
Morningstar's Active/Passive Barometer

Mid-Year 2017

Morningstar Manager Research

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Ben Johnson, CFA
Director of Global ETF Research
+1 312 384-4077
ben.johnson@morningstar.com

Alex Bryan
Director of Passive Strategies Research,
North America
+1 312 244-7042
alex.bryan@morningstar.com

Executive Summary

The Morningstar Active/Passive Barometer is a semiannual report that measures the performance of U.S. active funds against passive peers in their respective Morningstar Categories.

The Active/Passive Barometer uses several unique ways to measure active managers' success.

- ▶ It evaluates active funds not versus a costless index, but against a composite of actual passive funds. In this way, the "benchmark" reflects the actual, net-of-fee performance of passive funds.
- ▶ It assesses active funds based on their beginning-of-period category classification, to better simulate the funds an investor would have had to choose from at the time.
- ▶ It considers how the average dollar invested in various types of active funds has fared versus the average dollar in the passive composite.
- ▶ It examines trends in active-fund success by fee level.

The Active/Passive Barometer is also comprehensive, spanning approximately 3,500 unique active and passive U.S. funds that account for approximately \$10 trillion in assets, or about 60% of the U.S. fund market.

All told, the Active/Passive Barometer is a useful measuring stick that can help investors better calibrate the odds of succeeding with active funds in different areas based on recent trends and longer-term history.

Key Takeaways

- ▶ In general, actively managed funds have failed to survive and beat their benchmarks, especially over longer time horizons.
- ▶ To further illustrate this point, we have included calculations for the trailing 15- and 20-year periods for those categories where we have sufficient data for the first time in this report.
- ▶ The average dollar in passively managed funds typically outperforms the average dollar invested in actively managed funds.
- ▶ Investors would greatly improve their odds of success by favoring low-cost funds, which succeeded far more often than high-cost funds over the long term.
- ▶ Long-term success rates were generally higher among U.S. small-cap, U.S. mid-cap, foreign-stock, and intermediate-term bond funds, and lowest among U.S. large-cap funds.

With respect to recent trends in active-fund success:

- ▶ When compared with the 12-month period ended June 30, 2016, active funds' success increased substantially in 10 of the 12 categories we examined in the year ended June 30, 2017 (see Exhibit 2).
- ▶ The one-year success rate among active U.S. equity funds increased substantially relative to year-end 2016. About 49% of active U.S. stock funds beat their composite passive benchmark in the 12-month period ended June 30, 2017, versus 26% for the year ended Dec. 31, 2016.
- ▶ Funds with a value bent witnessed a sharp increase in their one-year success rate. Active funds in the large-, mid-, and small-value categories had a combined success rate of 57% relative to their passive peers over the past 12 months.
- ▶ Among active U.S. stock funds, the success rates of small-blend funds slid the most: Only 32% of active funds in the category beat their benchmark over the 12 months through June 2017, versus 46% in the year-ago period. Active small-value and small-growth funds fared materially better, with about 56% and 61% beating their composite index, respectively, over the same span.
- ▶ More than 80% of active funds in the intermediate-term bond category survived and outperformed their composite index in the 12-month span ended June 30, 2017. Active managers in the category have been rewarded handsomely for assuming credit risk as both investment-grade and below-investment-grade credits have rallied.
- ▶ Stylistic headwinds and tailwinds tend to explain short-term fluctuations in active-fund success.

Exhibit 1 Active Funds' Success Rates by Category (%)

Category	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	10-Year (Lowest Cost)	10-Year (Highest Cost)
U.S. Large Blend	48.8	18.7	20.4	13.8	14.6	16.7	22.1	4.1
U.S. Large Value	58.2	10.4	24.1	18.3	21.4	—	23.6	11.2
U.S. Large Growth	42.4	25.7	16.5	11.7	7.1	—	18.4	10.6
U.S. Mid-Blend	39.7	24.3	20.0	12.5	9.1	10.5	13.9	5.6
U.S. Mid-Value	56.1	24.3	13.3	21.4	—	—	32.1	10.7
U.S. Mid-Growth	55.4	41.0	27.8	27.6	21.7	—	36.1	16.7
U.S. Small Blend	31.5	25.0	28.0	26.1	19.6	31.3	42.6	19.1
U.S. Small Value	55.9	40.7	42.5	30.2	38.3	—	18.2	31.0
U.S. Small Growth	60.8	37.5	32.1	18.0	8.6	—	18.8	9.4
Foreign Large Blend	53.8	46.0	39.4	31.8	36.2	39.3	38.6	18.2
Diversified Emerging Markets	61.8	67.4	70.0	33.7	—	—	50.0	18.2
Intermediate-Term Bond	85.1	54.1	66.1	44.4	38.7	22.2	59.5	32.9

Source: Morningstar. Data and calculations as of 6/30/2017.

Exhibit 2 Year-Over-Year Change in Active Funds' 1-Year Success Rates by Category (%)

	2017	2016	Year-Over-Year Change
U.S. Large Blend	48.8	20.6	28.2
U.S. Large Value	58.2	14.1	44.1
U.S. Large Growth	42.4	29.8	12.6
U.S. Mid-Blend	39.7	23.5	16.1
U.S. Mid-Value	56.1	8.1	48.1
U.S. Mid-Growth	55.4	35.4	20.1
U.S. Small Blend	31.5	46.2	-14.6
U.S. Small Value	55.9	27.7	28.2
U.S. Small Growth	60.8	27.8	33.0
Foreign Large Blend	53.8	36.3	17.5
Diversified Emerging Markets	61.8	67.9	-6.1
Intermediate-Term Bond	85.1	24.5	60.5

Source: Morningstar. Data and calculations as of 6/30/2017.

Exhibit 3 Trends in Active Funds' 1-Year Success Rates by Category (%)

	2014	2015	2016		2017	Trend	
	December	June	December	June	December		June
U.S. Large Blend	31.2	43.0	27.7	20.6	25.3	48.8	
U.S. Large Value	16.2	49.1	36.5	14.1	20.3	58.2	
U.S. Large Growth	26.0	43.5	49.3	29.8	29.8	42.4	
U.S. Mid-Blend	33.0	40.2	42.1	23.5	24.8	39.7	
U.S. Mid-Value	25.7	63.9	53.5	8.1	19.8	56.1	
U.S. Mid-Growth	49.5	47.1	41.4	35.4	30.7	55.4	
U.S. Small Blend	40.2	36.2	50.2	46.2	36.7	31.5	
U.S. Small Value	23.6	44.0	66.7	27.7	15.0	55.9	
U.S. Small Growth	51.6	52.5	22.3	27.8	28.4	60.8	
Foreign Large Blend	46.1	58.0	63.6	36.3	33.5	53.8	
Diversified Emerging Markets	56.3	46.4	63.0	67.9	37.1	61.8	
Intermediate Term Bond	46.5	26.0	28.5	24.5	74.8	85.1	

Source: Morningstar. Data and calculations as of 6/30/2017.

Results by Category

U.S. Large Caps

- ▶ Long-run success rates across actively managed U.S. large-cap funds have been generally lower than those among mid- and small-cap U.S. equity funds.
- ▶ The large-growth category has been particularly difficult for active managers. Less than half the active funds that existed in this category 15 years ago survived and just 7.1% managed to both survive and outperform their average passively managed peer.
- ▶ Large-growth funds' struggles and large-value funds' relatively greater success ratios may be evidence of "Dunn's Law" in action. Over the 15-year period ended June 30, 2017, the Russell 1000 Value Index increased at an annualized rate of 8.09%. Meanwhile, the Russell 1000 Growth Index increased by 9.03% on an annualized basis. Thus, many active large-cap growth managers have been penalized for straying from their style, while large-cap value managers have been rewarded for out-of-style bets.
- ▶ Attrition rates are high among large-cap funds. Overall, just 48% of large-cap funds survived the 15-year period ended June 30, 2017. The odds of survival improved to about 57% for the lowest-cost funds but sagged to 29% for the highest-cost funds over that same time frame.

Value managers saw some of the most meaningful increases in their short-term success rates.

- ▶ Active stock-pickers in the large-, mid-, and small-cap value categories experienced year-over-year upticks in their trailing one-year success rates of 44.1%, 48.1%, and 28.2%, respectively. This is likely owed in some part to the recent sharp reversal in leadership between growth and value stocks. Over the year ended Dec. 31, 2016, the Russell 3000 Value Index outperformed the Russell 3000 Growth Index by more than 10 percentage points. During the 12 months ended June 30, 2017, the growth index outstripped its value counterpart by about 4.5 percentage points. Thus, active value managers who had been getting punished for their out-of-style (that is, growth) bets in 2016 are now being rewarded for those same wagers.

Value-oriented funds generally had higher odds of long-term success than other types of

- ▶ active U.S. stock funds.

Exhibit 4 U.S. Large Blend

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	371	93.3	140	89.3	17.6	17.9	16.9	17.2	48.8
3-Year	386	86.5	116	90.5	7.7	9.3	6.7	8.8	18.7
5-Year	412	77.2	111	82.0	13.4	14.5	12.5	14.2	20.4
10-Year	486	54.5	125	68.8	5.6	7.1	5.4	6.8	13.8
15-Year	349	44.1	88	56.8	7.7	8.4	7.2	8.1	14.6
20-Year	276	37.0	42	57.1	6.6	7.1	6.3	6.8	16.7
Performance by Fee Quartile (Trailing 10 Years)									
25th Percentile	122	57.4	38	78.9	6.1	7.2	6.0	7.1	22.1
50th Percentile	121	62.0	25	64.0	5.6	6.7	6.0	6.8	20.7
75th Percentile	121	54.5	35	74.3	5.0	6.0	5.5	6.8	8.3
100th Percentile	122	44.3	27	51.9	4.7	6.3	4.1	6.7	4.1

Source: Morningstar. Data and calculations as of 6/30/2017.

Exhibit 5 U.S. Large Value

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	335	94.9	64	98.4	16.7	13.8	16.3	15.3	58.2
3-Year	326	88.7	51	98.0	7.0	8.3	6.0	8.2	10.4
5-Year	311	78.8	38	97.4	13.2	13.7	12.5	13.5	24.1
10-Year	356	58.4	25	88.0	5.4	5.7	4.9	5.9	18.3
15-Year	285	46.7	9	66.7	7.5	7.9	7.1	7.5	21.4
20-Year	276	37.0	42	57.1	6.6	7.1	6.3	6.8	16.7
Performance by Fee Quartile (Trailing 10 Years)									
25th Percentile	89	61.8	10	71.4	5.8	5.6	5.3	5.4	23.6
50th Percentile	89	58.4	7	100.0	5.2	6.1	5.1	6.3	24.7
75th Percentile	89	56.2	6	100.0	4.7	5.5	4.8	6.6	13.5
100th Percentile	89	57.3	6	83.3	4.2	4.3	4.3	4.7	11.2

Source: Morningstar. Data and calculations as of 6/30/2017.

Exhibit 6 U.S. Large Growth

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	408	92.9	47	100.0	22.9	20.2	19.9	20.3	42.4
3-Year	440	85.5	44	97.7	9.9	10.4	8.6	10.0	25.7
5-Year	461	75.5	40	95.0	15.0	15.0	13.6	15.3	16.5
10-Year	453	52.1	27	85.2	7.7	8.8	7.1	8.9	11.7
15-Year	351	41.3	14	85.7	8.3	8.8	7.5	9.5	7.1
Performance by Fee Quartile									
(Trailing 10 Years)									
25th Percentile	114	62.3	10	87.5	7.9	8.7	7.8	8.7	18.4
50th Percentile	116	58.6	8	100.0	8.2	9.2	7.3	10.1	10.3
75th Percentile	110	40.9	6	83.3	6.7	9.3	7.0	8.9	7.3
100th Percentile	113	46.0	6	71.4	6.9	10.1	6.2	8.4	10.6

Source: Morningstar. Data and calculations as of 6/30/2017.

U.S. Mid-Caps

- ▶ Success rates for actively managed U.S. mid-cap funds have tended to be more diverse and variable than those for U.S. large- or small-cap funds.
- ▶ These extremes are partly evidence of the “crossroads” status of the mid-cap category, which is populated with many funds that may have relatively “messy” portfolios (those that bleed into other market-cap segments and styles) or could otherwise be passersby as they migrate “south” from large-cap territory or “north” from the small-cap space, for example.

Exhibit 7 U.S. Mid-Blend

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	121	94.2	49	95.9	18.7	18.7	16.9	17.7	39.7
3-Year	115	87.0	45	88.9	5.4	7.6	4.9	7.2	24.3
5-Year	130	80.0	45	84.4	13.4	14.5	12.2	14.3	20.0
10-Year	144	68.1	34	76.5	5.7	7.7	5.6	7.5	12.5
15-Year	88	56.8	22	59.1	8.5	10.2	8.1	9.9	9.1
20-Year	105	46.7	6	66.7	8.0	8.8	7.5	9.3	10.5
Performance by Fee Quartile									
(Trailing 10 Years)									
25th Percentile	36	69.4	10	90.0	5.8	7.7	6.1	7.9	13.9
50th Percentile	36	72.2	7	85.7	6.8	8.2	6.6	8.3	25.0
75th Percentile	36	72.2	8	62.5	5.0	8.0	5.7	8.0	5.6
100th Percentile	36	58.3	9	66.7	4.0	5.3	4.1	5.6	5.6

Source: Morningstar. Data and calculations as of 6/30/2017.

Exhibit 8 U.S. Mid-Value

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	114	92.1	24	95.8	17.6	14.7	17.2	16.0	56.1
3-Year	107	87.9	20	100.0	6.2	8.3	5.4	7.2	24.3
5-Year	105	79.0	19	94.7	13.4	14.4	13.1	15.0	13.3
10-Year	112	65.2	12	83.3	6.0	7.2	6.0	6.8	21.4
Performance by Fee Quartile (Trailing 10 Years)									
25th Percentile	28	60.7	5	80.0	6.3	7.4	6.5	7.2	32.1
50th Percentile	28	78.6	1	100.0	6.4	7.4	6.3	7.4	21.4
75th Percentile	28	75.0	3	100.0	6.3	5.3	5.8	6.3	21.4
100th Percentile	28	46.4	3	66.7	5.1	5.2	5.2	5.7	10.7

Source: Morningstar. Data and calculations as of 6/30/2017.

Exhibit 9 U.S. Mid-Growth

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	202	92.6	23	95.7	19.1	16.3	18.2	16.9	55.4
3-Year	217	86.2	20	90.0	7.5	7.5	6.3	6.8	41.0
5-Year	223	78.0	21	81.0	13.2	13.8	12.3	13.1	27.8
10-Year	286	54.2	13	84.6	6.8	7.4	6.4	7.0	27.6
15-Year	230	46.1	4	75.0	8.7	9.7	8.3	8.9	21.7
Performance by Fee Quartile (Trailing 10 Years)									
25th Percentile	72	63.9	5	80.0	7.8	8.0	7.4	8.2	36.1
50th Percentile	71	53.5	2	100.0	6.0	7.2	6.2	8.4	25.4
75th Percentile	71	53.5	3	66.7	6.4	5.2	6.2	5.3	32.4
100th Percentile	72	45.8	3	100.0	4.8	5.5	5.6	7.0	16.7

Source: Morningstar. Data and calculations as of 6/30/2017.

U.S. Small Caps

- ▶ Long-run success rates among actively managed U.S. small-cap funds were generally higher than those seen among large-cap funds.
- ▶ Passively managed small-blend funds had the lowest 20-year survivorship rate of any U.S. equity category. This was driven largely by the extinction of all of the most costly passive options in this category that were around two decades ago.
- ▶ As was the case with large and mid-caps, active funds in the small-cap growth category had the lowest survivorship rate among its size cohort. Just 52% of the funds that were in the category at the end of June 2007 lived to see June 2017.

Exhibit 10 U.S. Small Blend

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	219	95.9	53	90.6	20.8	21.5	20.8	22.7	31.5
3-Year	196	89.8	48	89.6	5.9	7.4	5.6	7.2	25.0
5-Year	182	85.2	42	88.1	12.6	14.2	12.6	14.0	28.0
10-Year	188	64.4	39	74.4	6.3	7.5	5.8	6.8	26.1
15-Year	97	58.8	18	66.7	8.7	9.6	8.4	9.3	19.6
20-Year	67	53.7	6	33.3	8.0	8.6	8.3	8.5	31.3
Performance by Fee Quartile									
(Trailing 10 Years)									
25th Percentile	47	76.6	10	70.0	7.1	7.6	6.7	7.6	42.6
50th Percentile	47	59.6	10	100.0	6.0	7.3	5.7	7.5	23.4
75th Percentile	47	59.6	9	66.7	5.1	6.1	5.3	5.9	19.1
100th Percentile	47	61.7	10	60.0	5.2	6.9	5.2	6.4	19.1

Source: Morningstar. Data and calculations as of 6/30/2017.

Exhibit 11 U.S. Small Value

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	118	97.5	20	95.0	21.9	20.4	20.8	20.5	55.9
3-Year	108	92.6	18	100.0	5.3	7.4	4.7	6.2	40.7
5-Year	106	92.5	17	100.0	13.0	14.4	12.4	13.6	42.5
10-Year	129	64.3	10	90.0	6.1	6.8	5.9	6.3	30.2
15-Year	94	67.0	4	100.0	9.1	8.9	8.8	8.9	38.3
Performance by Fee Quartile (Trailing 10 Years)									
25th Percentile	33	54.5	5	80.0	6.3	6.8	6.0	7.1	18.2
50th Percentile	32	65.6	2	100.0	6.1	6.8	5.9	6.8	37.5
75th Percentile	35	77.1	3	100.0	6.1	5.3	6.1	4.7	34.3
100th Percentile	29	58.6	1	100.0	6.1	9.2	5.4	9.2	31.0

Source: Morningstar. Data and calculations as of 6/30/2017.

Exhibit 12 U.S. Small Growth

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	204	96.6	13	100.0	22.6	21.0	23.7	21.8	60.8
3-Year	216	86.6	14	100.0	7.0	6.9	6.6	7.3	37.5
5-Year	224	75.9	13	100.0	13.4	13.5	12.7	13.4	32.1
10-Year	256	51.2	11	81.8	7.2	8.1	6.3	7.6	18.0
15-Year	222	48.2	4	100.0	9.1	10.2	8.4	10.2	8.6
Performance by Fee Quartile (Trailing 10 Years)									
25th Percentile	64	51.6	5	80.0	7.9	8.1	6.6	8.7	18.8
50th Percentile	64	65.6	1	100.0	7.0	7.7	7.0	7.7	29.7
75th Percentile	64	51.6	2	100.0	6.0	6.8	6.2	7.4	14.1
100th Percentile	64	35.9	3	66.7	5.9	7.2	5.2	7.0	9.4

Source: Morningstar. Data and calculations as of 6/30/2017.

Foreign Large Blend

- ▶ Investors in the lowest-cost quartile of actively managed foreign large-blend funds had the fourth-best success rate of any subgroup we examined. Over the 10-year period ended in June 2017, 38.6% of these funds managed to survive and outperform their average passive peer. This same cohort had the highest success rate of any group examined over the trailing 20 years, as more than 80% of the cheapest funds in the foreign large-blend category both survived and outperformed their passive peers over the past two decades.
- ▶ The high success rates among foreign large-blend funds can be partly attributed to benchmark misspecification. Virtually all of the index funds and exchange-traded funds in this category that existed 10 or more years ago were benchmarked to the MSCI EAFE Index. The cap-weighted benchmark has large allocations to Japanese and U.K. stocks (as of July 31, 2017, the two represented 41% of the index's value). The relatively lackluster performance of both markets over the past 10 years has weighed on the MSCI EAFE Index's performance and created ample opportunity for active managers to add value by underweighting these markets, being more selective within them, or outright omitting them from their portfolios.
- ▶ Investors have consistently chosen above-average funds in this category. This is evidenced by the fact that active funds' asset-weighted performance exceeded their equal-weighted performance during the trailing one-, three-, five-, 10-, 15-, and 20-year periods we examined.

Exhibit 13 Foreign Large Blend

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	184	95.1	65	92.3	21.4	20.0	19.1	18.3	53.8
3-Year	174	91.4	45	88.9	1.8	1.4	1.3	1.5	46.0
5-Year	188	83.0	41	85.4	8.9	8.2	8.1	8.4	39.4
10-Year	176	58.5	26	73.1	1.7	0.8	0.8	0.9	31.8
15-Year	141	54.6	15	53.3	6.7	6.2	5.8	5.9	36.2
20-Year	107	47.7	5	40.0	5.0	4.2	4.0	3.7	39.3
Performance by Fee Quartile									
(Trailing 10 Years)									
25th Percentile	44	63.6	7	71.4	2.7	1.0	1.4	1.1	38.6
50th Percentile	44	68.2	7	85.7	0.3	0.8	0.6	0.8	40.9
75th Percentile	44	52.3	5	60.0	1.0	1.0	0.8	0.4	29.5
100th Percentile	44	50.0	7	71.4	0.5	-0.4	-0.1	0.2	18.2

Source: Morningstar. Data and calculations as of 6/30/2017.

Diversified Emerging Markets

- ▶ The diversified emerging-markets category was one of two categories that witnessed a decline in its one-year success rate. More than two thirds of active managers survived and beat their average passive peer in the 12 months through June 2016. Some 62% of them both lived and outperformed through the most recent period.
- ▶ At 75.6%, actively managed diversified emerging-markets funds had the highest 10-year survivorship rate of any category we studied.
- ▶ While generally thought of as an “inefficient” area that’s more hospitable to active funds, the data indicates that cost matters even in emerging markets: The lowest-cost funds in this category had a success rate that was 31.8 percentage points higher than the success rate for the category as a whole during the decade ended June 2017.

Exhibit 14 Diversified Emerging Markets

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	228	93.9	65	87.7	21.7	20.4	20.3	19.0	61.8
3-Year	181	87.8	55	74.5	0.9	0.4	0.6	-0.9	67.4
5-Year	150	83.3	40	85.0	4.5	3.1	4.2	2.5	70.0
10-Year	86	75.6	4	100.0	1.9	1.5	1.3	1.8	33.7
Performance by Fee Quartile									
(Trailing 10 Years)									
25th Percentile	22	90.9	1	100.0	1.8	1.6	1.5	1.6	50.0
50th Percentile	21	81.0	1	100.0	2.8	2.3	1.8	2.3	38.1
75th Percentile	21	76.2	1	100.0	1.3	1.4	1.2	1.4	28.6
100th Percentile	22	54.5	1	100.0	1.0	1.2	0.2	1.2	18.2

Source: Morningstar. Data and calculations as of 6/30/2017.

Intermediate-Term Bond

- ▶ Managers in the intermediate-term bond category saw the most substantial improvement in their one-year success rate. Over the most recent 12-month stretch, 85% of the active managers in this category were able to survive and outperform their passive peers. This is likely owed in large part to the fact that more-credit-risky bonds have continued to rally. For example, iShares iBoxx \$ High Yield Corporate Bond ETF HYG and iShares iBoxx \$ Investment Grade Corporate Bond ETF LQD posted respective total returns of 9.89% and 1.39% over the 12 months through June 2017. Meanwhile, iShares Core U.S. Aggregate Bond ETF AGG had a total return of negative 0.41%. Active managers continue to be generously rewarded for taking credit risk.
- ▶ Actively managed intermediate-term bond funds had the highest 10- and 15-year success rates among the categories we examined.

Exhibit 15 Intermediate-Term Bond

	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	261	95.8	34	97.1	1.4	-0.5	1.2	-0.4	85.1
3-Year	255	89.4	29	96.6	2.5	2.4	2.3	2.2	54.1
5-Year	271	80.4	29	89.7	2.8	2.1	2.6	1.9	66.1
10-Year	293	59.7	21	81.0	4.7	4.4	4.2	4.0	44.4
15-Year	225	48.4	17	52.9	4.7	4.4	4.1	4.0	38.7
20-Year	203	34.0	8	75.0	5.3	5.1	4.9	4.9	22.2
Performance by Fee Quartile									
(Trailing 10 Years)									
25th Percentile	74	67.6	8	87.5	4.7	4.5	4.6	4.5	59.5
50th Percentile	73	60.3	3	100.0	5.2	4.1	4.3	4.2	46.6
75th Percentile	73	54.8	5	60.0	3.5	4.1	3.4	4.2	38.4
100th Percentile	73	56.2	5	80.0	4.6	2.3	4.1	3.1	32.9

Source: Morningstar. Data and calculations as of 6/30/2017.

Appendix— Summary of Results for the Periods Ended Dec. 31, 2016 and June 30, 2016**Exhibit 16** Summary results for the period ended Dec. 31, 2016

Category	Active Funds' Success Rates by Category (%)			
	1-Year	3-Year	5-Year	10-Year
U.S. Large Blend	25.3	19.6	19.8	14.0
U.S. Large Value	20.3	7.0	24.9	20.0
U.S. Large Growth	29.8	10.1	14.4	5.9
U.S. Mid-Blend	24.8	20.3	20.0	10.6
U.S. Mid-Value	19.8	12.2	16.8	21.7
U.S. Mid-Growth	30.7	32.6	24.9	23.2
U.S. Small Blend	36.7	35.7	29.6	28.9
U.S. Small Value	15.0	34.6	27.6	29.3
U.S. Small Growth	28.4	20.1	18.8	15.6
Foreign Large Blend	33.5	43.1	39.8	32.2
Diversified Emerging Markets	37.1	61.4	59.1	29.3
Intermediate-Term Bond	74.8	53.8	68.4	44.4

Source: Morningstar. Calculations as of 12/31/2016.

Exhibit 17 Summary results for the period ended June 30, 2016

Category	Active Funds' Success Rates by Category (%)			
	1-Year	3-Year	5-Year	10-Year
U.S. Large Blend	20.6	22.0	12.3	14.8
U.S. Large Value	14.1	9.6	9.5	20.6
U.S. Large Growth	29.8	16.0	7.4	7.1
U.S. Mid-Blend	23.5	14.8	23.1	6.9
U.S. Mid-Value	8.1	16.7	13.0	26.9
U.S. Mid-Growth	35.4	36.0	27.5	22.7
U.S. Small Blend	46.2	34.4	31.9	26.1
U.S. Small Value	27.7	32.1	22.6	28.6
U.S. Small Growth	27.8	17.6	21.3	17.6
Foreign Large Blend	36.3	50.0	44.7	33.1
Diversified Emerging Markets	67.9	69.6	51.6	32.4
Intermediate-Term Bond	24.5	41.5	53.3	39.0

Source: Morningstar. Calculations as of 6/30/2016.

Appendix—Methodology

Data Source

Morningstar's U.S. open-end and exchange-traded funds database.

Universe

All ETFs and open-end mutual funds (excluding funds of funds and money market funds) in each Morningstar Category that existed at the beginning of the relevant period (including funds that did not survive to the end of the period) defined the eligible universe. To be included, the fund's inception date must precede the start of the period and the obsolete date cannot predate the start of the period. In addition, each must have asset data for at least one share class in the month prior to the start of the sample period (the beginning of the trailing one-, three-, five-, 10-, 15-, or 20-year period) to facilitate asset-weighting.

Survivorship

To calculate survivorship, we divide the number of distinct funds (based on unique fund ID at the beginning of the period) that started and ended the period in question by the total number of funds that existed at the onset of the period in question (the beginning of the trailing one-, three-, five-, 10-, 15-, or 20-year period).

Asset-Weighted Returns

We calculate the asset-weighted returns for each cohort using each share class' monthly assets and returns. When a fund becomes obsolete, its historical data remains in the sample. Funds that incept or migrate into the category after the start of the period are not included.

Equal-Weighted Returns

In order to come up with a single return figure for funds with multiple share classes, we first calculate the asset-weighted average of all the fund's share classes. We then take the simple equal-weighted average of the monthly returns for each fund in the group and compound those returns over the sample period. As before, when a fund becomes obsolete, its historical data remains in the sample. Funds that incept or are moved into the category after the start of the period are not included.

Success Rate

The success rate indicates what percentage of funds that started the sample period went on to survive and generate a return in excess of the equal-weighted average passive fund return over the period. This approach differs from the convention of using a single, representative index to gauge success. We do not consider magnitude of outperformance in defining success—a fund that just barely beat the passive alternative counts as much as a fund that significantly outperformed.

As in the equal-weighted return calculation, we calculate the asset-weighted average of all the fund's share classes to come up with a single return figure for funds with multiple share classes. We then rank the funds by their composite returns, count the number that rank higher than the equal-weighted average return for the passive funds in the category, and divide that number by the number of funds at the beginning of the period (using the same number from the denominator of the survivorship calculations).

Fees

We rank each fund by its annual report expense ratio from the year prior to the start of the sample period and group them into quartiles. We then apply the same steps described above to calculate the success rates for funds in each quartile. To be counted in the starting number of funds used for purposes of calculating the survivorship and success rates, each fund must have an annual report expense ratio at the beginning of the sample period.

Appendix—How Our Approach Compares With Others'

How is our approach different from others'?

- ▶ Our "benchmark" for measuring success is different than others'. We measure active managers' success relative to investable passive alternatives in the same Morningstar Category. For example, an active manager in the U.S. large-blend category is measured against a composite of the performance of its index mutual fund and ETF peers (for example, Vanguard Total Stock Market Index VTSMX, SPDR S&P 500 ETF SPY, and so on). Specifically, we calculate the equal- and asset-weighted performance of the cohort of index-tracking (that is, "passive") options in each category that we examine and use that figure as the hurdle that defines success or failure for the active funds in the same category. The magnitude of outperformance or underperformance does not influence the success rate. However, this data is reflected in the average return figures for the funds in each group, which we report separately.
- ▶ We believe that this is a better benchmark because it reflects the performance of actual investable options and not an index. Indexes are not directly investable. Their performance does not account for the real costs associated with replicating their performance and packaging and distributing them in an investable format. Also, the success rate for active managers can vary depending on one's choice of benchmark. For example, the rate of success among U.S. large-blend fund managers may vary depending on whether one uses the S&P 500 or the Russell 1000 Index as their basis for comparison. By using a composite of investable alternatives within funds' relevant categories as our benchmark, we account for the frictions involved in index investing (fees, and others) and we mitigate the effects that might stem from cherry-picking a single index as a benchmark. The net result is a far more fair comparison of how investors in actively managed funds have fared relative to those who have opted for a passive approach.
- ▶ We measure each fund's performance based on the asset-weighted average performance of all of its share classes in calculating success rates. This approach reflects the experience of the average dollar invested in each fund. We then rank these composite fund returns from highest to lowest and count the number of funds whose returns exceed the equal-weighted average of the passive funds in the category. The success rates are defined as the ratio of these figures to the number of funds that existed at the beginning of the period. Given this unique approach, our field of study is narrower than others, as the universe of categories that contained a sufficient set of investable index-tracking funds was fairly narrow at the end of 2004. We expect that number of categories we include in this study will expand over time.
- ▶ We cut along the lines of cost. Cost matters. Fees are the one of the best predictors of future fund performance. We have sliced our universe into fee quartiles to highlight this relationship. ■■