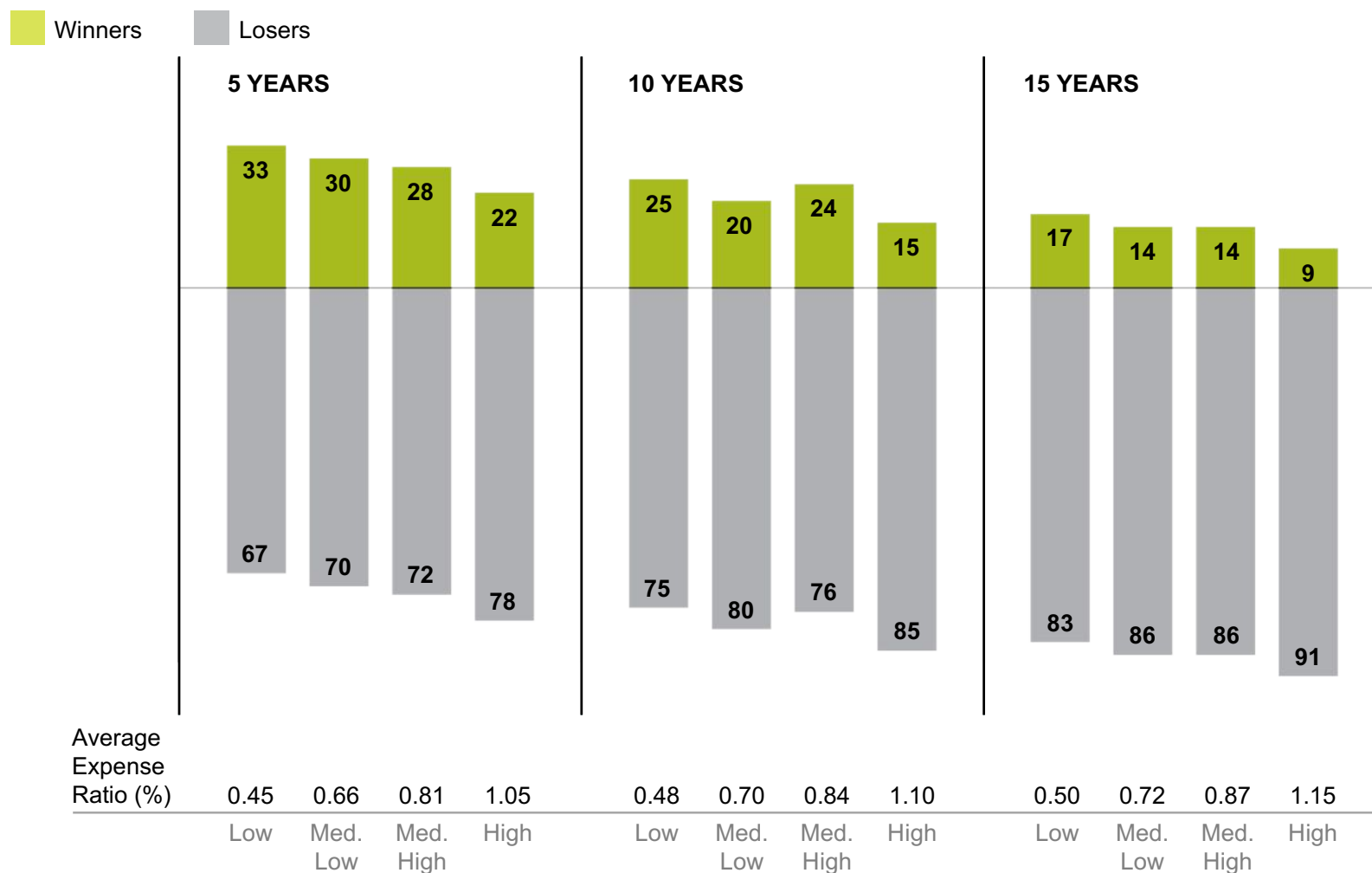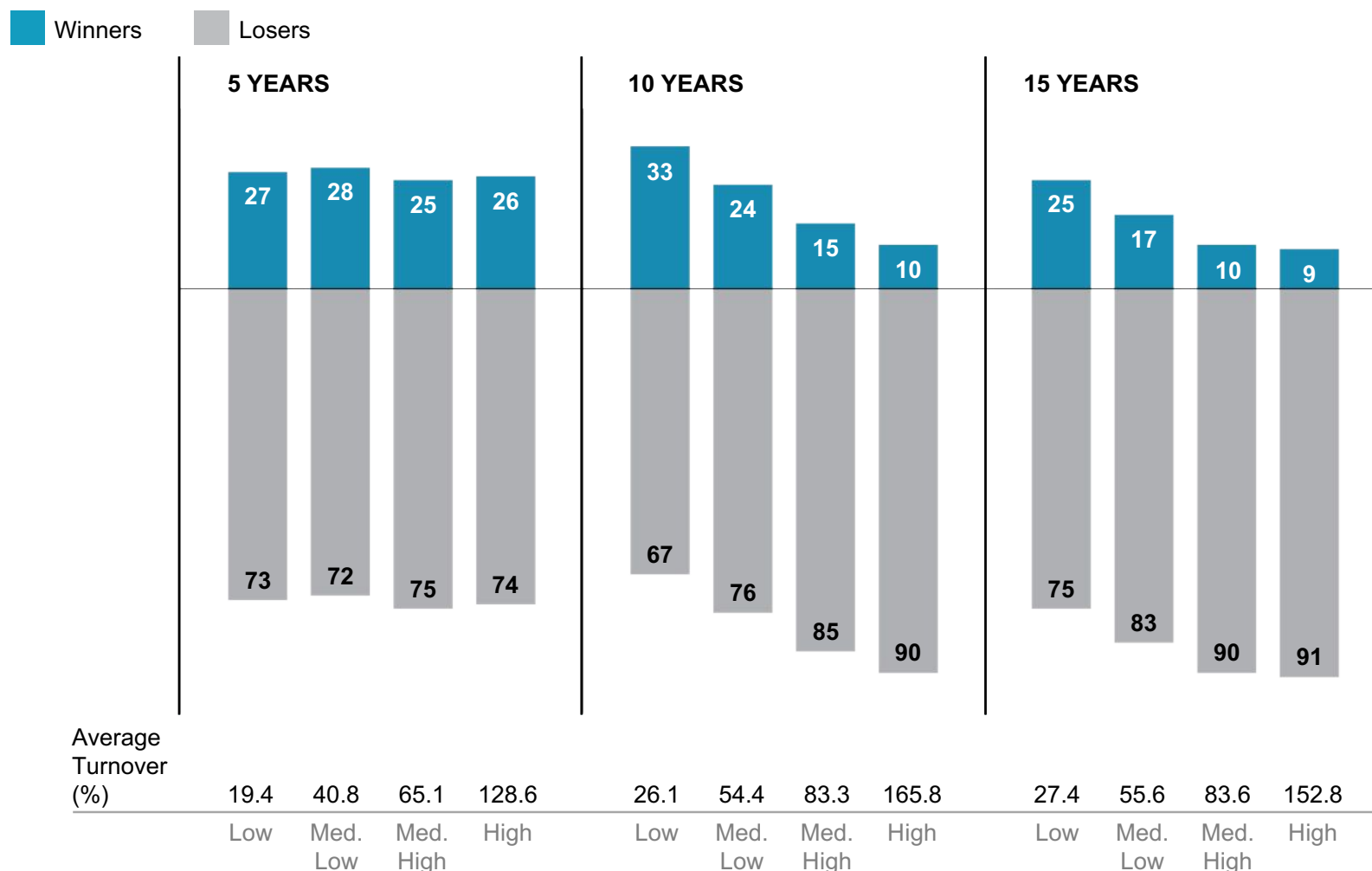
High Trading Costs Can Also Impact Returns

Equity fund winners and losers based on turnover (%)

VIAIV

■ Winners ■ Losers

	5 YEARS				10 YEARS				15 YEARS			
Winners	27	28	25	26	33	24	15	10	25	17	10	9
Losers	73	72	75	74	67	76	85	90	75	83	90	91

Average Turnover (%)	19.4	40.8	65.1	128.6	26.1	54.4	83.3	165.8	27.4	55.6	83.6	152.8
	Low	Med. Low	Med. High	High	Low	Med. Low	Med. High	High	Low	Med. Low	Med. High	High

The sample includes equity funds at the beginning of the 5-, 10-, and 15-year periods ending December 31, 2017. Funds are sorted into quartiles within their category based on average turnover during the sample period. The chart shows the percentage of winner and loser funds by turnover quartile for each period. Winners are funds that survived and outperformed their respective Morningstar category index, and losers are funds that either did not survive or did not outperform their respective Morningstar category index. US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. **Past performance is no guarantee of future results. See Data Appendix for more information.**

Report Summary

The mutual fund landscape

Findings

- Outperforming funds were in the minority.

- Strong track records failed to persist.

- High costs and excessive turnover may have contributed to underperformance.

Lessons

- Markets effectively aggregate investor knowledge and expectations into prices that are reliable.

- Managers attempting to outguess market prices may incur high costs that raise the barrier to outperforming an index.

- Successful fund investing involves more than picking a top performing fund from the past.

- Consider a fund's market philosophy, robustness in portfolio design, attention to costs, and other factors.

Data Appendix

The *Mutual Fund Landscape* study is conducted by Dimensional Fund Advisors LP.

US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago.

Equity fund sample includes the Morningstar historical categories: Diversified Emerging Markets, Europe Stock, Foreign Large Blend, Foreign Large Growth, Foreign Large Value, Foreign Small/Mid Blend, Foreign Small/Mid Growth, Foreign Small/Mid Value, Japan Stock, Large Blend, Large Growth, Large Value, Mid-Cap Blend, Mid-Cap Growth, Mid-Cap Value, Miscellaneous Region, Pacific/Asia ex-Japan Stock, Small Blend, Small Growth, Small Value, and World Stock. For additional information regarding the Morningstar historical categories, please see "The Morningstar Category Classifications" at *morningstardirect.morningstar.com/clientcomm/Morningstar_Categories_US_April_2016.pdf*.

Fixed income fund sample includes the Morningstar historical categories: Corporate Bond, High Yield Bond, Inflation-Protected Bond, Intermediate Government, Intermediate-Term Bond, Muni California Intermediate, Muni California Long, Muni Massachusetts, Muni Minnesota, Muni National Intermediate, Muni National Long, Muni National Short, Muni New Jersey, Muni New York Intermediate, Muni New York Long, Muni Ohio, Muni Pennsylvania, Muni Single State Intermediate, Muni Single State Long, Muni Single State Short, Short Government, Short-Term Bond, Ultrashort Bond, and World Bond. For additional information regarding the Morningstar historical categories, please see "The Morningstar Category Classifications" at *morningstardirect.morningstar.com/clientcomm/Morningstar_Categories_US_April_2016.pdf*.

Index funds and fund-of-funds are excluded from the sample. Net assets for funds with multiple share classes or feeder funds are a sum of the individual share class total net assets. The return, expense ratio, and turnover for funds with multiple share classes are taken as the asset-weighted average of the individual share class observations. Fund share classes are aggregated at the strategy level using Morningstar FundID and CRSP portfolio number.

Each fund is evaluated relative to the Morningstar benchmark assigned to the fund's category at the start of the evaluation period. So, if, for example, a fund changes from Large Value to Large Growth during the evaluation period, then its return will still be compared to the Large Value category index. Surviving funds are those with return observations for every month of the sample period. Winner funds are those that survived and whose cumulative net return over the period exceeded that of their respective Morningstar category index. Loser funds are funds that did not survive the period or whose cumulative net return did not exceed their respective Morningstar category index.

Index data provided by Bloomberg Barclays, MSCI, Russell, FTSE Fixed Income LLC, and S&P Dow Jones Indices. Bloomberg Barclays data provided by Bloomberg. MSCI data © MSCI 2018, all rights reserved. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes. FTSE fixed income indices © 2018 FTSE Fixed Income LLC, all rights reserved. S&P and Dow Jones data © 2018 S&P Dow Jones Indices LLC, a division of S&P Global.

Indices are not available for direct investment. Their performance does not reflect the expenses associated with management of an actual portfolio.

Mutual fund investment values will fluctuate, and shares, when redeemed, may be worth more or less than original cost. Diversification neither assures a profit nor guarantees against a loss in a declining market. There is no guarantee investment strategies will be successful. Past performance is no guarantee of future results.

Mutual Fund 15-Year Survivorship and Outperformance

Performance periods ending December 31, 2017

US EQUITIES	# Begin	Survive (%)	Outperform (%)
US Large Cap	424	39.6%	5.9%
US Large Cap Growth	453	41.3%	10.2%
US Large Cap Value	342	44.7%	13.5%
US Mid Cap	123	63.4%	6.5%
US Mid Cap Growth	275	46.9%	7.6%
US Mid Cap Value	126	65.9%	5.6%
US Small Cap	135	65.2%	28.9%
US Small Cap Growth	257	51.4%	16.0%
US Small Cap Value	123	68.3%	35.0%

FIXED INCOME	# Begin	Survive (%)	Outperform (%)
Investment Grade	22	86.4%	40.9%
High Yield	139	63.3%	3.6%
Inflation Protected	15	80.0%	0.0%
Intermediate Term	392	52.6%	26.0%
Short Term	231	56.7%	22.1%
World	54	55.6%	31.5%
Municipal	728	57.1%	3.2%

NON-US EQUITIES	# Begin	Survive (%)	Outperform (%)
Developed ex US Large Cap	239	51.0%	18.4%
Developed ex US Large Cap Growth	75	44.0%	12.0%
Developed ex US Large Cap Value	55	67.3%	16.4%
Developed ex US Small Cap	56	73.2%	39.3%
Emerging Markets	71	66.2%	32.4%

Categorization determined by Dimensional using Morningstar data. The sample includes funds at the beginning of the 15-year period ending December 31, 2017. Each fund is evaluated relative to the Morningstar category index assigned to the fund's category at the start of the evaluation period. Surviving funds are those with return observations for every month of the sample period. Outperforming funds are those that survived and whose cumulative net return over the period exceeded that of their respective Morningstar category index. US-domiciled open-end mutual fund data is from Morningstar and Center for Research in Security Prices (CRSP) from the University of Chicago. **Past performance is no guarantee of future results. See Data Appendix for more information.**