

---

# Morningstar's Active/Passive Barometer

## August 2019

---

### Morningstar Manager Research

August 2019

---

Ben Johnson, CFA  
Director of Global ETF Research  
+1 312 384-4077  
ben.johnson@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 spans more than 4,000 unique funds that account for approximately \$12.5 trillion in assets, or about 64% of the U.S. fund market.

The Active/Passive Barometer measures active managers' success in several unique ways:

- ▶ It evaluates active funds against a composite of actual passive funds. In this way, the "benchmark" reflects the actual, net-of-fees performance of passive funds.
- ▶ 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.

All told, the Active/Passive Barometer is a useful measuring stick that helps investors calibrate the odds of succeeding with active funds in different areas. In reviewing this installment of the report, note that we've expanded its scope to include the distribution of surviving active funds' 10-year excess returns relative to their passive peers. We have also included data for the new intermediate core bond Morningstar Category.

### Key Takeaways

- ▶ Nearly half (48%) of active U.S. stock funds survived and outperformed their average passive peer over the 12 months through June 2019, up from 37% in the year through June 2018.
- ▶ Active growth funds saw the biggest rebound in one-year success rates, as 66% of such funds beat the average of the passive funds in their categories, up from 44% in 2018.
- ▶ Active funds' success rates increased versus 2018 in 11 of the 20 categories we examined (see Exhibit 2). All told, around 44% of active funds beat the passive composite for their category in the 12 months through June 2019.
- ▶ Success rates spiked among active U.S. mid- and small-cap blend and growth funds. These funds' larger average market caps relative to many of their indexed peers helped them during a span that was marked by a rout in small caps. During the year through June 29, 2019, the small-cap-centric Russell 2000 Index fell 3.3% while its large-cap complement, the Russell 1000, increased by 10%.
- ▶ In general, actively managed funds have failed to survive and beat their benchmarks, especially over longer time horizons; only 23% of all active funds topped the average of their passive rivals over the 10-year period ended June 2019; long-term success rates were generally higher among foreign-stock funds and bond funds and lowest among U.S. large-cap funds.
- ▶ The distribution of 10-year excess returns for surviving active funds versus the average of their passive peers varies widely across categories. In the case of U.S. large-cap funds, it skews negative, indicating that the likelihood of and performance penalty for picking an underperforming manager tends to be greater than the probability and reward for finding a winner. The inverse tends to be true of the fixed-income and foreign stock categories we examined, where excess returns among surviving managers skewed positive over the past decade.
- ▶ Our data suggests that the average active dollar has outperformed the average active fund; this implies that investors have favored cheaper, higher-quality funds (see Exhibit 4).
- ▶ The cheapest funds succeeded more than twice as often as the priciest ones (33% success rate versus 14% success rate) over the 10-year period ended June 28, 2019. This not only reflects cost advantages but also differences in survival, as about two thirds of the cheapest funds survived, whereas only around half of the most expensive did so.

**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	32.3	29.0	13.6	8.0	14.5	18.0	18.7	1.1
U.S. Large Value	34.4	33.3	15.9	7.0	20.4	12.1	18.8	1.4
U.S. Large Growth	54.3	38.8	30.5	8.0	12.0	—	14.6	3.1
U.S. Mid Blend	46.3	26.5	14.3	7.7	8.1	11.6	13.8	0.0
U.S. Mid Value	32.0	33.3	23.8	11.6	26.9	—	16.0	4.2
U.S. Mid Growth	79.1	59.5	54.0	29.8	26.9	—	40.4	24.0
U.S. Small Blend	45.3	29.3	26.0	22.1	19.3	34.0	39.5	18.9
U.S. Small Value	45.1	44.8	39.3	39.5	25.7	—	47.8	21.7
U.S. Small Growth	75.8	61.3	52.8	35.2	26.3	—	38.3	23.4
Foreign Large Blend	29.8	29.7	32.6	32.3	31.2	37.1	34.2	16.7
Foreign Large Value	8.5	23.4	44.1	32.6	—	—	36.8	15.8
Foreign Small-Mid Blend	34.5	21.4	24.0	82.4	—	—	100.0	100.0
World Large Stock	55.2	46.6	33.7	31.8	28.7	—	41.2	17.6
Diversified Emerging Markets	33.9	43.4	55.8	49.0	—	—	66.7	28.6
Europe Stock	20.8	13.6	23.8	48.1	34.2	—	83.3	33.3
U.S. Real Estate	56.9	31.9	38.8	35.1	32.8	27.1	53.3	26.7
Global Real Estate	76.4	19.7	51.9	38.6	—	—	33.3	11.1
Intermediate Core Bond	26.8	52.6	34.9	31.3	16.6	9.5	44.4	17.1
Corporate Bond	13.2	68.8	57.8	61.5	—	—	83.3	60.0
High Yield Bond	37.7	57.7	43.1	57.4	—	—	67.9	51.9

Source: Morningstar. Data and Calculations as of 6/28/19.

\* Green/red shading indicates that active funds in this fee quintile had above/below average success rates.

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

	2019	2018	Year-Over-Year Change
U.S. Large Blend	32.3	35.1	-2.9
U.S. Large Value	34.4	36.4	-2.1
U.S. Large Growth	54.3	45.1	9.2
U.S. Mid Blend	46.3	23.7	22.6
U.S. Mid Value	32.0	31.5	0.6
U.S. Mid Growth	79.1	42.6	36.4
U.S. Small Blend	45.3	24.7	20.7
U.S. Small Value	45.1	30.4	14.8
U.S. Small Growth	75.8	44.1	31.8
Foreign Large Blend	29.8	31.3	-1.5
Foreign Large Value	8.5	40.7	-32.2
Foreign Small-Mid Blend	34.5	26.7	7.8
World Large Stock	55.2	45.3	9.9
Diversified Emerging Markets	33.9	48.2	-14.3
Europe Stock	20.8	29.2	-8.3
U.S. Real Estate	56.9	39.4	17.5
Global Real Estate	76.4	27.1	49.2
Intermediate Core Bond*	26.8	61.9	-35.1
Corporate Bond	13.2	48.1	-34.9
High Yield Bond	37.7	43.2	-5.5

Source: Morningstar. Data and Calculations as of 6/28/19. \* The success rate for the 1-year period through June 2018 has been re-calculated to reflect the historical composition of the new intermediate core bond Morningstar Category.

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

	2014		2015		2016		2017		2018		2019	Trend
	Dec	June	Dec	June	Dec	June	Dec	June	Dec	June		
U.S. Large Blend	31.7	40.3	30.4	20.8	25.5	46.9	39.2	35.1	31.1	32.3		
U.S. Large Value	13.2	47.5	33.1	14.4	20.1	59.0	40.3	36.4	30.1	34.4		
U.S. Large Growth	11.8	43.6	49.8	30.5	31.1	42.1	46.0	45.1	48.9	54.3		
U.S. Mid Blend	35.0	42.1	41.4	26.8	24.4	40.3	30.0	23.7	31.4	46.3		
U.S. Mid Value	23.6	63.6	53.1	12.6	20.5	53.1	42.3	31.5	22.0	32.0		
U.S. Mid Growth	46.3	47.5	42.1	36.7	28.7	51.7	60.8	42.6	75.8	79.1		
U.S. Small Blend	37.4	40.3	53.1	46.7	35.9	32.0	42.9	24.7	21.3	45.3		
U.S. Small Value	25.5	44.4	68.7	28.7	15.1	55.9	57.6	30.4	15.9	45.1		
U.S. Small Growth	51.7	54.6	24.5	31.9	30.2	60.9	60.2	44.1	52.1	75.8		
Foreign Large Blend	42.2	54.0	61.6	36.9	33.0	53.0	59.1	31.3	18.5	29.8		
Foreign Large Value	29.3	88.3	89.2	37.0	14.7	47.9	71.6	40.7	14.5	8.5		
Foreign Small-Mid Blend	40.0	40.0	38.5	18.5	30.8	57.1	62.5	26.7	21.2	34.5		
World Large Stock	28.5	56.5	61.8	29.4	16.7	60.6	49.0	45.3	41.3	55.2		
Diversified Emerging Markets	60.6	53.3	58.9	68.5	34.8	61.1	67.1	48.2	20.8	33.9		
Europe Stock	12.5	59.1	63.6	33.3	17.4	18.2	56.5	29.2	24.0	20.8		
U.S. Real Estate	75.8	85.1	83.8	64.7	4.3	14.5	32.4	39.4	23.9	56.9		
Global Real Estate	75.9	68.5	54.5	75.0	29.5	16.4	12.9	27.1	72.4	76.4		
Intermediate Core Bond*	36.8	25.6	33.6	23.4	60.8	77.6	53.2	61.9	45.6	26.8		
Corporate Bond	46.2	28.3	31.9	42.6	67.3	76.0	73.5	48.1	28.6	13.2		
High Yield Bond	54.9	48.6	41.7	19.2	50.5	70.7	76.5	43.2	28.8	37.7		

Source: Morningstar. Data and Calculations as of 6/28/19. \* Success rates for these periods have been re-calculated to reflect the historical composition of the new intermediate core bond Morningstar Category.

**Exhibit 4** Comparison of Asset- and Equal-Weighted 10-Year Returns %

Category	Active Funds			Passive Funds			Difference Between Passive and Active Returns	
	Asset Weighted	Equal Weighted	Difference	Asset Weighted	Equal Weighted	Difference	Asset-Weighted	Equal-Weighted
U.S. Large Blend	12.7	12.3	0.4	14.6	14.3	0.3	1.9	2.0
U.S. Large Value	12.5	11.9	0.6	13.6	13.7	-0.1	1.1	1.8
U.S. Large Growth	14.9	14.0	0.9	15.9	16.4	-0.5	0.9	2.4
U.S. Mid Blend	12.9	12.0	1.0	14.8	14.3	0.4	1.8	2.4
U.S. Mid Value	12.6	12.3	0.3	14.2	14.1	0.1	1.6	1.8
U.S. Mid Growth	14.6	13.8	0.8	15.1	14.3	0.8	0.5	0.6
U.S. Small Blend	12.9	12.2	0.6	14.2	13.4	0.8	1.3	1.2
U.S. Small Value	12.0	11.9	0.1	13.2	12.2	1.0	1.2	0.3
U.S. Small Growth	15.1	14.1	1.0	15.1	14.2	0.8	0.0	0.2
Foreign Large Blend	7.4	6.5	0.9	6.7	6.6	0.1	-0.8	0.1
Foreign Large Value	6.8	5.8	0.9	5.1	5.8	-0.7	-1.7	0.0
Foreign Small-Mid Blend	8.0	8.9	-0.9	8.7	7.6	1.1	0.7	-1.4
World Large Stock	10.1	9.5	0.6	10.1	9.9	0.2	0.0	0.4
Diversified Emerging Markets	6.4	5.7	0.7	5.2	5.5	-0.3	-1.3	-0.3
Europe Stock	7.1	7.3	-0.3	6.6	6.5	0.0	-0.5	-0.8
U.S. Real Estate	14.9	14.0	0.9	15.3	14.8	0.5	0.4	0.8
Global Real Estate	9.9	9.9	-0.1	9.0	9.7	-0.7	-0.9	-0.2
Intermediate Term Bond	4.3	4.2	0.1	4.8	4.6	0.2	0.5	0.4
Corporate Bond	6.9	6.2	0.8	6.0	5.9	0.1	-1.0	-0.3
High Yield Bond	8.4	8.0	0.4	7.9	7.6	0.3	-0.5	-0.4

Source: Morningstar. Data and Calculations as of 6/28/19.

## Results by Category

### U.S. Large-Cap Funds

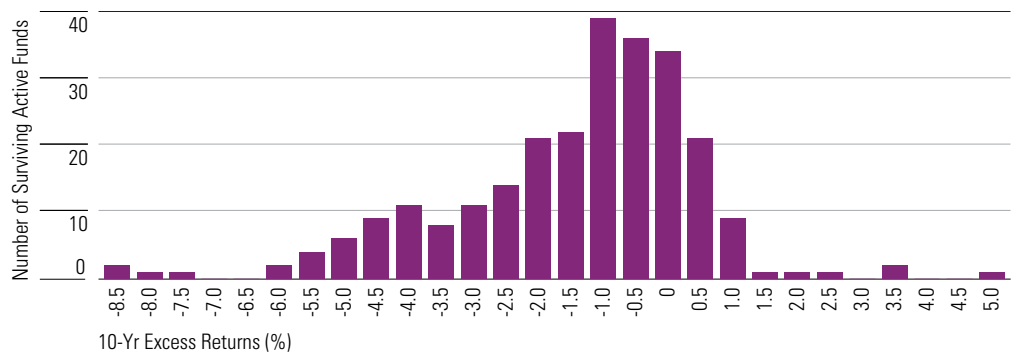
- ▶ Actively managed U.S. large-cap funds have generally succeeded less often than active mid- and small-cap U.S. equity funds over the long haul.
- ▶ The large-growth category has been particularly difficult for active managers. More than 60% of the active funds that existed in this category 15 years ago have died, and just 12% managed to both survive and outperform their average passively managed peer.
- ▶ The spike in mid- and small-cap blend and growth funds' one-year success rates may be evidence of "Dunn's Law" in action. Over the year ended June 29, 2019, the small-cap-centric Russell 2000 Index fell 3.3% while its large-cap complement, the Russell 1000, increased by 10%. Thus, many active managers in these categories were likely rewarded for straying from their style, favoring better-performing large-cap names, as evidenced by the higher average market cap among them versus their index-tracking peers.
- ▶ Attrition rates are high among large-cap funds. Overall, just 42% of large-cap funds survived to the end of the 15-year period ended June 29, 2019. The odds of survival improved to about 52% for the lowest-cost funds but sagged to 29% for the highest-cost funds during that same time frame.
- ▶ Pricy active large-cap funds are doomed to failure: Less than 2% of these funds beat their passive composite over the decade ended June 29, 2019.
- ▶ Passively managed large-blend funds had the lowest 20-year survivorship rate of any U.S. equity category. This was driven largely by the near-extinction of the most expensive passive options in this category that were around two decades ago. Of the 12 index funds that occupied the most expensive quintile of the group in 1999, just four survived through June 2019.
- ▶ Investors favor cheaper, more successful active large-cap funds, as evidenced by the fact that the average asset-weighted active return surpassed the average equal-weighted active return across all categories and nearly all the time horizons we examined.
- ▶ The median 10-year excess return for surviving active funds across all three U.S. large-cap categories was negative, and the distributions of excess returns had a negative skew. This indicates that the penalty for poor manager selection tended to be greater than the reward for choosing a winner.

**Exhibit 5** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	350	96.9	157	93.0	7.8	10.0	7.4	9.5	32.3
3-Year	369	83.7	135	85.9	12.7	14.0	12.1	13.4	29.0
5-Year	383	76.8	112	84.8	8.7	10.4	7.7	9.9	13.6
10-Year	451	57.2	122	65.6	12.7	14.6	12.3	14.3	8.0
15-Year	428	44.6	109	50.5	8.1	8.7	7.5	8.4	14.5
20-Year	323	34.7	61	42.6	5.9	5.9	5.2	5.6	18.0
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	91	62.6	25	64.0	12.8	14.6	12.5	14.4	18.7
40th Percentile	90	62.2	27	77.8	13.0	14.3	13.0	14.4	8.9
60th Percentile	90	60.0	21	66.7	12.8	14.3	12.4	14.3	5.6
80th Percentile	90	56.7	27	63.0	11.9	14.2	12.2	14.3	5.6
100th Percentile	90	44.4	22	54.5	10.9	13.7	10.6	13.9	1.1

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 6** Distribution of 10-Year Annualized Excess Returns for Surviving Active Large-Blend Funds



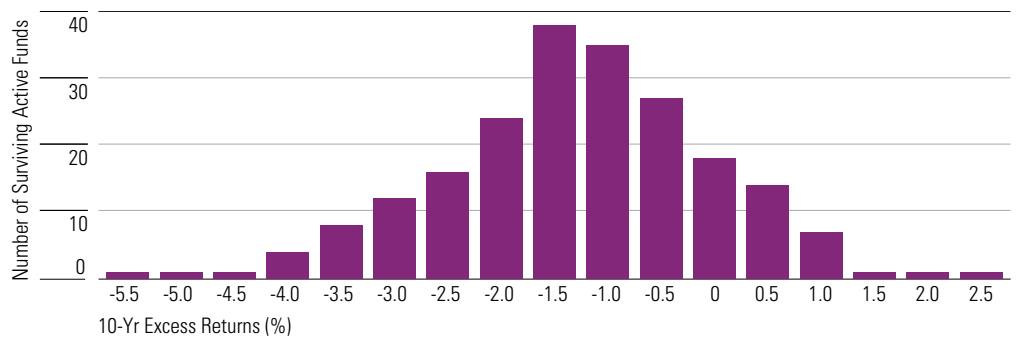
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 7** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	326	93.9	84	96.4	7.2	8.8	5.5	7.0	34.4
3-Year	330	87.6	63	98.4	10.9	10.6	10.1	10.8	33.3
5-Year	320	82.2	50	98.0	7.5	8.5	6.6	8.4	15.9
10-Year	344	61.0	29	89.7	12.5	13.6	11.9	13.7	7.0
15-Year	333	43.8	16	68.8	7.5	7.9	7.0	7.4	20.4
20-Year	240	41.3	3	66.7	5.8	6.4	5.6	6.5	12.1
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	69	62.3	7	71.4	13.2	13.4	12.9	13.1	18.8
40th Percentile	69	62.3	6	100.0	12.3	14.0	11.8	13.9	4.3
60th Percentile	68	60.3	4	100.0	11.6	14.6	11.9	14.4	5.9
80th Percentile	69	65.2	6	100.0	12.3	13.3	11.7	14.1	4.3
100th Percentile	69	55.1	6	83.3	10.5	13.5	11.0	13.8	1.4

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 8** Distribution of 10-Year Annualized Excess Returns for Surviving Active Large-Value Funds



Source: Morningstar. Data and calculations as of 6/28/19.

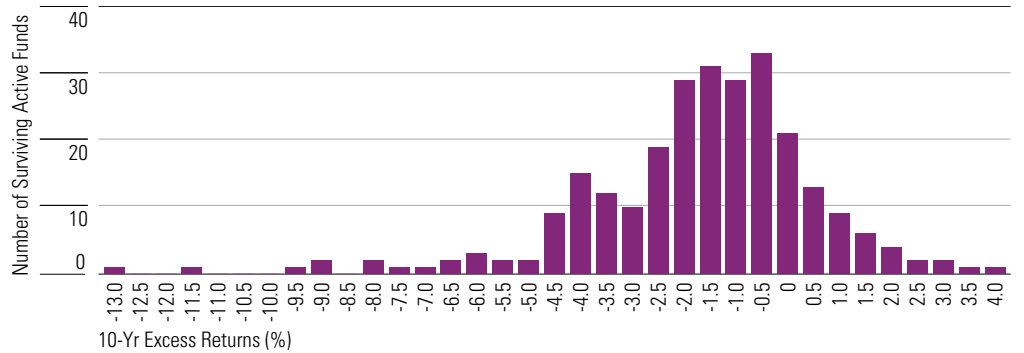


**Exhibit 9** U.S. Large Growth

	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 (%)	
<b>Trailing Total Return</b>									
1-Year	387	95.9	61	93.4	8.6	10.6	10.1	9.2	54.3
3-Year	400	84.8	46	95.7	17.7	17.1	16.6	16.9	38.8
5-Year	433	77.8	42	97.6	11.9	12.4	11.0	12.0	30.5
10-Year	477	55.6	27	85.2	14.9	15.9	14.0	16.4	8.0
15-Year	425	38.1	23	73.9	9.2	9.5	8.5	9.7	12.0
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	96	59.4	7	85.7	14.9	15.8	15.0	16.0	14.6
40th Percentile	95	63.2	5	100.0	15.6	16.1	14.3	16.6	9.5
60th Percentile	95	50.5	4	75.0	14.7	16.3	14.2	17.1	5.3
80th Percentile	95	53.7	5	80.0	14.2	15.1	13.6	15.9	7.4
100th Percentile	96	51.0	6	83.3	14.4	17.8	12.6	17.1	3.1

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 10** Distribution of 10-Year Annualized Excess Returns for Surviving Active Large-Growth Funds



Source: Morningstar. Data and calculations as of 6/28/19.

### U.S. Mid-Cap Funds

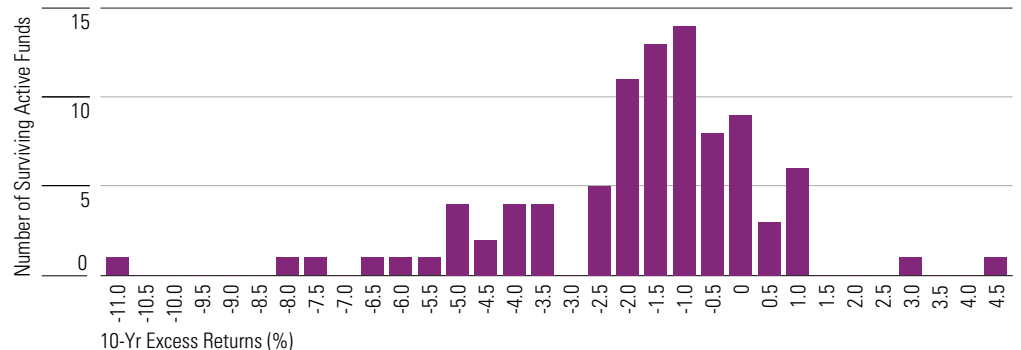
- ▶ Active mid-cap funds' one-year success rates increased across the board. Success rates for the mid-blend and mid-growth categories spiked higher, helped in part by the relative outperformance of large caps versus small caps over this span.
- ▶ Success rates for actively managed U.S. mid-cap funds have tended to be more widely dispersed 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 11** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	121	95.0	56	96.4	2.9	4.3	1.7	2.8	46.3
3-Year	117	82.1	48	95.8	10.2	12.1	8.9	11.0	26.5
5-Year	112	76.8	43	88.4	5.5	8.2	4.8	7.4	14.3
10-Year	142	64.1	35	85.7	12.9	14.8	12.0	14.3	7.7
15-Year	124	61.3	22	59.1	7.8	9.5	7.3	9.2	8.1
20-Year	129	41.1	8	75.0	6.6	8.2	6.7	8.5	11.6
<b>Performance by Fee Quartile</b>									
(Trailing 10 Years)									
20th Percentile	29	69.0	7	85.7	13.3	14.8	12.7	14.7	13.8
40th Percentile	28	75.0	8	100.0	13.8	14.5	13.0	14.9	10.7
60th Percentile	29	65.5	6	66.7	12.0	14.3	12.6	14.2	6.9
80th Percentile	27	63.0	7	71.4	11.3	14.0	11.6	14.0	7.4
100th Percentile	29	48.3	7	100.0	11.3	14.7	9.8	13.8	0.0

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 12** Distribution of 10-Year Annualized Excess Returns for Surviving Active Mid-Blend Funds



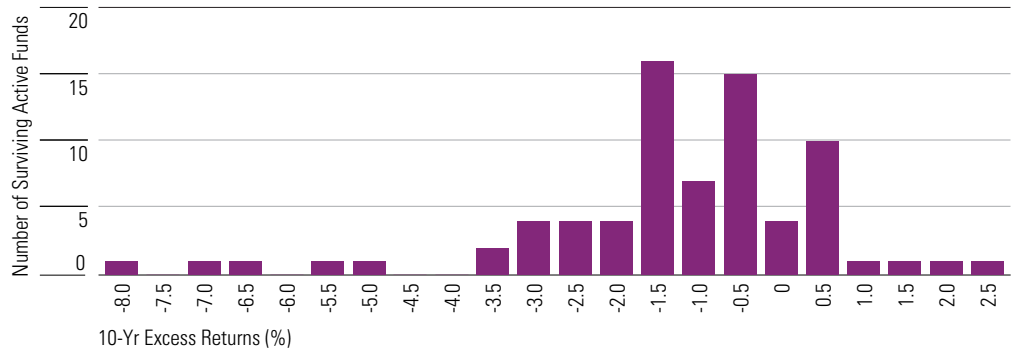
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 13** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	103	93.2	26	96.2	0.6	3.7	0.8	1.8	32.0
3-Year	111	84.7	25	96.0	9.1	9.2	8.8	9.6	33.3
5-Year	105	80.0	21	100.0	5.7	7.6	5.1	6.8	23.8
10-Year	121	62.0	14	92.9	12.6	14.2	12.3	14.1	11.6
15-Year	108	68.5	6	83.3	7.2	8.2	7.6	8.2	26.9
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	25	76.0	3	100.0	12.9	14.3	12.9	14.4	16.0
40th Percentile	24	62.5	3	100.0	13.3	14.4	12.8	14.6	12.5
60th Percentile	26	73.1	2	100.0	12.2	15.2	12.7	15.0	15.4
80th Percentile	22	63.6	3	100.0	12.5	12.5	11.2	13.8	9.1
100th Percentile	24	33.3	3	66.7	10.9	11.9	11.6	12.2	4.2

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 14** Distribution of 10-Year Annualized Excess Returns for Surviving Active Mid-Value Funds



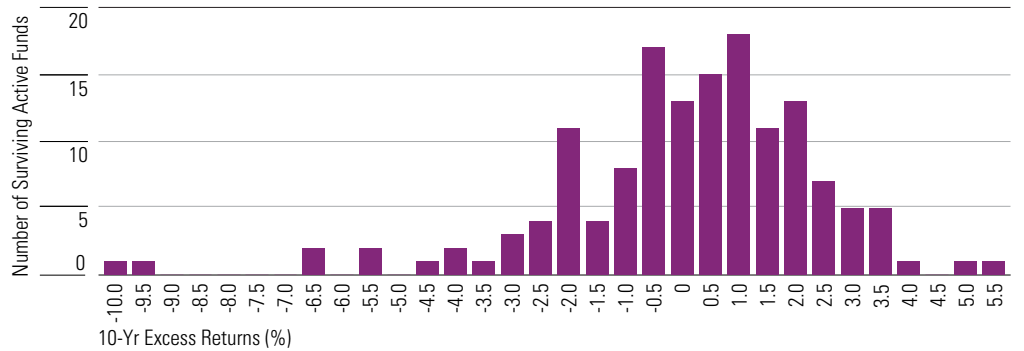
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 15** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	172	97.1	28	92.9	13.0	8.1	10.4	4.7	79.1
3-Year	200	83.5	24	91.7	16.6	13.6	15.5	13.5	59.5
5-Year	215	79.5	20	90.0	10.5	9.4	9.3	8.6	54.0
10-Year	258	57.0	13	100.0	14.6	15.1	13.8	14.3	29.8
15-Year	271	41.3	7	85.7	9.2	9.7	8.6	8.6	26.9
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	52	69.2	3	100.0	15.3	15.3	14.8	15.3	40.4
40th Percentile	51	56.9	2	100.0	14.7	14.8	14.4	15.5	33.3
60th Percentile	52	53.8	3	100.0	14.3	13.5	13.8	14.3	28.8
80th Percentile	53	49.1	3	100.0	13.8	14.3	13.3	13.5	22.6
100th Percentile	50	56.0	2	100.0	14.1	11.8	12.5	12.3	24.0

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 16** Distribution of 10-Year Annualized Excess Returns for Surviving Active Mid-Growth Funds



Source: Morningstar. Data and calculations as of 6/28/19.

### U.S. Small-Cap Funds

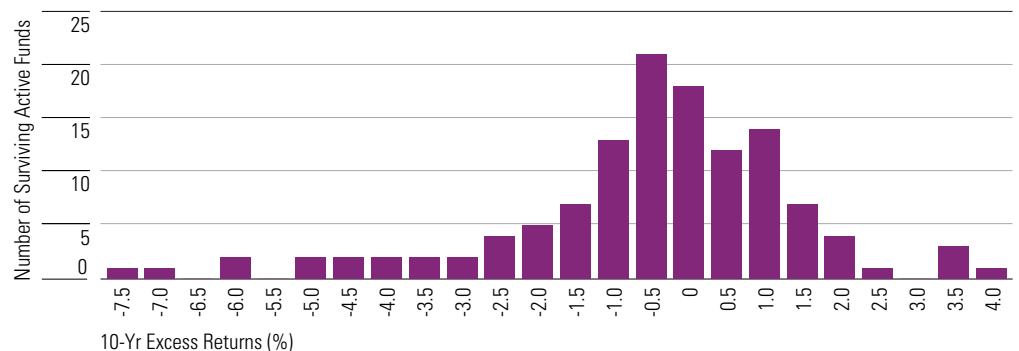
- ▶ Small-cap managers' success rates jumped in the 12 months through June 2019. Like mid-cap managers, small-cap funds' skippers were likely beneficiaries of the relative outperformance of large-cap stocks over this horizon.
- ▶ Long-run success rates among actively managed U.S. small-cap funds have generally been higher than those seen among large-cap funds, though not materially so.
- ▶ Small-cap managers' higher long-term success rates can be explained in part by their staying power. At 53%, active small-cap funds' 15-year survivorship rate is higher than both large-cap (42%) and mid-cap funds (52%).

**Exhibit 17** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	214	93.0	58	93.1	-3.0	-1.7	-4.1	-3.7	45.3
3-Year	215	87.0	51	80.4	10.2	12.0	9.6	11.0	29.3
5-Year	192	81.8	46	80.4	5.5	7.5	5.0	6.6	26.0
10-Year	190	65.3	40	70.0	12.9	14.2	12.2	13.4	22.1
15-Year	145	60.0	24	58.3	7.8	8.8	7.2	8.3	19.3
20-Year	103	51.5	12	50.0	8.1	8.6	8.5	8.3	34.0
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	38	73.7	8	75.0	13.6	14.3	12.9	14.0	39.5
40th Percentile	38	65.8	8	100.0	13.9	13.6	13.2	14.1	23.7
60th Percentile	38	65.8	9	88.9	11.2	13.7	11.7	13.7	15.8
80th Percentile	39	53.8	9	33.3	10.8	13.0	11.6	12.3	12.8
100th Percentile	37	67.6	6	50.0	11.6	12.5	11.4	12.5	18.9

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 18** Distribution of 10-Year Annualized Excess Returns for Surviving Active Small-Blend Funds



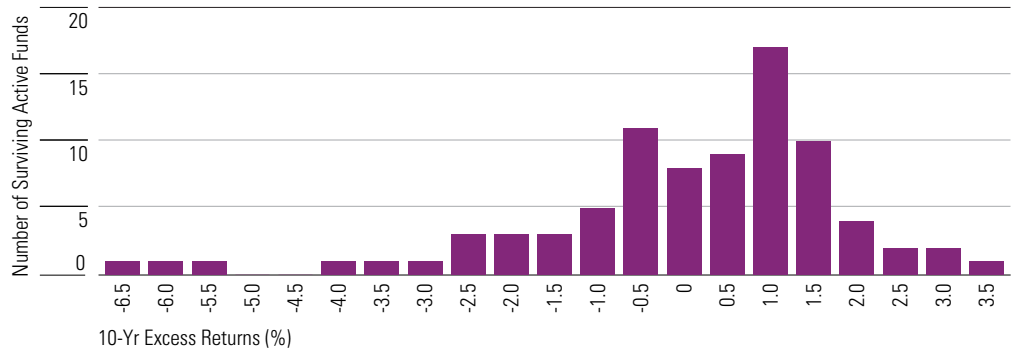
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 19** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	113	97.3	24	95.8	-6.6	-3.8	-7.9	-7.1	45.1
3-Year	116	94.0	21	95.2	8.7	9.5	7.9	8.3	44.8
5-Year	107	90.7	19	94.7	4.3	6.1	3.6	4.6	39.3
10-Year	114	73.7	10	100.0	12.0	13.2	11.9	12.2	39.5
15-Year	113	56.6	8	75.0	7.3	8.0	7.1	7.4	25.7
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	23	73.9	3	100.0	12.8	13.4	12.4	13.4	47.8
40th Percentile	23	73.9	1	100.0	11.4	14.4	12.0	14.4	39.1
60th Percentile	22	86.4	2	100.0	11.8	12.0	12.1	12.2	40.9
80th Percentile	23	69.6	2	100.0	13.1	9.7	11.9	11.3	47.8
100th Percentile	23	65.2	2	100.0	11.5	9.6	11.0	10.0	21.7

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 20** Distribution of 10-Year Annualized Excess Returns for Surviving Active Small-Value Funds



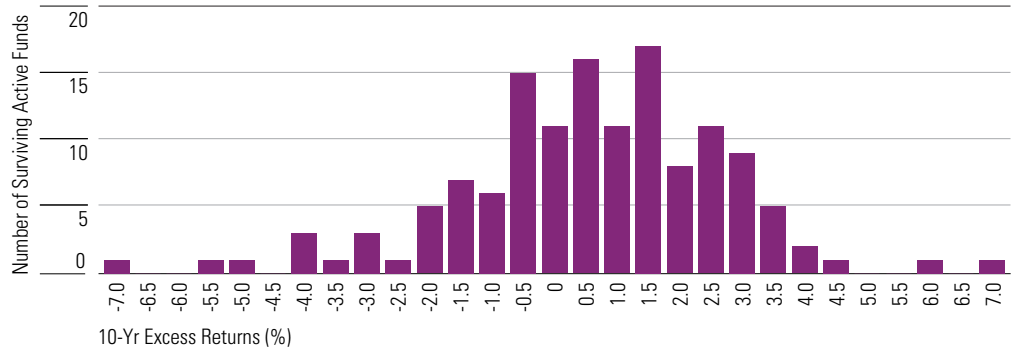
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 21** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	207	96.1	12	100.0	7.5	2.9	3.9	-1.7	75.8
3-Year	199	89.4	13	100.0	17.5	14.9	16.5	13.7	61.3
5-Year	214	79.9	14	100.0	10.1	8.9	9.2	8.1	52.8
10-Year	233	58.8	10	100.0	15.1	15.1	14.1	14.2	35.2
15-Year	266	48.1	7	85.7	9.1	9.5	8.2	9.1	26.3
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	47	68.1	3	100.0	16.2	15.1	14.4	15.2	38.3
40th Percentile	46	60.9	1	100.0	14.6	16.1	14.3	16.1	37.0
60th Percentile	47	63.8	2	100.0	14.6	14.2	14.1	14.7	38.3
80th Percentile	46	65.2	2	100.0	13.3	11.7	14.3	12.5	39.1
100th Percentile	47	36.2	2	100.0	14.5	13.1	12.9	13.1	23.4

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 22** Distribution of 10-Year Annualized Excess Returns for Surviving Active Small-Growth Funds



Source: Morningstar. Data and calculations as of 6/28/19.

### Foreign Stock

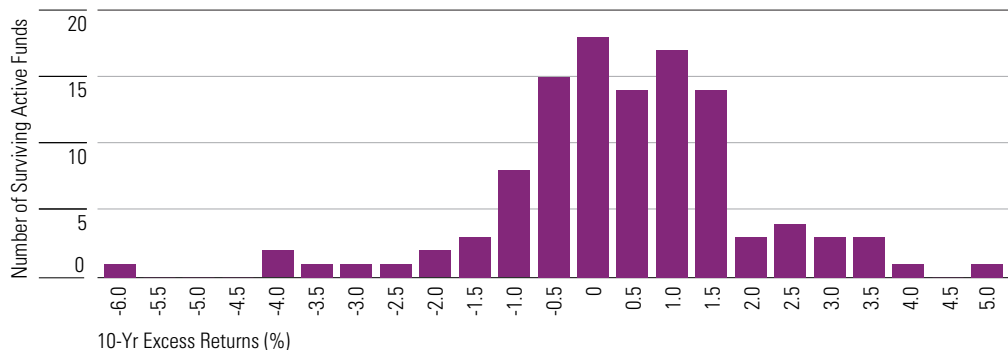
- ▶ Active funds' one-year success rates plummeted in three of the five world and foreign-stock categories we examined. The difference between the average return for passive and active funds across these five categories ranged from 0 to nearly 3 percentage points. This speaks to the fact that they tend to be heterogeneous, containing funds with managers plying a wide variety of strategies.
- ▶ The difference between 10-year asset-weighted returns for passive and active funds in four of the five categories was either zero or negative. This indicates that investors generally achieved better outcomes with active funds within these categories.

**Exhibit 23** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	178	94.4	86	93.0	-0.8	0.7	-0.3	1.1	29.8
3-Year	182	85.7	64	87.5	8.5	9.0	8.0	8.7	29.7
5-Year	172	82.6	44	86.4	2.3	2.3	2.0	2.5	32.6
10-Year	186	60.2	38	76.3	7.4	6.7	6.5	6.6	32.3
15-Year	154	48.7	19	52.6	6.1	5.3	5.1	5.1	31.2
20-Year	132	47.0	9	44.4	4.7	4.1	3.8	3.5	37.1
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	38	60.5	8	75.0	8.1	6.7	6.9	6.8	34.2
40th Percentile	37	70.3	9	88.9	6.7	6.2	7.0	6.3	45.9
60th Percentile	37	67.6	6	66.7	6.8	6.2	6.7	6.6	40.5
80th Percentile	38	50.0	7	85.7	6.7	6.6	6.5	6.4	23.7
100th Percentile	36	52.8	8	62.5	5.5	6.3	5.2	6.8	16.7

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 24** Distribution of 10-Year Annualized Excess Returns for Surviving Active Foreign Large-Blend Funds



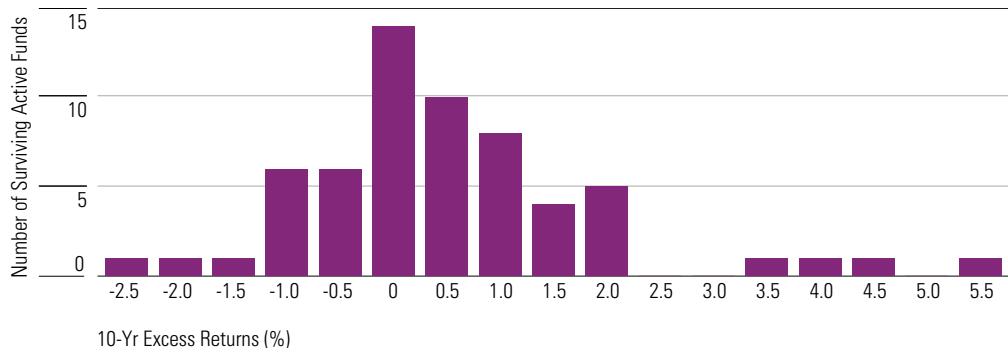
Source: Morningstar. Data and calculations as of 6/28/19.



**Exhibit 25** Foreign 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 (%)	
<b>Trailing Total Return</b>									
1-Year	82	91.5	30	96.7	-2.9	-0.1	-2.9	0.7	8.5
3-Year	94	81.9	29	75.9	7.2	8.2	6.8	8.1	23.4
5-Year	93	75.3	18	83.3	1.6	-0.1	0.6	0.3	44.1
10-Year	95	63.2	5	60.0	6.8	5.1	5.8	5.8	32.6
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	19	68.4	1	100.0	6.6	5.3	5.9	5.3	36.8
40th Percentile	19	57.9	1	100.0	5.7	5.1	5.9	5.1	31.6
60th Percentile	19	84.2	1	100.0	7.0	7.3	6.0	7.3	36.8
80th Percentile	19	57.9	1	0.0	9.0	5.1	6.2	5.1	42.1
100th Percentile	19	47.4	1	0.0	5.2	2.7	5.1	2.7	15.8

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 26** Distribution of 10-Year Annualized Excess Returns for Surviving Active Foreign Large-Value Funds

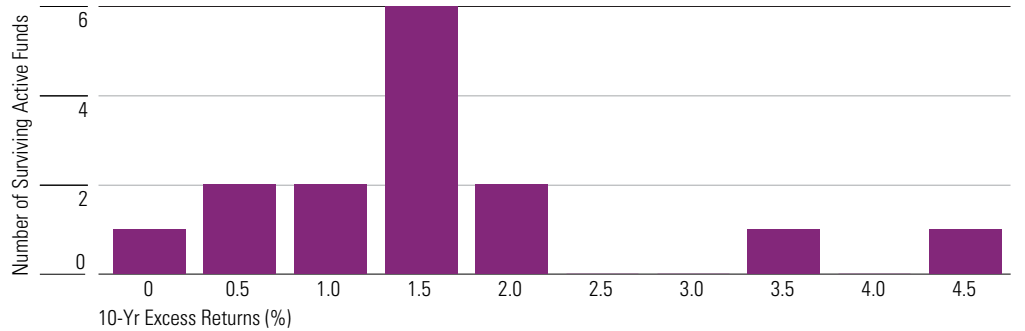
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 27** Foreign Small/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 (%)	
<b>Trailing Total Return</b>									
1-Year	29	96.6	8	100.0	-6.0	-6.5	-6.6	-6.6	34.5
3-Year	28	85.7	11	81.8	7.6	8.1	7.8	8.6	21.4
5-Year	25	72.0	8	87.5	2.6	3.2	3.1	3.2	24.0
10-Year	17	88.2	7	71.4	8.0	8.7	8.9	7.6	82.4
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	4	100.0	2	50.0	8.9	9.8	8.7	9.3	100.0
40th Percentile	3	100.0	1	100.0	8.9	9.4	8.6	9.4	100.0
60th Percentile	3	66.7	1	100.0	7.4	8.0	8.7	8.0	33.3
80th Percentile	3	66.7	1	100.0	10.4	7.9	10.2	7.9	66.7
100th Percentile	4	100.0	2	50.0	8.6	1.9	9.2	2.5	100.0

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 28** Distribution of 10-Year Annualized Excess Returns for Surviving Active Foreign Small-Blend Funds



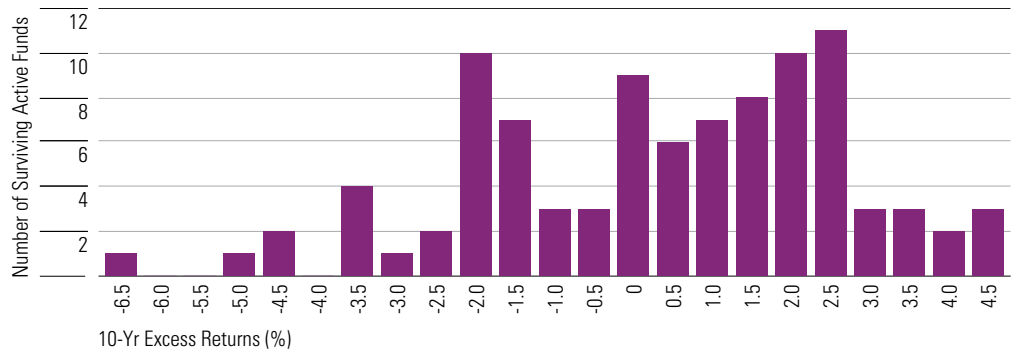
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 29** World Large Stock

	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 (%)	
<b>Trailing Total Return</b>									
1-Year	259	94.2	35	88.6	4.4	6.2	4.9	3.8	55.2
3-Year	247	82.2	23	87.0	11.5	11.1	10.9	10.3	46.6
5-Year	246	70.7	13	100.0	6.0	6.4	5.5	5.8	33.7
10-Year	170	57.1	13	76.9	10.1	10.1	9.5	9.9	31.8
15-Year	87	49.4	2	100.0	7.6	7.3	6.7	6.9	28.7
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	34	61.8	3	100.0	10.7	10.4	10.7	10.7	41.2
40th Percentile	34	67.6	2	100.0	9.5	9.9	9.8	9.3	38.2
60th Percentile	34	52.9	3	100.0	8.7	8.4	10.5	8.9	38.2
80th Percentile	34	55.9	2	100.0	8.3	9.7	8.7	9.7	23.5
100th Percentile	34	47.1	3	0.0	9.1	3.2	8.0	3.7	17.6

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 30** Distribution of 10-Year Annualized Excess Returns for Surviving Active World Large-Stock Funds



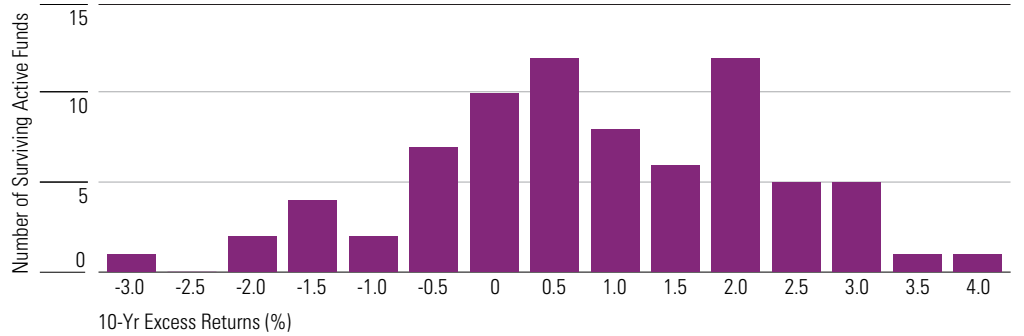
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 31** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	227	94.7	71	93.0	2.9	2.1	1.0	2.3	33.9
3-Year	228	83.8	63	79.4	10.1	9.6	8.9	9.0	43.4
5-Year	181	80.1	53	64.2	2.4	2.1	1.7	1.2	55.8
10-Year	102	74.5	23	82.6	6.4	5.2	5.7	5.5	49.0
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	21	85.7	5	60.0	6.4	5.5	6.2	5.2	66.7
40th Percentile	20	70.0	6	100.0	6.9	5.5	6.4	6.5	50.0
60th Percentile	20	85.0	4	75.0	6.1	4.9	5.5	4.8	45.0
80th Percentile	20	80.0	3	100.0	5.9	4.9	5.9	3.8	55.0
100th Percentile	21	52.4	5	80.0	5.1	4.8	4.6	5.9	28.6

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 32** Distribution of 10-Year Annualized Excess Returns for Surviving Active Diversified Emerg-Mrkt Funds

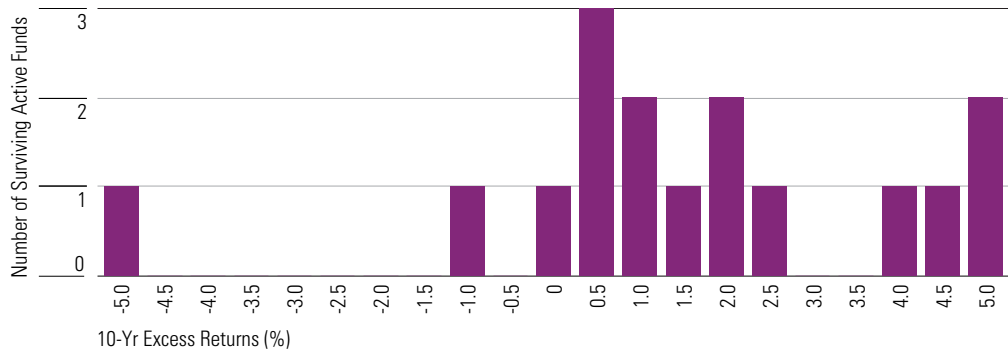


Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 33** Europe Stock

	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 (%)	
<b>Trailing Total Return</b>									
1-Year	24	79.2	36	88.9	-1.2	1.4	-0.9	1.3	20.8
3-Year	22	72.7	35	77.1	6.5	10.0	7.6	9.3	13.6
5-Year	21	66.7	13	100.0	0.9	2.0	1.4	2.1	23.8
10-Year	27	59.3	23	87.0	7.1	6.6	7.3	6.5	48.1
15-Year	38	44.7	17	94.1	6.1	5.3	6.2	5.1	34.2
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	6	83.3	5	80.0	8.1	7.2	9.4	6.8	83.3
40th Percentile	5	60.0	10	100.0	6.5	6.5	6.0	6.6	40.0
60th Percentile	5	40.0	—	—	6.7	—	6.1	—	20.0
80th Percentile	5	60.0	4	75.0	7.4	6.8	7.4	6.6	60.0
100th Percentile	6	50.0	4	75.0	6.9	3.8	6.5	5.3	33.3

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 34** Distribution of 10-Year Annualized Excess Returns for Surviving Active Europe-Stock Funds

Source: Morningstar. Data and calculations as of 6/28/19.

## Real Estate

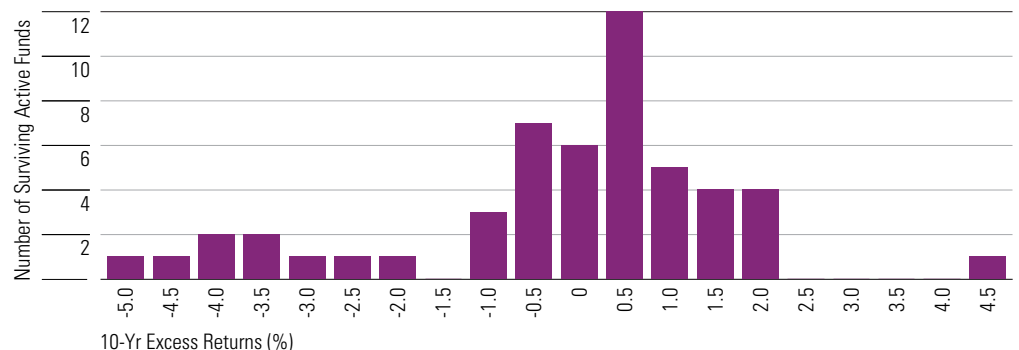
- ▶ Long-term success rates for actively managed U.S. and global real estate funds have been generally unimpressive. That said, selecting from the lowest-cost quintile of actively managed U.S. real estate funds offered investors decent odds of picking a winner a decade ago.
- ▶ Success rates in the global real estate category fluctuate dramatically over shorter time horizons. This owes to the diversity of funds within the category. Some invest exclusively outside the U.S., while others are more truly global. Thus, differences in performance between U.S. and ex-U.S. real estate securities will cause active managers' success rates to ebb and flow.

**Exhibit 35** U.S. Real Estate

	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 (%)	
<b>Trailing Total Return</b>									
1-Year	65	89.2	23	95.7	11.9	11.9	10.7	10.2	56.9
3-Year	69	84.1	19	94.7	4.9	4.2	4.5	5.2	31.9
5-Year	67	82.1	19	73.7	7.7	7.7	7.1	7.3	38.8
10-Year	74	68.9	12	66.7	14.9	15.3	14.0	14.8	35.1
15-Year	67	61.2	5	80.0	8.6	8.7	8.1	8.6	32.8
20-Year	48	47.9	3	33.3	9.8	10.1	9.6	9.8	27.1
<b>Performance by Fee Quartile</b>									
(Trailing 10 Years)									
20th Percentile	15	66.7	3	100.0	15.7	15.4	15.3	15.5	53.3
40th Percentile	15	66.7	7	57.1	14.6	14.5	13.7	14.5	40.0
60th Percentile	14	64.3	—	—	13.7	—	13.7	—	28.6
80th Percentile	15	80.0	—	—	14.0	—	13.7	—	26.7
100th Percentile	15	66.7	2	50.0	15.3	14.8	13.7	14.8	26.7

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 36** Distribution of 10-Year Annualized Excess Returns for Surviving Active U.S. Real Estate Funds



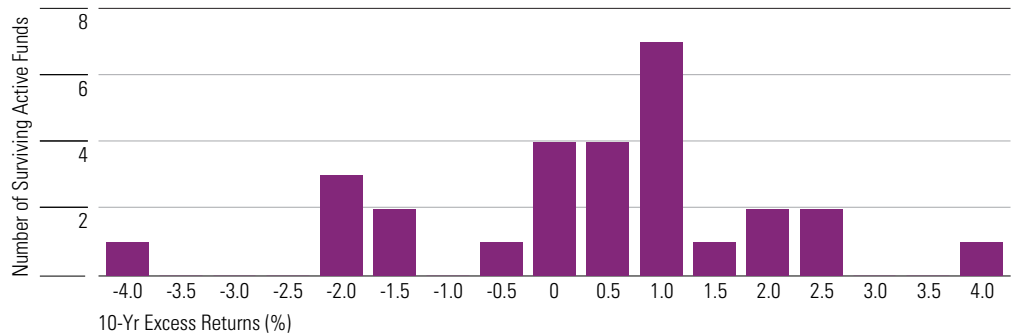
Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 37** Global Real Estate

	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 (%)	
<b>Trailing Total Return</b>									
1-Year	55	94.5	12	100.0	8.6	6.1	7.9	5.7	76.4
3-Year	61	78.7	16	81.3	5.4	5.1	5.8	6.9	19.7
5-Year	54	75.9	11	90.9	4.8	3.7	4.8	4.4	51.9
10-Year	44	63.6	12	83.3	9.9	9.0	9.9	9.7	38.6
<b>Performance by Fee Quartile</b> (Trailing 10 Years)									
20th Percentile	9	66.7	4	75.0	10.5	8.0	9.8	8.3	33.3
40th Percentile	10	50.0	1	100.0	9.6	11.7	9.9	11.7	30.0
60th Percentile	7	71.4	2	100.0	9.0	9.9	9.1	10.5	42.9
80th Percentile	9	100.0	2	100.0	10.1	8.5	10.5	9.6	77.8
100th Percentile	9	33.3	3	66.7	8.5	9.8	9.0	10.4	11.1

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 38** Distribution of 10-Year Annualized Excess Returns for Surviving Active Global Real Estate Funds



Source: Morningstar. Data and calculations as of 6/28/19.

### Fixed Income

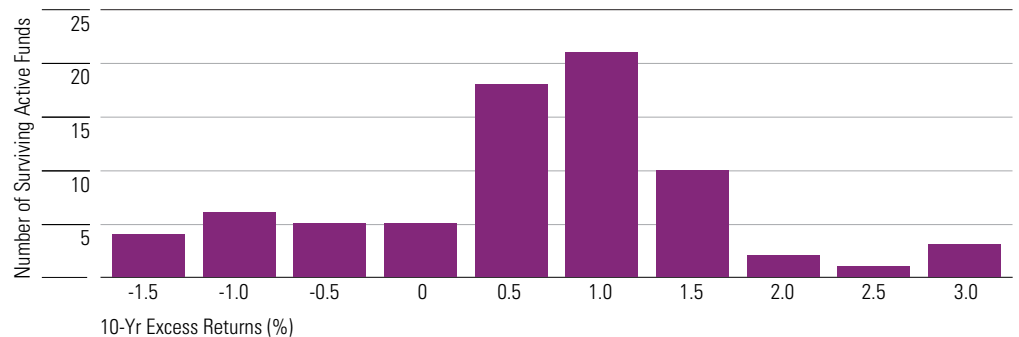
- ▶ Active fixed-income funds beat their benchmarks less often in the year through June 2109 than in the past. Many active bond funds have been hurt by having relatively longer durations than their indexed peers in a period of falling interest rates.
- ▶ Success rates in our new intermediate core bond Morningstar Category are generally lower than they were for the legacy category, which was more expansive and included active funds that had the latitude to take significantly more credit risk than their indexed peers. The passive funds in the category are now more representative of the opportunity set available to their active counterparts and thus a higher hurdle for core bond managers who hew more closely to standard benchmarks.

**Exhibit 39** 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 (%)	
<b>Trailing Total Return</b>									
1-Year	112	86.6	28	92.9	7.7	7.9	7.1	7.8	26.8
3-Year	116	76.7	29	86.2	2.5	2.2	2.3	2.0	52.6
5-Year	129	67.4	27	85.2	2.9	2.9	2.6	2.7	34.9
10-Year	176	42.6	19	63.2	4.2	3.8	3.9	3.7	31.3
15-Year	223	30.5	19	42.1	3.6	4.2	3.6	4.0	16.6
20-Year	201	18.9	14	35.7	4.3	4.8	4.2	4.6	9.5
<b>Performance by Fee Quartile</b>									
(Trailing 10 Years)									
20th Percentile	36	47.2	4	50.0	4.4	4.0	4.2	4.2	44.4
40th Percentile	35	54.3	4	100.0	3.8	3.6	4.0	3.6	40.0
60th Percentile	35	37.1	3	66.7	4.1	3.6	4.1	3.6	28.6
80th Percentile	35	40.0	4	75.0	4.2	3.5	3.9	3.5	25.7
100th Percentile	35	34.3	4	25.0	3.7	3.4	2.7	3.5	17.1

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 40** Distribution of 10-Year Annualized Excess Returns for Surviving Active Intermediate Core Bond Funds



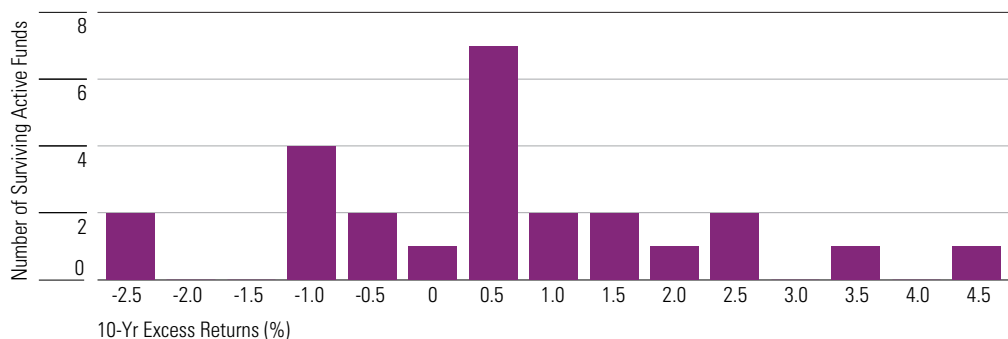
Source: Morningstar. Data and calculations as of 6/28/19.



**Exhibit 41** Corporate 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 (%)	
<b>Trailing Total Return</b>									
1-Year	53	98.1	26	92.3	11.1	11.8	9.6	11.3	13.2
3-Year	48	97.9	26	80.8	4.0	3.8	4.0	3.5	68.8
5-Year	45	93.3	26	65.4	4.4	4.0	3.8	3.5	57.8
10-Year	26	96.2	5	100.0	6.9	6.0	6.2	5.9	61.5
<b>Performance by Fee Quartile</b>									
(Trailing 10 Years)									
20th Percentile	6	100.0	3	100.0	7.2	6.3	7.4	6.3	83.3
40th Percentile	5	100.0	—	—	6.1	—	5.8	—	60.0
60th Percentile	5	80.0	—	—	5.3	—	4.6	—	20.0
80th Percentile	5	100.0	2	100.0	6.8	4.9	6.9	5.2	80.0
100th Percentile	5	100.0	—	—	6.4	—	6.1	—	60.0

Source: Morningstar. Data and Calculations as of 6/28/19.

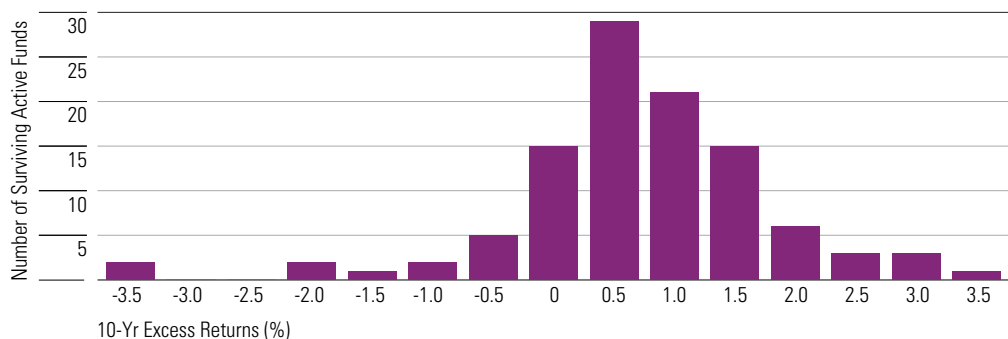
**Exhibit 42** Distribution of 10-Year Annualized Excess Returns for Surviving Active Corporate Bond Funds

Source: Morningstar. Data and calculations as of 6/28/19.

**Exhibit 43** High-Yield 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 (%)	
<b>Trailing Total Return</b>									
1-Year	183	97.3	29	93.1	6.7	7.0	6.3	6.7	37.7
3-Year	189	85.7	20	75.0	6.8	6.5	6.3	6.1	57.7
5-Year	174	83.9	17	58.8	3.9	3.4	3.3	3.7	43.1
10-Year	136	77.2	3	100.0	8.4	7.9	8.0	7.6	57.4
<b>Performance by Fee Quartile</b>									
(Trailing 10 Years)									
20th Percentile	28	85.7	1	100.0	8.5	8.0	8.4	8.0	67.9
40th Percentile	27	70.4	—	—	8.6	—	8.3	—	55.6
60th Percentile	27	88.9	2	100.0	8.1	7.8	7.7	7.4	55.6
80th Percentile	27	59.3	—	—	8.2	—	8.0	—	55.6
100th Percentile	27	81.5	—	—	8.2	—	7.7	—	51.9

Source: Morningstar. Data and Calculations as of 6/28/19.

**Exhibit 44** Distribution of 10-Year Annualized Excess Returns for Surviving Active High-Yield Bond Funds

Source: Morningstar. Data and calculations as of 6/28/19.

**Appendix A— Summary of Updated Results for the Periods Ended Dec. 31, 2018, and June 29, 2018****Exhibit 45** Summary Results for the Period Ended Dec. 31, 2018

Category	Active Funds' Success Rates by Category (%)						10-Yr	10-Yr
	1-Yr	3-Yr	5-Yr	10-Yr	15-Yr	20-Yr	(Lowest Cost)	(Highest Cost)
U.S. Large Blend	24.9	12.1	13.6	8.2	11.6	14.8	13.3	1.0
U.S. Large Value	22.9	10.6	10.6	4.3	12.0	5.9	6.7	2.7
U.S. Large Growth	38.4	22.7	16.3	6.7	8.9	—	13.4	2.1
U.S. Mid Blend	23.7	12.6	12.8	10.0	5.2	8.3	15.6	12.5
U.S. Mid Value	17.4	9.8	6.6	7.1	12.6	—	7.7	0.0
U.S. Mid Growth	62.9	51.5	40.7	26.0	21.7	—	30.4	19.6
U.S. Small Blend	17.8	18.9	15.9	19.7	13.6	25.9	28.2	17.9
U.S. Small Value	11.5	12.6	18.9	24.0	16.2	—	19.2	30.8
U.S. Small Growth	44.5	45.3	32.2	21.4	8.4	—	18.4	22.2
Foreign Large Blend	15.2	17.8	25.0	18.1	19.8	28.4	28.9	5.3
Foreign Large Value	8.4	9.5	17.4	13.7	—	—	5.3	15.8
Foreign Small-Mid Blend	18.2	19.2	16.0	47.1	—	—	25.0	50.0
World Large Stock	35.3	22.6	25.3	22.8	21.3	—	34.3	11.8
Diversified Emerging Markets	16.8	26.1	40.6	38.6	—	—	38.1	20.0
Europe Stock	24.0	13.0	8.3	26.7	21.4	—	66.7	16.7
U.S. Real Estate	17.9	4.3	27.3	28.8	32.3	27.7	53.3	26.7
Global Real Estate	58.6	9.8	40.7	10.6	—	—	0.0	0.0
Intermediate Term Bond*	37.0	57.4	45.6	48.6	30.0	21.0	63.2	38.6
Corporate Bond	23.2	44.9	41.0	58.3	—	—	80.0	40.0
High Yield Bond	25.7	32.4	34.8	47.9	—	—	61.3	34.5

Source: Morningstar. Data and Calculations as of 6/28/2018. \* This data appears as it was originally presented for the legacy intermediate-term bond Morningstar Category.

**Exhibit 46** Summary Results for the Period Ended June 29, 2018.

Category	Active Funds' Success Rates by Category (%)						10-Yr	10-Yr
	1-Yr	3-Yr	5-Yr	10-Yr	15-Yr	20-Yr	(Lowest Cost)	(Highest Cost)
U.S. Large Blend	35.1	14.4	19.6	10.4	15.7	16.9	15.2	4.1
U.S. Large Value	36.4	12.1	24.7	5.5	18.8	—	13.7	1.4
U.S. Large Growth	45.1	32.4	25.9	8.9	10.5	—	17.5	7.2
U.S. Mid Blend	23.7	18.8	14.2	14.2	7.8	9.0	30.0	6.7
U.S. Mid Value	31.5	15.1	11.3	11.6	14.9	—	12.0	0.0
U.S. Mid Growth	42.6	34.8	31.9	28.3	21.0	—	35.7	20.0
U.S. Small Blend	24.7	22.0	15.8	17.8	18.5	32.6	28.2	10.5
U.S. Small Value	30.4	27.0	26.7	30.2	24.3	—	42.3	28.0
U.S. Small Growth	44.1	31.9	27.1	20.1	8.7	—	15.4	23.5
Foreign Large Blend	31.3	35.2	43.6	26.8	28.1	34.1	36.1	16.7
Foreign Large Value	40.7	28.3	45.1	51.1	—	—	66.7	27.8
Foreign Small-Mid Blend	26.7	22.2	34.8	92.9	—	—	100.0	66.7
World Large Stock	45.3	33.7	40.5	31.7	—	—	50.0	7.1
Diversified Emerging Markets	48.2	58.7	59.1	33.7	—	—	50.0	16.7
Europe Stock	29.2	19.0	13.0	51.7	31.1	—	66.7	16.7
U.S. Real Estate	39.4	10.3	32.8	37.8	34.5	25.8	60.0	33.3
Global Real Estate	27.1	33.9	40.4	22.9	—	—	11.1	14.3
Intermediate Term Bond*	74.4	65.3	63.2	51.0	36.1	25.6	63.8	45.6
Corporate Bond	48.1	57.4	59.0	62.5	—	—	60.0	60.0

Source: Morningstar. Data and Calculations as of 6/29/2018.

## Appendix B—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

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.

### **Excess Returns**

We measure surviving active funds' excess returns relative to the equal-weighted average passive fund return in each category.

## Appendix C—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 narrow at the end of 2004. We expect that the 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. ■■