
Morningstar's U.S. Active/Passive Barometer

September 2022

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Executive Summary

The Morningstar Active/Passive Barometer is a semiannual report that measures the performance of active funds against passive peers in their respective Morningstar Categories. The U.S. Active/Passive Barometer spans nearly 8,400 unique funds, about half of which survived and accounted for approximately \$15.6 trillion in assets, or about 69% of the U.S. fund market, at 2022's midpoint.

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

- ▶ It evaluates active funds against a composite of passive funds. In this way, the "benchmark" reflects the actual, net-of-fees performance of investable passive funds.
- ▶ It considers how the average dollar invested in active funds has fared versus the average dollar invested in passive funds.
- ▶ It examines trends in active-fund success by fee level.
- ▶ It shows the distribution of surviving active funds' excess returns versus their average passive peer to help investors understand not just the odds of picking a successful manager but also the prospective payout or penalty.

The Active/Passive Barometer is a useful measuring stick that helps investors calibrate the odds of succeeding with active funds in different categories.

Key Takeaways

- ▶ Economic, geopolitical, and logistical headwinds torpedoed U.S. stock and bond markets in 2022's first half. Yet most active funds failed to capitalize on what was proclaimed to be a stock-picker's market: 40% of active funds across the 20 Morningstar Categories included in our analysis survived and outperformed their average passive peer over the 12 months through June 2022. That is a tick below active funds' 47% success rate in calendar-year 2021.
- ▶ U.S. stock-pickers' one-year success rate was over 45% midway through 2022, slightly higher than their 2021 mark (43%). Active mid- and small-cap funds paved the way with success rates of 48% and 55%, respectively, while large caps' 40% success rate weighed on the overall rate of success of U.S. active stock managers.
- ▶ The first half of 2022 was particularly unkind to active foreign stock funds. Active managers' success rates declined in all six categories that we examined and translated into a combined 23% one-year success rate—well below their 37% clip in 2021.
- ▶ Managers of active fixed-income funds saw their success rates drop the furthest (44 percentage points) from 2021 to the 12 months through June 2022. Still, 29% of active managers across the three fixed-income categories survived and beat their average passive peer. Active managers had a tougher time in corporate bonds (22% success rate) than high-yield bonds (32%).
- ▶ In general, actively managed funds have failed to survive and beat their average passive peer, especially over longer time horizons; one out of every four active funds topped the average of their passive rivals over the 10-year period ended June 2022. Long-term success rates were generally higher among foreign-stock, real estate, 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 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 active managers skewed positive over the past decade.
- ▶ Over the past 10 years, the average dollar invested in active funds outperformed the average active fund in 18 of the 20 categories examined and 13 of the 13 U.S. categories; this implies that investors have favored cheaper, higher-quality funds (see Exhibit 4).
- ▶ The cheapest funds succeeded more often than the priciest ones (32% success rate versus 19% success rate) over the 10-year period ended June 30, 2022. This not only reflects cost advantages but also differences in survival, as 65% of the cheapest funds survived, whereas 57% of the most expensive did so. Cheap funds tend to hold the greatest advantage over expensive funds in market segments with relatively high fees.

Exhibit 1 Active Funds' Success Rate 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	44.0	34.4	24.8	11.8	10.9	10.4	18.4	5.2
U.S. Large Value	34.5	31.7	27.7	15.8	11.1	19.3	24.6	11.7
U.S. Large Growth	39.3	22.3	15.8	6.3	2.4	2.3	11.9	2.2
U.S. Mid Blend	67.3	56.8	29.6	16.9	8.1	10.1	36.0	0.0
U.S. Mid Value	31.2	45.9	31.8	2.8	18.4	-	4.8	0.0
U.S. Mid Growth	45.9	40.5	54.1	40.0	21.0	-	46.5	30.2
U.S. Small Blend	60.3	41.8	28.8	19.8	17.8	13.1	32.4	18.9
U.S. Small Value	65.5	29.2	33.3	26.0	11.6	19.0	31.6	15.0
U.S. Small Growth	43.3	47.4	54.1	44.2	24.9	-	48.8	43.2
Foreign Large Blend	25.0	42.0	26.7	28.6	26.6	21.7	35.3	24.3
Foreign Large Value	27.3	40.4	15.8	31.7	15.7	-	36.8	19.0
Foreign Small-Mid Blend	25.9	30.3	13.3	28.6	-	-	50.0	40.0
World Large-Blend	36.1	20.5	17.8	20.4	-	-	20.0	20.0
Diversified Emerging Markets	19.7	43.6	32.5	42.6	28.2	-	51.7	46.7
Europe Stock	31.3	44.4	30.4	36.4	26.1	14.6	75.0	20.0
U.S. Real Estate	78.6	76.2	64.6	50.7	27.3	25.9	50.0	35.7
Global Real Estate	85.1	67.3	55.0	49.0	-	-	30.0	45.5
Intermediate Core Bond	26.4	51.4	46.0	40.2	19.8	14.1	53.6	24.2
Corporate Bond	22.2	42.1	41.2	43.6	-	-	33.3	75.0
High-Yield Bond	31.9	60.3	44.8	45.6	-	-	61.5	31.0

Source: Morningstar. Data and calculations as of June 30, 2022. *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' One-Year Success Rate by Category (%)

	2022	2021	Year-Over-Year Change
U.S. Large Blend	44.0	48.1	-4.2
U.S. Large Value	34.5	48.4	-13.9
U.S. Large Growth	39.3	37.1	2.2
U.S. Mid Blend	67.3	45.1	22.2
U.S. Mid Value	31.2	38.5	-7.3
U.S. Mid Growth	45.9	22.8	23.1
U.S. Small Blend	60.3	44.9	15.4
U.S. Small Value	65.5	23.8	41.8
U.S. Small Growth	43.3	40.8	2.5
Foreign Large Blend	25.0	63.6	-38.6
Foreign Large Value	27.3	52.3	-25.0
Foreign Small-Mid Blend	25.9	51.7	-25.8
World Large-Blend	36.1	55.3	-19.2
Diversified Emerging Markets	19.7	65.9	-46.2
Europe Stock	31.3	62.5	-31.3
U.S. Real Estate	78.6	30.0	48.6
Global Real Estate	85.1	66.7	18.4
Intermediate Core Bond	26.4	83.8	-57.4
Corporate Bond	22.2	69.6	-47.4
High-Yield Bond	31.9	73.3	-41.4

Source: Morningstar. Data and calculations as of June 30, 2022.

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

	2015		2016		2017		2018		2019		2020		2021		2022		Trend
	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun			
U.S. Large Blend	28.8	18.8	22.4	42.2	36.0	34.4	28.3	33.0	40.1	38.5	34.0	48.1	45.5	44.0			
U.S. Large Value	29.1	13.4	20.4	58.7	33.7	33.0	29.0	33.9	37.7	41.8	51.3	48.4	38.4	34.5			
U.S. Large Growth	46.4	20.8	27.9	36.8	44.9	44.0	48.0	51.2	40.2	45.4	40.7	37.1	32.2	39.3			
U.S. Mid-Blend	40.0	22.6	22.0	36.8	30.8	23.5	31.4	47.6	61.2	34.2	25.0	45.1	66.0	67.3			
U.S. Mid-Value	52.6	8.3	20.0	61.5	51.9	38.2	21.2	27.7	60.4	65.8	75.7	38.5	30.8	31.2			
U.S. Mid-Growth	40.6	34.0	31.7	55.1	54.5	44.8	72.1	78.6	74.9	61.8	45.8	22.8	46.9	45.9			
U.S. Small Blend	48.1	44.0	35.0	32.6	44.5	22.1	19.1	41.7	53.4	28.4	37.6	44.9	59.2	60.3			
U.S. Small Value	66.7	29.7	14.5	62.1	56.5	28.8	19.3	44.2	48.7	40.7	45.6	23.8	38.8	65.5			
U.S. Small Growth	24.1	30.0	27.7	56.8	59.8	43.5	50.7	76.0	75.4	69.1	71.9	40.8	47.4	43.3			
Foreign Large Blend	63.2	46.8	29.4	46.4	59.0	30.7	17.7	29.3	60.5	55.2	61.2	63.6	44.0	25.0			
Foreign Large Value	87.6	32.3	19.2	50.5	70.2	40.0	15.4	10.3	36.4	65.6	80.2	52.3	31.2	27.3			
Foreign Small-Mid Blend	33.3	23.1	34.6	53.6	61.3	26.7	20.6	35.5	51.5	36.4	50.0	51.7	48.1	25.9			
World Large-Blend	59.1	26.9	25.4	50.7	47.9	39.7	30.4	37.0	47.6	26.5	33.7	55.3	38.5	36.1			
Diversified Emg Mrkts	68.4	68.1	28.9	57.1	64.9	48.9	21.4	32.8	69.1	64.3	70.0	65.9	30.9	19.7			
Europe Stock	80.0	36.8	19.0	23.8	54.5	30.4	25.0	20.8	55.0	77.8	76.5	62.5	46.7	31.3			
U.S. Real Estate	81.2	62.3	4.3	12.7	32.4	40.0	23.9	72.3	90.2	85.7	77.4	30.0	82.5	78.6			
Global Real Estate	52.6	72.4	50.8	17.5	16.1	23.3	61.0	75.0	66.1	76.4	69.1	66.7	83.3	85.1			
Intermediate Core Bond	30.2	20.7	59.4	73.8	50.4	54.8	44.7	37.5	47.4	42.2	63.1	83.8	70.1	26.4			
Corporate Bond	41.3	38.8	66.0	56.9	70.0	29.4	37.0	29.6	42.1	63.2	67.9	69.6	66.7	22.2			
High-Yield Bond	47.0	24.1	49.5	69.9	75.5	38.9	25.1	51.9	67.6	54.2	65.8	73.3	75.8	31.9			

Source: Morningstar. Data and calculations as of June 30, 2022.

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	11.5	10.9	0.6	12.7	12.5	0.2	1.2	1.6
U.S. Large Value	10.9	10.1	0.8	11.1	10.9	0.2	0.2	0.8
U.S. Large Growth	12.9	12.1	0.8	14.9	14.0	0.9	2.0	1.9
U.S. Mid Blend	10.5	9.1	1.4	10.8	10.5	0.3	0.3	1.4
U.S. Mid Value	9.9	9.5	0.4	10.8	11.2	-0.4	0.9	1.7
U.S. Mid Growth	11.0	10.6	0.4	11.0	10.3	0.7	0.0	-0.3
U.S. Small Blend	9.1	8.8	0.3	10.1	9.9	0.2	1.0	1.1
U.S. Small Value	9.3	8.8	0.5	10.0	9.6	0.4	0.7	0.8
U.S. Small Growth	10.7	10.3	0.4	9.8	9.6	0.2	-0.9	-0.7
Foreign Large Blend	5.6	5.0	0.6	5.4	5.3	0.1	-0.2	0.3
Foreign Large Value	5.5	4.6	0.9	4.0	4.4	-0.4	-1.5	-0.2
Foreign Small-Mid Blend	5.4	5.6	-0.2	6.2	6.1	0.1	0.8	0.5
World Large-Blend	8.1	8.1	0.0	9.1	9.5	-0.4	1.0	1.4
Diversified Emerging Markets	3.1	2.8	0.3	2.9	2.3	0.6	-0.2	-0.5
Europe Stock	4.9	5.8	-0.9	5.6	5.3	0.3	0.7	-0.5
U.S. Real Estate	7.4	7.0	0.4	7.2	6.5	0.7	-0.2	-0.5
Global Real Estate	5.2	5.0	0.2	3.6	4.4	-0.8	-1.6	-0.6
Intermediate Core Bond	1.8	1.6	0.2	1.5	1.3	0.2	-0.3	-0.3
Corporate Bond	2.8	2.5	0.3	2.5	2.5	0.0	-0.3	0.0
High-Yield Bond	4.0	3.5	0.5	3.2	3.5	-0.3	-0.8	0.0

Source: Morningstar. Data and calculations as of June 30, 2022.

Results by Category

U.S. Large-Cap Funds

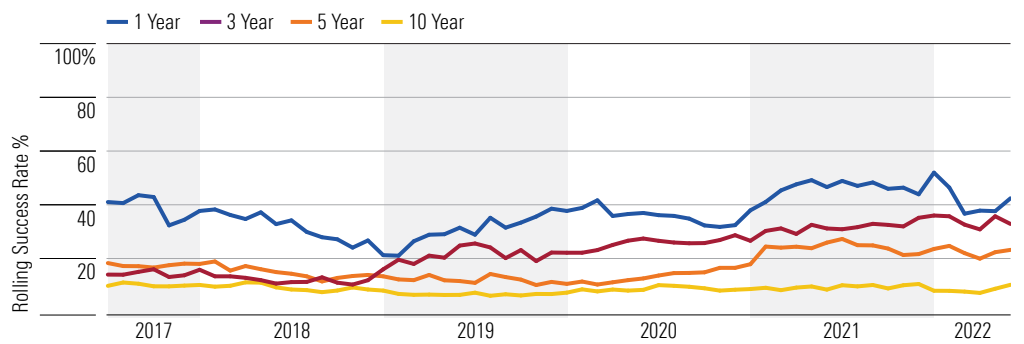
- ▶ Actively managed U.S. large-cap equity funds' recent woes match a longer trend: They generally succeed less often than active U.S. mid- and small-cap funds over long horizons. In the decade through June 30, 2022, 10.7% of active large-cap funds lived and outperformed their average passive peer, compared with success rates of 24.7% and 31.7% among actively managed mid- and small-cap funds, respectively.
- ▶ Active managers in the large-growth category have had a particularly difficult time delivering value for investors. Nearly 70% of the active funds that existed in this category 20 years ago have died, and just 2.3% managed to both survive and outperform their average passive peer.
- ▶ Value stocks have bested their growth peers of late, reversing a trend from the late-2010s that spilled through 2020. The Morningstar U.S. Value Index outpaced the Morningstar U.S. Growth Index by over 26 percentage points over the 12 months through June 30, 2022. These significant changes in relative performance help explain the recent volatility we have seen in active value and growth funds' short-term success rates.
- ▶ Attrition rates are high among large-cap funds. Overall, just 33% of large-cap funds survived the 20-year period ended June 30, 2022. The odds of survival improved to about 47% for the lowest-cost funds but sagged to 20% for the highest-cost funds during that same time frame.
- ▶ Pricey active large-cap funds are doomed to failure: Just 5.7% of these funds beat a composite of their passive peers over the decade ended June 30, 2022. Investors tend to 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 large-cap categories and each time horizon longer than three years.
- ▶ 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 for the blend and value categories 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 (%)	
Trailing Total Return									
1-Year	373	96.0	201	96.0	-10.9	-11.9	-11.5	-11.1	44.0
3-Year	366	83.3	181	91.7	9.2	10.1	8.8	9.6	34.4
5-Year	355	76.6	142	84.5	9.6	10.9	9.2	10.4	24.8
10-Year	381	62.5	105	73.3	11.5	12.7	10.9	12.5	11.8
15-Year	459	42.3	119	61.3	6.9	8.3	6.8	8.1	10.9
20-Year	374	33.4	96	45.8	8.5	9.0	8	8.7	10.4
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	76	63.2	21	76.2	12.2	12.8	11.7	12.7	18.4
40th Percentile	76	69.7	21	90.5	11.3	12.5	11.2	12.8	15.8
60th Percentile	76	71.1	21	66.7	11.1	12.5	11.0	12.5	10.5
80th Percentile	76	60.5	19	68.4	11.6	12.5	10.7	12.4	10.5
100th Percentile	77	48.1	23	69.6	9.9	12.0	9.7	12	5.2

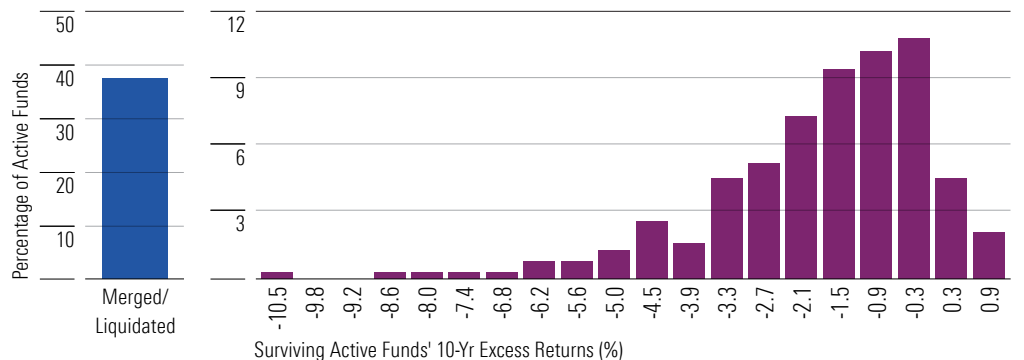
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 6 Rolling Success Rates for Surviving Active U.S. Large-Blend Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 7 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Large-Blend Funds



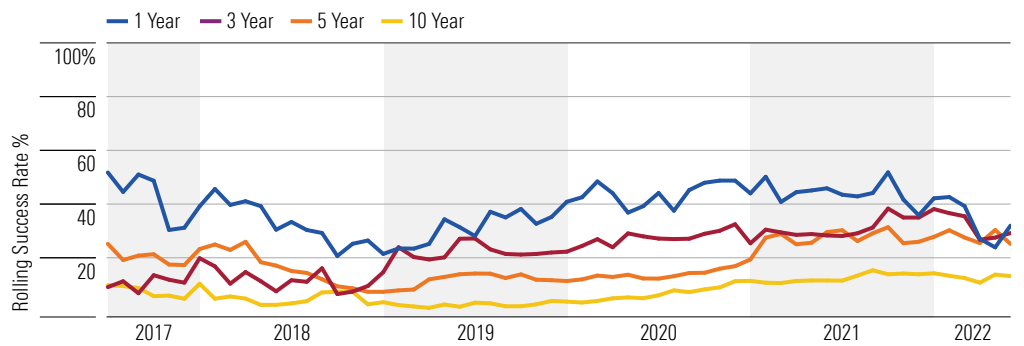
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 8 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	310	96.5	109	95.4	-4.7	-3.4	-5.4	-3.6	34.5
3-Year	315	82.2	100	90.0	8.6	8.2	7.8	8.3	31.7
5-Year	321	74.5	70	97.1	8.5	8.6	7.7	8.2	27.7
10-Year	298	60.7	38	97.4	10.9	11.1	10.1	10.9	15.8
15-Year	350	48.3	25	88.0	6.5	6.8	5.9	6.9	11.1
20-Year	290	36.9	12	50.0	7.9	7.9	7.3	7.5	19.3
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	57	52.6	8	100.0	11.5	11.4	10.7	11.1	24.6
40th Percentile	58	74.1	5	80.0	11.2	10.3	10.3	10.3	24.1
60th Percentile	62	54.8	10	100.0	10.3	11.5	10.1	11.3	9.7
80th Percentile	60	73.3	6	100.0	10.0	9.9	10.1	10.5	11.7
100th Percentile	60	51.7	9	100.0	9.8	10.7	9.3	10.8	11.7

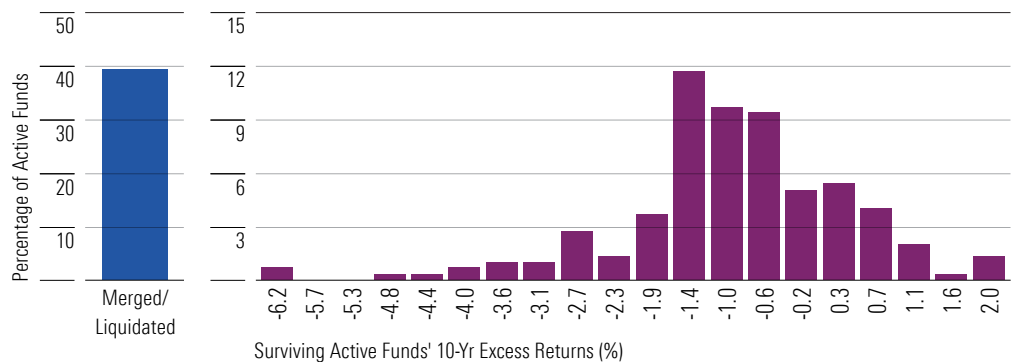
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 9 Rolling Success Rates for Surviving Active U.S. Large-Value Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 10 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Large-Value Funds



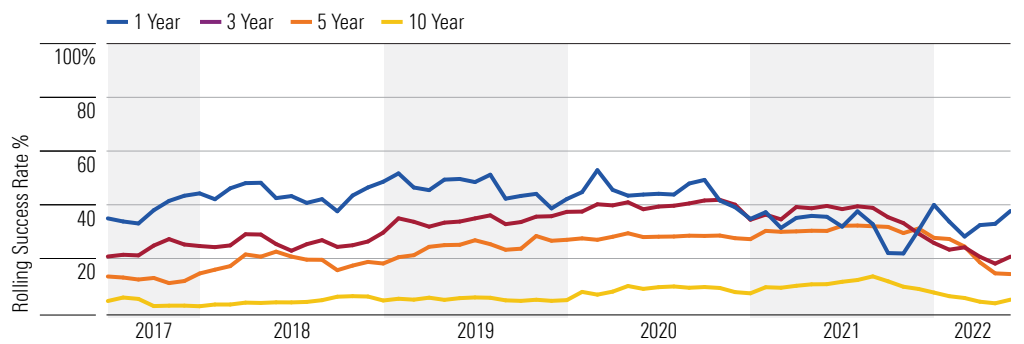
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 11 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	349	97.4	69	98.6	-26.6	-20.1	-24.8	-21	39.3
3-Year	377	86.5	62	93.5	7.9	12.4	7.7	10.2	22.3
5-Year	386	80.3	50	96.0	10.8	13.9	10.7	12.5	15.8
10-Year	446	60.3	36	94.4	12.9	14.9	12.1	14	6.3
15-Year	449	43.4	28	85.7	8.7	11.0	8.4	10.6	2.4
20-Year	397	30.7	14	78.6	9	11.5	8.4	10.4	2.3
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	84	58.3	4	100.0	13.6	14.0	12.9	14.3	11.9
40th Percentile	92	67.4	9	100.0	12.5	15.8	12.4	14.8	7.6
60th Percentile	87	58.6	8	87.5	12.9	14.5	12.3	14.4	5.7
80th Percentile	91	56.0	7	100.0	12.0	14.8	11.7	14.4	4.4
100th Percentile	90	60.0	8	87.5	11.7	14.0	11.2	12.3	2.2

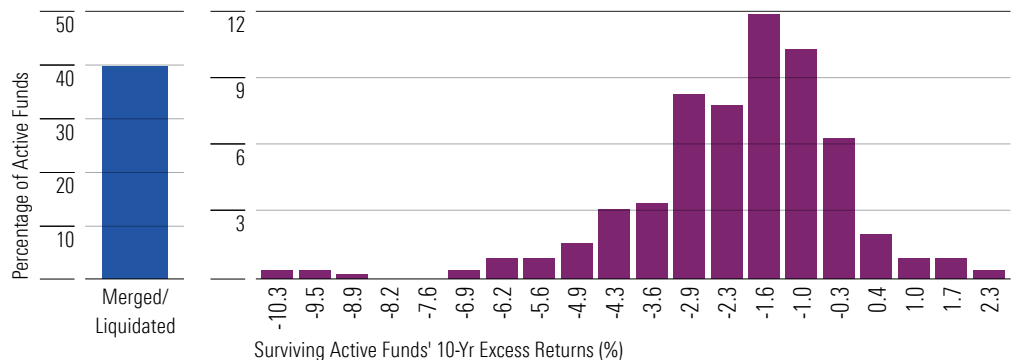
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 12 Rolling Success Rates for Surviving Active U.S. Large-Growth Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 13 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Large-Growth Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

U.S. Mid-Cap Funds

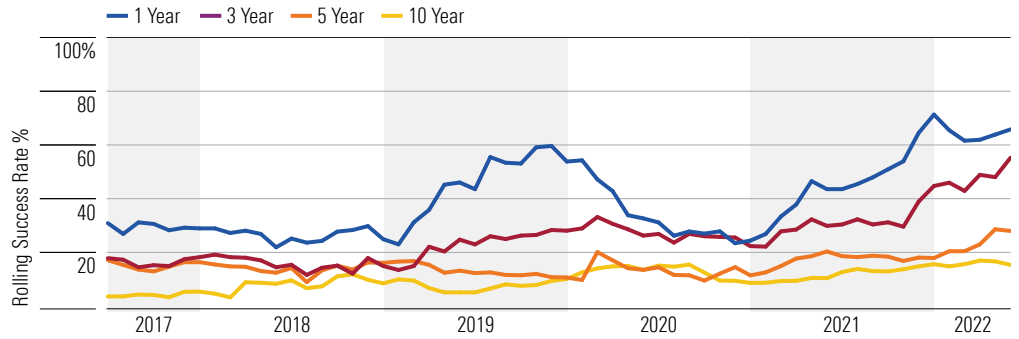
- ▶ Of active mid-cap funds, 47.6% beat their average passive counterpart over the 12 months through June 2022.
- ▶ Active mid-cap value funds' success rate has starkly declined from the 12 months of June 2020 (66% success rate) to June 2022 (31%). Success rates in these categories have been whipsawed by divergent performance trends between value and growth stocks and large caps versus small caps. This is nothing new; 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 14 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	104	98.1	65	95.4	-15.2	-15.8	-13.6	-15.3	67.3
3-Year	111	83.8	64	82.8	6.7	6.1	6.6	6.1	56.8
5-Year	115	68.7	56	83.9	7.1	7.2	6.1	6.9	29.6
10-Year	124	59.7	44	79.5	10.5	10.8	9.1	10.5	16.9
15-Year	135	55.6	31	74.2	6.3	7.7	6.1	7.7	8.1
20-Year	99	43.4	20	55.0	8.3	9.4	7.9	9.2	10.1
Performance by Fee Quintile									
(Trailing 10 Years)									
20th Percentile	25	72.0	9	66.7	11.0	10.9	10.5	10.7	36.0
40th Percentile	25	64.0	9	100.0	9.3	10.8	9.6	10.9	16.0
60th Percentile	21	66.7	8	62.5	8.9	10.3	9.6	10.7	9.5
80th Percentile	28	50.0	9	77.8	10.3	10.2	9.6	10	21.4
100th Percentile	25	52.0	9	88.9	7.9	10.5	6.4	10.1	0.0

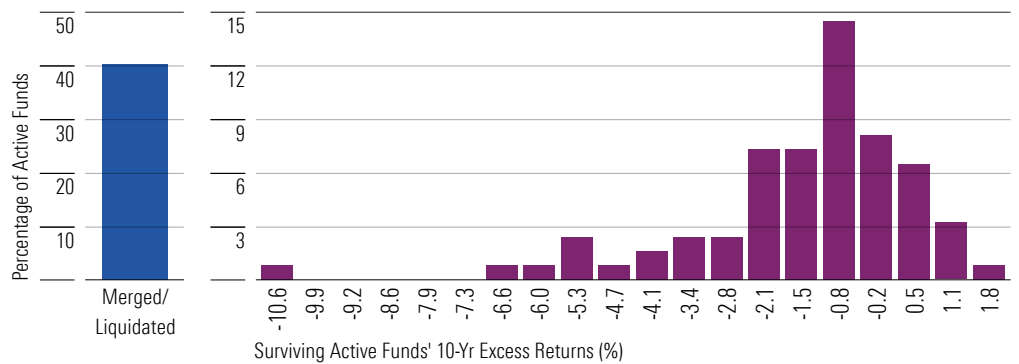
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 15 Rolling Success Rates for Surviving Active U.S. Mid-Blend Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 16 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Mid-Blend Funds



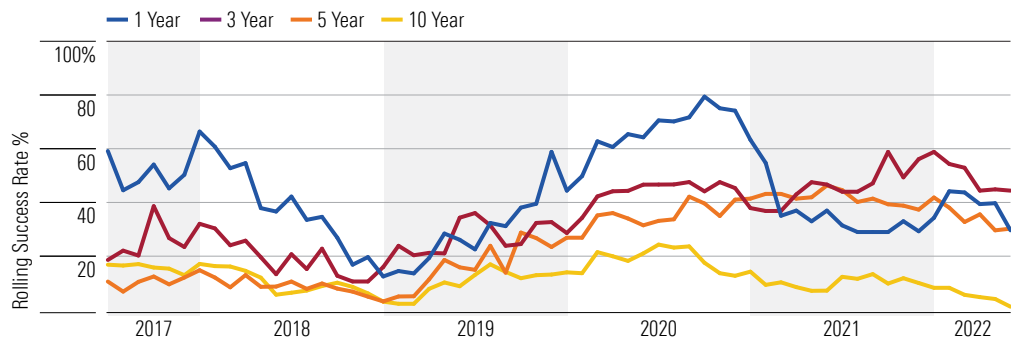
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 17 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	109	95.4	32	100.0	-7.9	-7.3	-8.1	-6.7	31.2
3-Year	111	82.9	24	91.7	8.4	6.8	7.7	7.1	45.9
5-Year	110	79.1	21	95.2	7.1	7.1	6.4	7.1	31.8
10-Year	107	59.8	19	94.7	9.9	10.8	9.5	11.2	2.8
15-Year	114	52.6	11	81.8	6.4	7.0	6.3	7	18.4
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	21	42.9	2	100.0	10.2	11.3	9.9	11.1	4.8
40th Percentile	21	57.1	6	100.0	10.3	10.6	9.5	11.6	4.8
60th Percentile	21	57.1	3	100.0	9.6	11.2	9.3	11.3	0.0
80th Percentile	21	76.2	4	75.0	10.0	12.0	9.6	11.9	4.8
100th Percentile	22	68.2	4	100.0	9.4	10.1	9.5	9.9	0.0

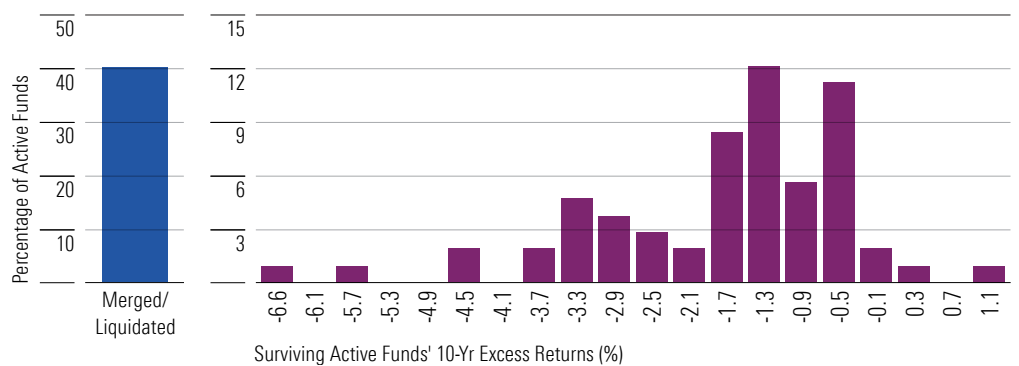
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 18 Rolling Success Rates for Surviving Active U.S. Mid-Value Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 19 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Mid-Value Funds



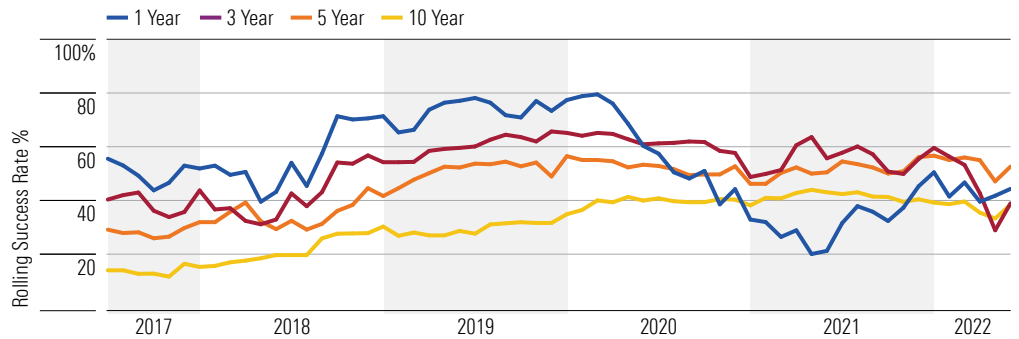
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 20 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	157	94.3	34	100.0	-29.9	-29.0	-28.7	-27.6	45.9
3-Year	173	86.7	29	89.7	4.4	4.9	5.6	5.4	40.5
5-Year	181	77.9	24	83.3	8.6	8.1	8.9	7.8	54.1
10-Year	215	63.7	21	71.4	11	11.0	10.6	10.3	40.0
15-Year	276	42.8	12	75.0	7.4	7.9	7.2	7.8	21.0
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	43	67.4	2	100.0	10.9	11.3	10.8	10.9	46.5
40th Percentile	43	67.4	6	100.0	11.2	10.7	10.8	10.9	48.8
60th Percentile	42	64.3	4	25.0	11.5	12.6	11.2	12.5	42.9
80th Percentile	44	59.1	2	50.0	10.1	10.4	10.5	10.7	31.8
100th Percentile	43	60.5	7	71.4	10.5	9.8	9.8	8.9	30.2

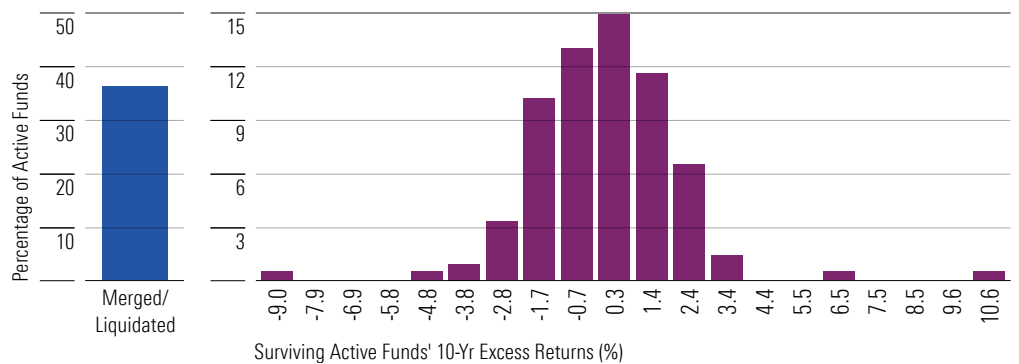
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 21 Rolling Success Rates for Surviving Active U.S. Mid-Growth Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 22 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Mid-Growth Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

U.S. Small-Cap Funds

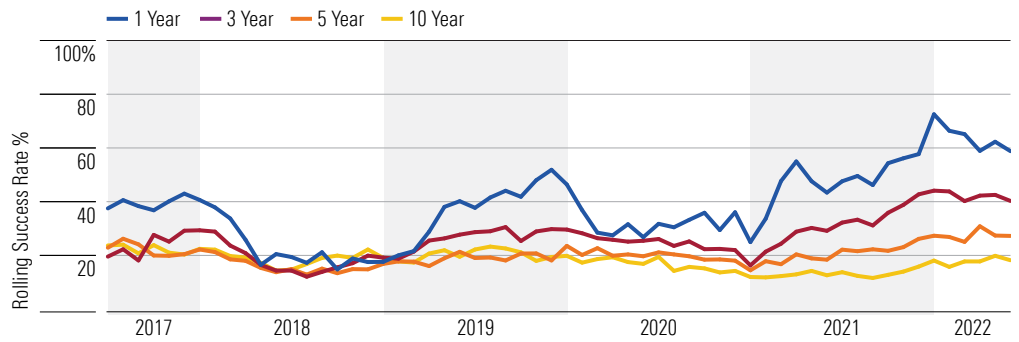
- ▶ More than 55% of all active small-cap funds outperformed their average passive peer from July 2021 through June 2022.
- ▶ Long-run success rates among actively managed U.S. small-cap funds have generally been higher than those seen among large-cap funds.
- ▶ U.S. stock-pickers have found the most success in the small-growth category. But the table stakes are high: The 10-year mortality rate and distribution of annualized excess returns show that active managers in this category were most likely to either beat passive peers or liquidate the fund.

Exhibit 23 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	179	95.0	69	95.7	-16.6	-21.1	-16.5	-18.2	60.3
3-Year	208	77.4	65	93.8	6.2	5.4	5.7	5.8	41.8
5-Year	222	70.7	48	89.6	5.9	6.3	5.3	6	28.8
10-Year	182	63.7	40	80.0	9.1	10.1	8.8	9.9	19.8
15-Year	174	47.7	34	64.7	6.3	7.1	5.6	6.5	17.8
20-Year	99	47.5	20	55.0	8.2	8.8	7.5	8.5	13.1
Performance by Fee Quintile									
(Trailing 10 Years)									
20th Percentile	37	70.3	7	85.7	10.1	10.2	9.8	10	32.4
40th Percentile	33	75.8	9	77.8	9.2	10.1	9.0	9.9	18.2
60th Percentile	39	61.5	8	75.0	8.2	10.1	8.7	9.8	10.3
80th Percentile	36	50.0	8	87.5	8.3	10.3	8.4	10.7	19.4
100th Percentile	37	62.2	8	75.0	8.2	9.3	8.4	8.9	18.9

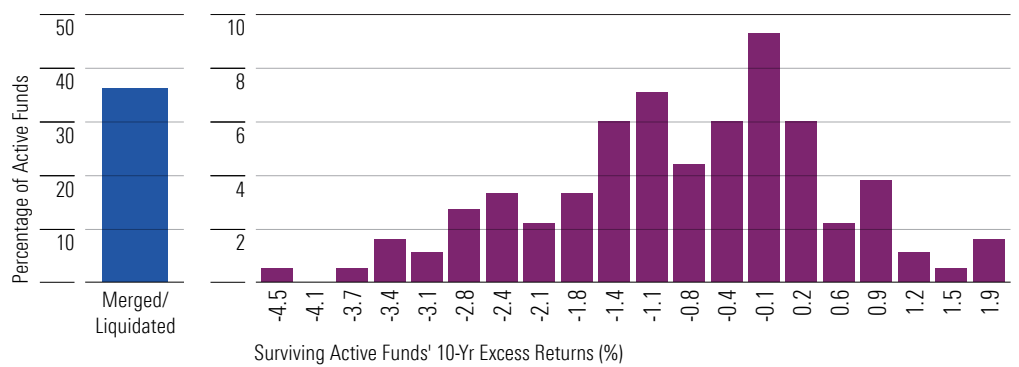
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 24 Rolling Success Rates for Surviving Active U.S. Small-Blend Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 25 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Small-Blend Funds



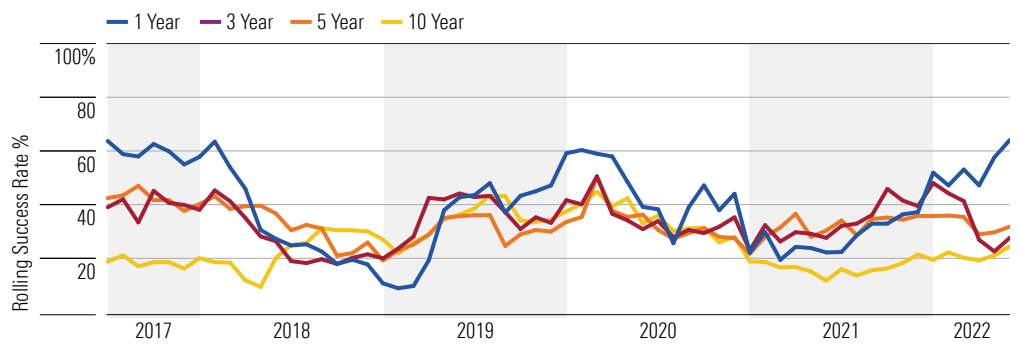
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 26 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	119	96.6	26	100.0	-10.2	-13.4	-11.5	-12.8	65.5
3-Year	113	81.4	24	95.8	8.1	6.5	7.6	8.3	29.2
5-Year	111	76.6	22	95.5	5.8	5.6	5.4	5.7	33.3
10-Year	100	75.0	18	94.4	9.3	10.0	8.8	9.6	26.0
15-Year	129	56.6	10	90.0	5.9	6.4	5.8	6.6	11.6
20-Year	105	50.5	4	100.0	8.4	8.1	7.8	8.6	19.0
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	19	73.7	3	100.0	9.7	10.5	9.4	10.1	31.6
40th Percentile	19	68.4	4	100.0	7.7	9.6	8.3	9.8	15.8
60th Percentile	21	90.5	4	100.0	9.3	9.2	9.0	10.8	33.3
80th Percentile	20	85.0	1	100.0	9.9	6.9	9.1	6.9	45.0
100th Percentile	20	60.0	6	83.3	9.1	8.7	8.6	8.8	15.0

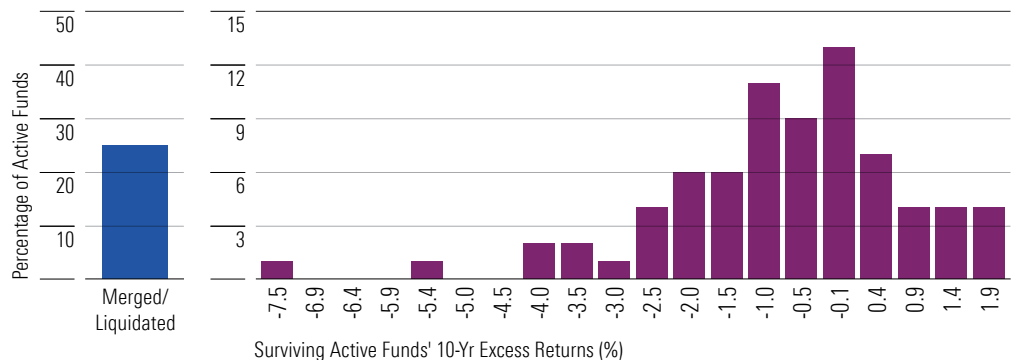
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 27 Rolling Success Rates for Surviving Active U.S. Small-Value Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 28 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Small-Value Funds



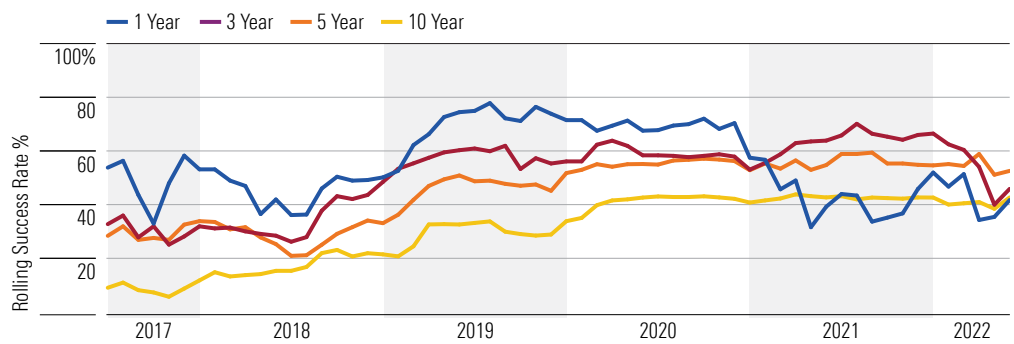
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 29 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	171	97.7	17	100.0	-30.1	-30.3	-30.7	-27.7	43.3
3-Year	194	86.1	15	100.0	3.2	2.6	4.7	4.1	47.4
5-Year	207	80.2	15	100.0	8	6.3	7.8	6.3	54.1
10-Year	217	63.1	13	100.0	10.7	9.8	10.3	9.6	44.2
15-Year	253	44.3	11	81.8	7.7	7.4	6.9	7.4	24.9
20-Year	202	41.6	3	100.0	9.5	10.2	8.4	9.9	5.9
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	43	67.4	3	100.0	11.7	9.8	10.6	10.2	48.8
40th Percentile	43	69.8	0	0.0	10.3	0.0	10.7	0	53.5
60th Percentile	43	65.1	5	100.0	9.5	10.0	9.9	10	41.9
80th Percentile	43	53.5	2	100.0	9.5	10.4	9.7	10.7	32.6
100th Percentile	44	59.1	3	100.0	10.8	7.9	10.4	7.7	43.2

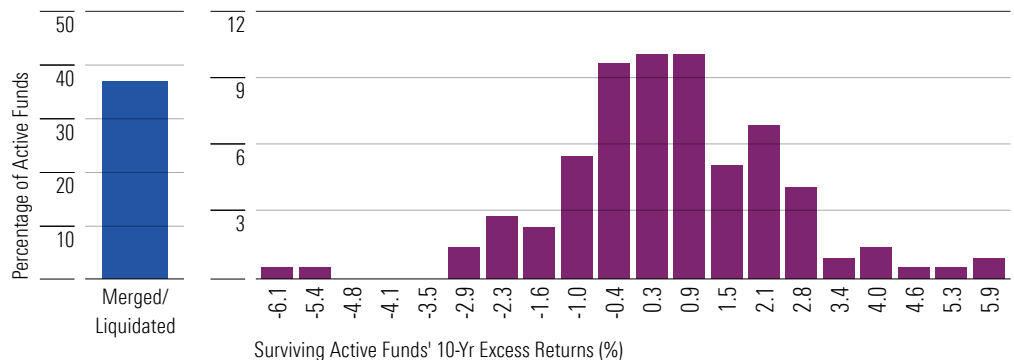
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 30 Rolling Success Rates for Surviving Active U.S. Small-Growth Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 31 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Small-Growth Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Foreign Stock

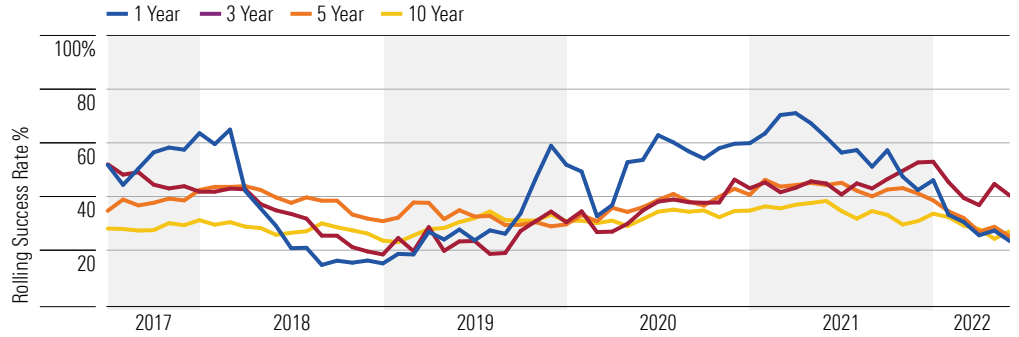
- ▶ One-year success rates fell in all five foreign stock categories included in our analysis. Active managers' 2022 success rate across these categories was a paltry 23%.
- ▶ As of April 30, 2021, the world large-stock category was broken into three separate categories: world large-stock value, world large-stock blend, and world large-stock growth. These new categories better capture the diverse strategies plied by managers that belonged to the legacy category. The current and historical figures presented in this analysis reflect the present and past composition of the new world large-stock blend category.
- ▶ The foreign-stock categories tend to be more target-rich for active managers. At 34.0%, foreign stock funds' 10-year active success rate was materially higher than that of U.S. stock funds (18.7%).
- ▶ The median 10-year excess return for surviving active managers was positive in the Europe stock and diversified emerging-markets categories and closer to even for foreign large-blend and foreign small/mid-blend funds. Collectively, that's a more well-rounded payout profile for active-fund investors relative to U.S. stock categories.
- ▶ The difference between 10-year asset-weighted returns for passive and active funds in three of these six categories was negative. This indicates that investors generally achieved better outcomes with active funds within these categories.

Exhibit 32 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	188	95.2	96	93.8	-18.1	-18.3	-19.3	-16.8	25.0
3-Year	174	83.3	85	90.6	1.9	1.8	1.1	1.4	42.0
5-Year	176	73.9	74	85.1	2.3	2.6	1.8	2.6	26.7
10-Year	182	62.1	38	76.3	5.6	5.4	5	5.3	28.6
15-Year	173	42.2	27	51.9	2.5	1.5	1.2	1.2	26.6
20-Year	152	38.2	19	36.8	5.3	5.5	4.8	5.1	21.7
Performance by Fee Quintile									
(Trailing 10 Years)									
20th Percentile	34	55.9	6	83.3	5.8	5.4	5.3	5.4	35.3
40th Percentile	36	72.2	8	75.0	5.7	5.3	5.2	5.1	36.1
60th Percentile	36	61.1	9	66.7	5.8	5.3	5.1	5.2	19.4
80th Percentile	36	66.7	7	85.7	5.3	6.3	5.1	5.9	33.3
100th Percentile	37	51.4	8	75.0	4.1	4.8	4.3	5.1	24.3

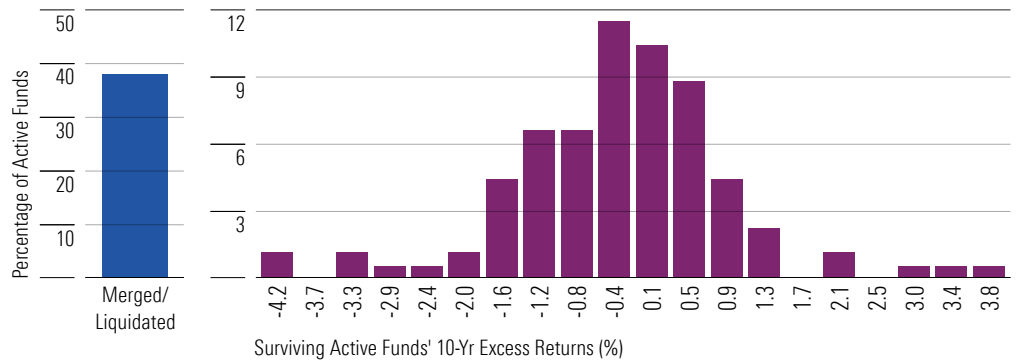
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 33 Rolling Success Rates for Surviving Active Foreign Large-Blend Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 34 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Foreign Large-Blend Funds



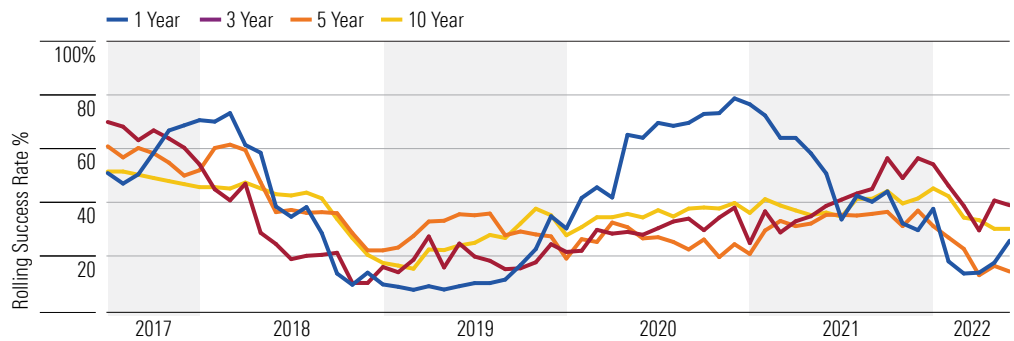
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 35 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 (%)	
Trailing Total Return									
1-Year	88	93.2	38	100.0	-13.6	-11.5	-14.0	-11.1	27.3
3-Year	89	83.1	37	86.5	2.6	1.7	1.7	1.4	40.4
5-Year	95	73.7	29	82.8	1.7	2.0	1.4	2.1	15.8
10-Year	101	61.4	11	72.7	5.5	4.0	4.6	4.4	31.7
15-Year	83	56.6	3	66.7	1.6	0.2	0.7	1.2	15.7
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	19	57.9	2	100.0	5.4	4.5	4.9	5.2	36.8
40th Percentile	20	75.0	1	100.0	4.7	2.3	4.6	2.3	30.0
60th Percentile	20	70.0	3	66.7	4.2	4.4	4.5	4.1	40.0
80th Percentile	20	70.0	2	100.0	6.6	4.3	4.9	4.9	35.0
100th Percentile	21	38.1	3	33.3	3.9	5.2	3.9	4.2	19.0

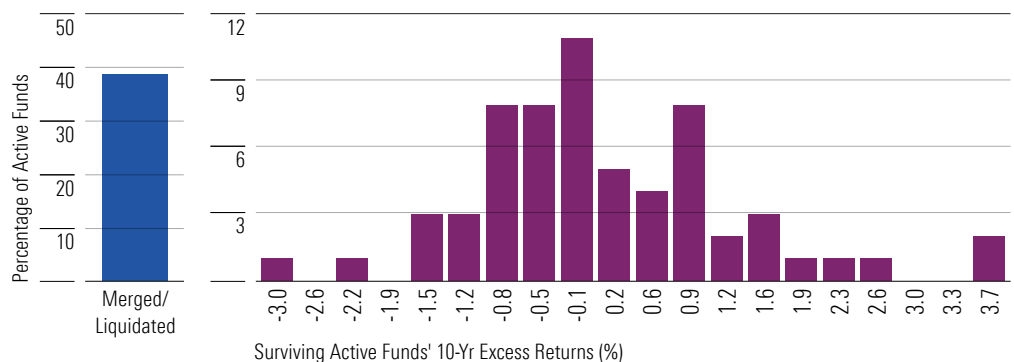
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 36 Rolling Success Rates for Surviving Active Foreign Large-Value Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 37 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Foreign Large-Value Funds



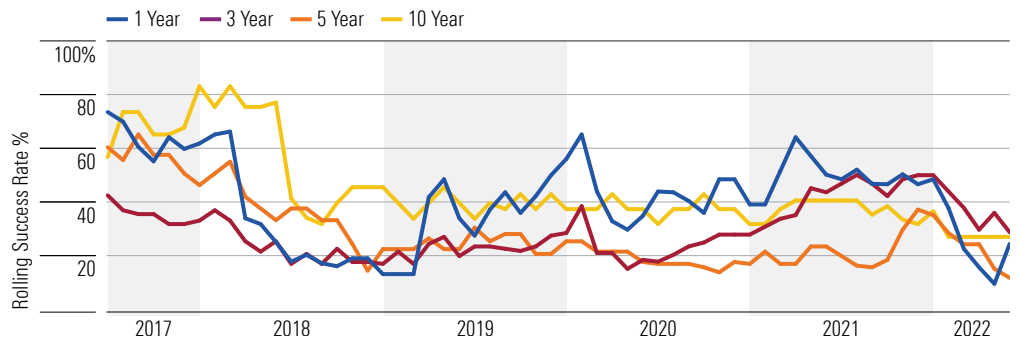
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 38 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 (%)	
Trailing Total Return									
1-Year	27	85.2	7	100.0	-21.1	-23.0	-23.8	-20.4	25.9
3-Year	33	63.6	8	100.0	1.8	1.3	0.9	2.2	30.3
5-Year	30	53.3	9	88.9	0.8	1.5	0.6	2.1	13.3
10-Year	21	57.1	6	100.0	5.4	6.2	5.6	6.1	28.6
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	4	75.0	1	100.0	6.6	5.3	5.9	5.3	50.0
40th Percentile	4	50.0	1	100.0	6.5	5.3	6.0	5.3	25.0
60th Percentile	4	50.0	1	100.0	4.9	7.1	4.7	7.1	0.0
80th Percentile	4	50.0	1	100.0	3.5	7.2	5.1	7.2	25.0
100th Percentile	5	60.0	2	100.0	6.3	5.5	6.6	5.6	40.0

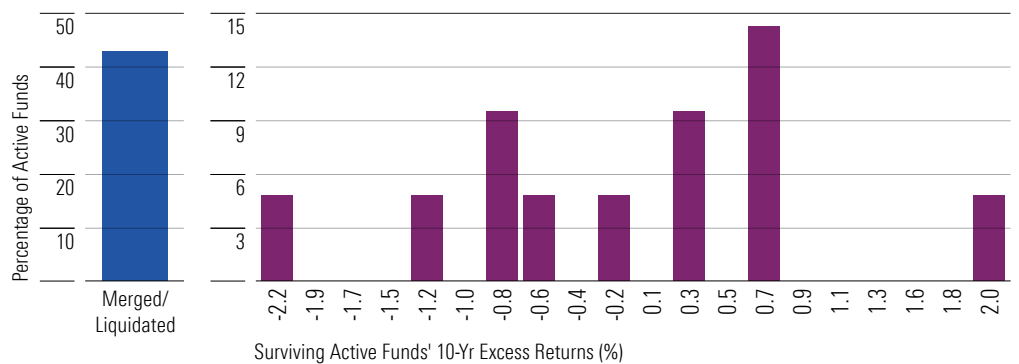
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 39 Rolling Success Rates for Surviving Active Foreign Small/Mid-Blend Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 40 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Foreign Small/Mid-Blend Funds



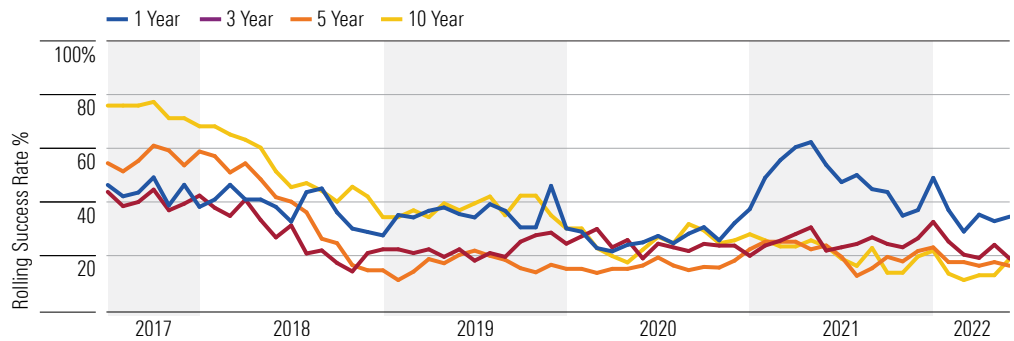
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 41 World 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	97	91.8	21	100.0	-16.8	-14.6	-14.9	-13.3	36.1
3-Year	83	86.7	19	100.0	4.7	6.0	5.2	6.8	20.5
5-Year	73	86.3	18	100.0	5.5	7.0	6	7.4	17.8
10-Year	49	85.7	6	100.0	8.1	9.1	8.1	9.5	20.4
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	10	90.0	1	100.0	6.9	10.1	7.4	10.1	20.0
40th Percentile	10	80.0	1	100.0	8.3	9.0	8.5	9	20.0
60th Percentile	9	88.9	1	100.0	8.1	8.9	8.3	8.9	11.1
80th Percentile	10	90.0	1	100.0	8.3	10.7	8.5	10.7	30.0
100th Percentile	10	80.0	2	100.0	8.6	8.8	7.8	9	20.0

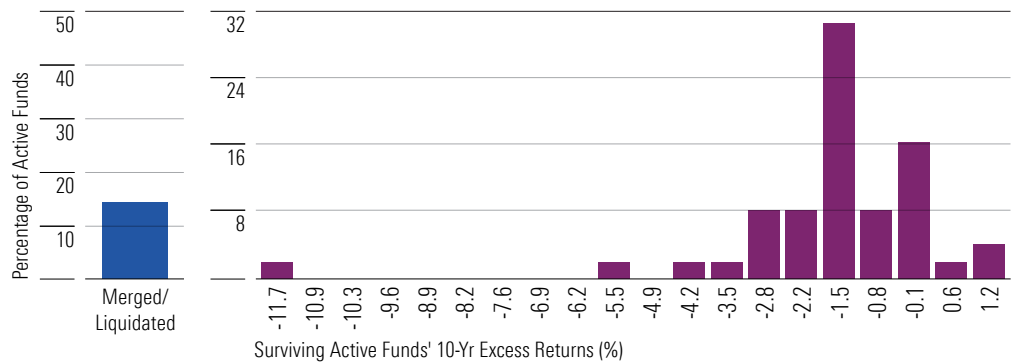
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 42 Rolling Success Rates for Surviving Active World Large-Blend Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 43 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active World Large-Blend Fund



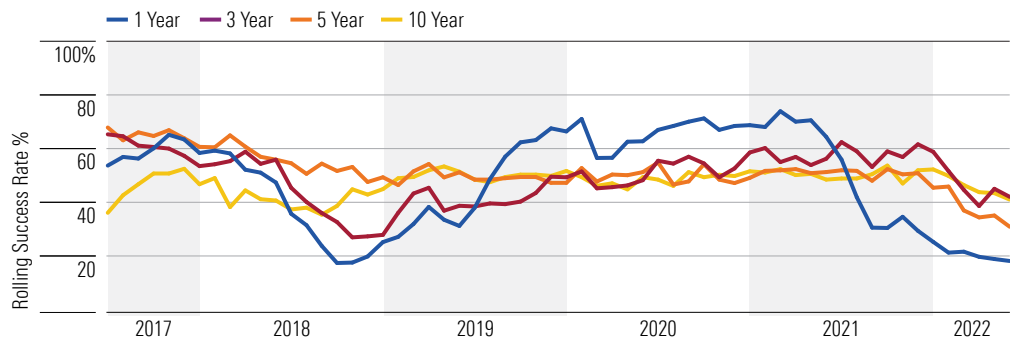
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 44 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	218	95.9	75	98.7	-28.9	-22.8	-27.1	-22.1	19.7
3-Year	234	78.2	75	84.0	-0.5	1.1	0.2	0.1	43.6
5-Year	228	70.2	65	76.9	1.5	2.5	1.6	1.8	32.5
10-Year	148	68.2	30	76.7	3.1	2.9	2.8	2.3	42.6
15-Year	85	67.1	4	100.0	1.8	1.9	1.3	1.6	28.2
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	29	89.7	6	100.0	3.2	3.2	3.0	2.4	51.7
40th Percentile	30	63.3	5	80.0	3.6	2.6	2.7	2.3	46.7
60th Percentile	29	69.0	6	66.7	2.4	2.4	2.8	3.1	37.9
80th Percentile	30	53.3	7	57.1	2.0	2.4	2.2	2	30.0
100th Percentile	30	66.7	6	83.3	2.9	2.0	3.1	1.8	46.7

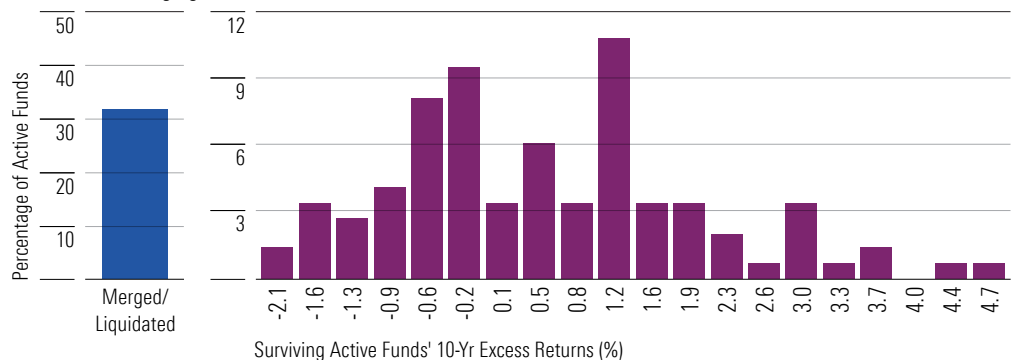
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 45 Rolling Success Rates for Surviving Active Diversified Emerging-Markets Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 46 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Diversified Emerging-Markets Funds



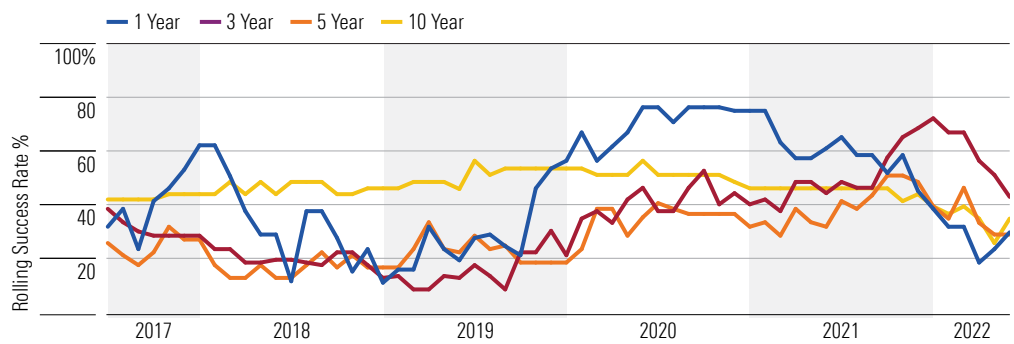
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 47 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 (%)	
Trailing Total Return									
1-Year	16	100.0	27	96.3	-19.9	-18.6	-22.2	-17.7	31.3
3-Year	18	88.9	35	71.4	1.1	1.2	2.3	1.7	44.4
5-Year	23	69.6	41	53.7	1	2.0	2.2	2.2	30.4
10-Year	22	54.5	12	75.0	4.9	5.6	5.8	5.3	36.4
15-Year	23	43.5	9	77.8	1.5	1.2	1.6	1.2	26.1
20-Year	48	18.8	7	57.1	5.4	5.2	5.7	5	14.6
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	4	75.0	1	100.0	6.1	5.8	6.9	5.8	75.0
40th Percentile	5	40.0	4	75.0	5.4	5.5	5.1	4.8	20.0
60th Percentile	4	75.0	1	100.0	4.0	8.7	5.0	8.7	25.0
80th Percentile	4	50.0	3	66.7	6.3	5.4	6.8	4.9	50.0
100th Percentile	5	40.0	3	66.7	5.9	4.3	5.7	5.2	20.0

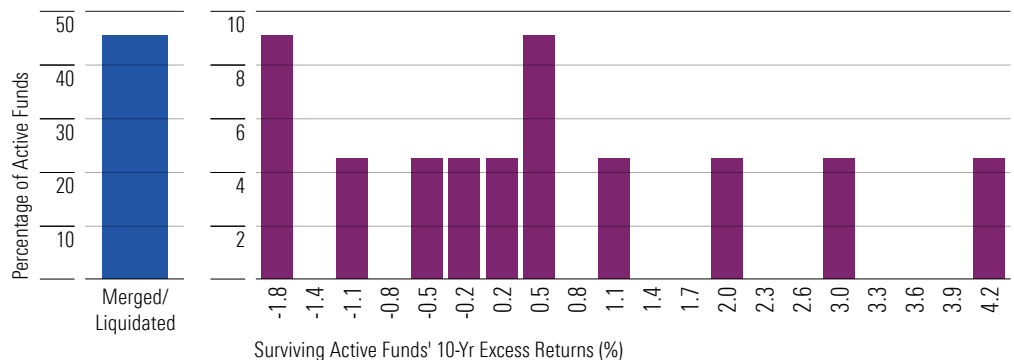
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 48 Rolling Success Rates for Surviving Active Europe-Stock Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 49 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Europe-Stock Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Real Estate

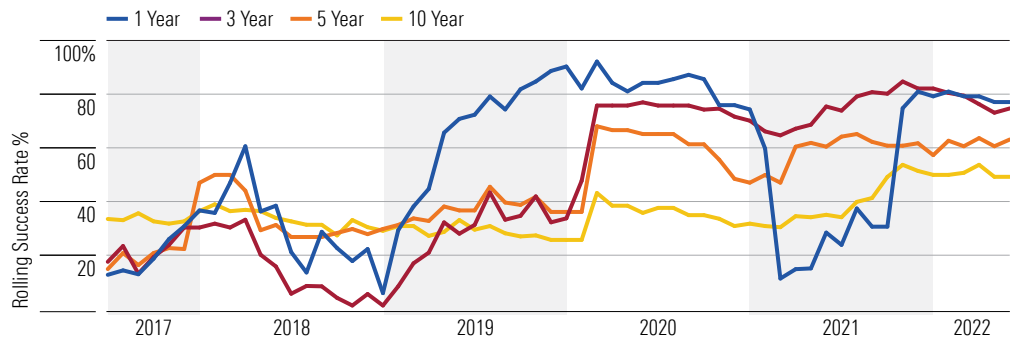
- ▶ At 25.9%, the 20-year success rate of actively managed real estate funds exceeds that for U.S. stock funds (10.6%), foreign stock funds (20.7%) and bond funds (14.1%).
- ▶ Success rates in the global real estate category fluctuate dramatically over shorter time horizons. This owes to the diversity of funds within the category. Some invest exclusively outside the United States, 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 50 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 (%)	
Trailing Total Return									
1-Year	56	96.4	31	96.8	-6.8	-8.0	-8.1	-8.8	78.6
3-Year	63	87.3	31	90.3	5.2	4.0	4.8	2.4	76.2
5-Year	65	78.5	23	91.3	6.2	5.3	5.6	3.9	64.6
10-Year	67	71.6	17	70.6	7.4	7.2	7	6.5	50.7
15-Year	77	57.1	5	80.0	5.6	5.7	4.9	5.3	27.3
20-Year	58	53.4	5	80.0	8.8	8.7	8.2	8.6	25.9
Performance by Fee Quintile									
(Trailing 10 Years)									
20th Percentile	14	64.3	4	75.0	7.7	7.3	7.0	6.6	50.0
40th Percentile	13	53.8	3	66.7	7.6	7.0	6.7	6.4	38.5
60th Percentile	13	76.9	2	100.0	6.7	7.1	7.4	5.8	61.5
80th Percentile	13	84.6	0	0.0	7.8	0.0	7.3	0	69.2
100th Percentile	14	78.6	8	62.5	6.7	5.6	6.5	6.6	35.7

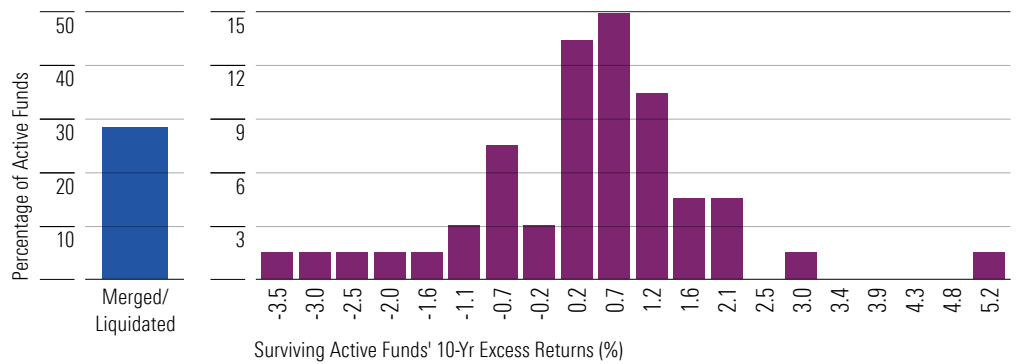
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 51 Rolling Success Rates for Surviving Active U.S. Real Estate Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 52 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active U.S. Real Estate Funds



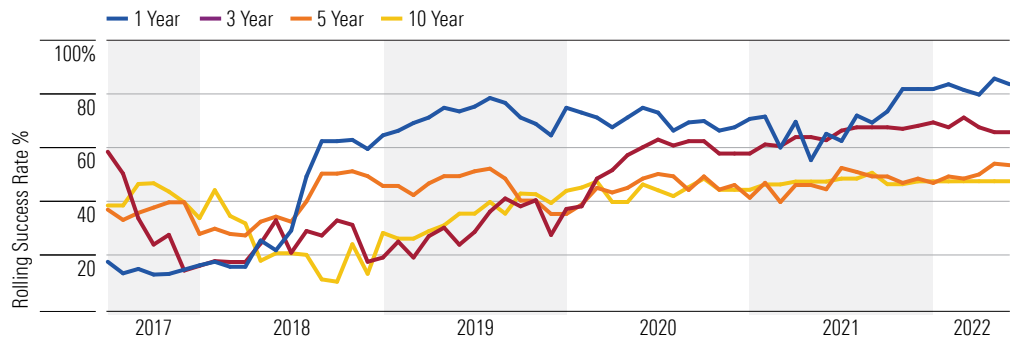
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 53 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 (%)	
Trailing Total Return									
1-Year	47	95.7	11	100.0	-13.3	-16.4	-13.4	-16.9	85.1
3-Year	55	76.4	13	92.3	0.2	-3.0	0.5	-2.5	67.3
5-Year	60	66.7	14	85.7	3.1	0.7	3.2	1.1	55.0
10-Year	51	60.8	10	80.0	5.2	3.6	5	4.4	49.0
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	10	40.0	1	100.0	5.3	3.7	4.6	3.7	30.0
40th Percentile	10	80.0	0	0.0	5.3	0.0	4.8	0	70.0
60th Percentile	10	50.0	5	60.0	5.2	4.6	4.8	4.3	30.0
80th Percentile	10	70.0	2	100.0	5.2	5.1	5.8	5.2	70.0
100th Percentile	11	63.6	2	100.0	5.6	3.6	5.0	3.6	45.5

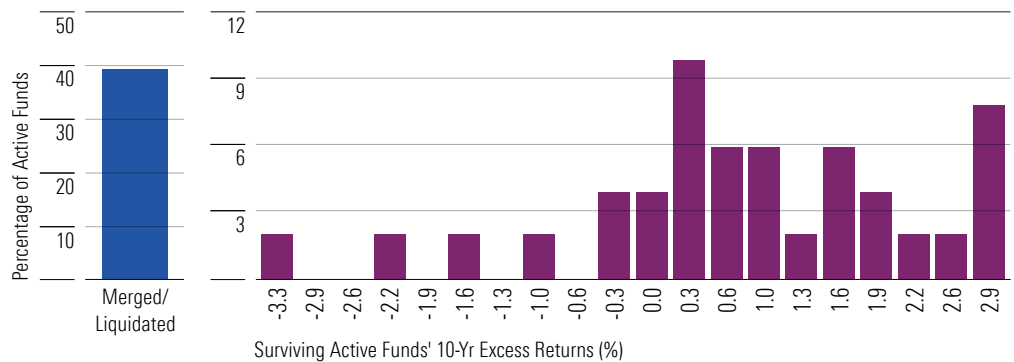
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 54 Rolling Success Rates for Surviving Active Global Real Estate Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 55 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Global Real Estate Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Fixed Income

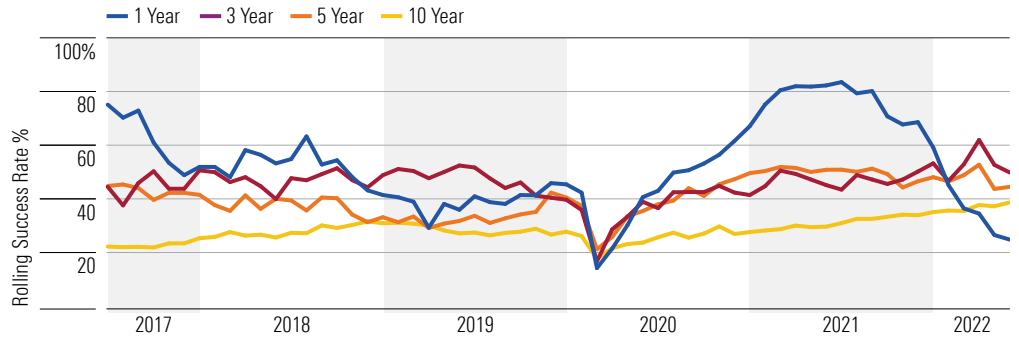
- ▶ Active bond funds' success rate over the year through June fell drastically from their lofty June 2021 mark. Just 28.5% of active bond funds fared better than their composite indexed peer.
- ▶ Nearly 43% of active bond funds survived and outperformed their average passive counterpart over the decade ended June 30, 2022 — second-most among all category groups behind real estate.
- ▶ Long-term success rates in the intermediate core bond 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 56 Intermediate Core 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	125	94.4	30	100.0	-10.2	-10.4	-10.6	-10.1	26.4
3-Year	109	88.1	31	93.5	-0.5	-1.0	-0.8	-1	51.4
5-Year	126	72.2	26	88.5	1.2	0.8	0.9	0.7	46.0
10-Year	164	51.2	26	80.8	1.8	1.5	1.6	1.3	40.2
15-Year	212	34.0	19	63.2	2.8	3.2	2.7	3	19.8
20-Year	205	23.4	16	31.3	3.2	3.5	3	3.3	14.1
Performance by Fee Quintile									
(Trailing 10 Years)									
20th Percentile	28	64.3	5	100.0	1.9	1.5	1.8	1.6	53.6
40th Percentile	33	51.5	2	100.0	1.6	1.2	1.7	1.3	39.4
60th Percentile	32	56.3	8	87.5	1.6	1.4	1.6	1.2	43.8
80th Percentile	33	45.5	5	60.0	1.8	1.3	1.7	1.3	39.4
100th Percentile	33	39.4	6	66.7	1.5	1.2	1.2	1.2	24.2

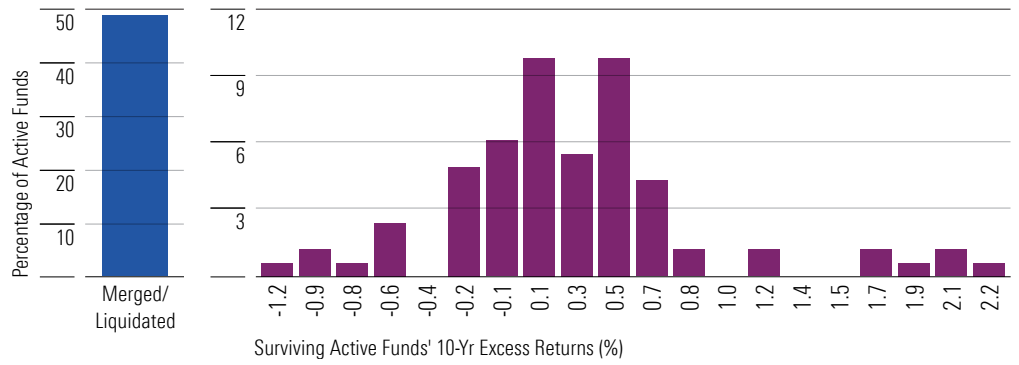
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 57 Rolling Success Rates for Surviving Active Intermediate Core Bond Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 58 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Intermediate Core Bond Funds



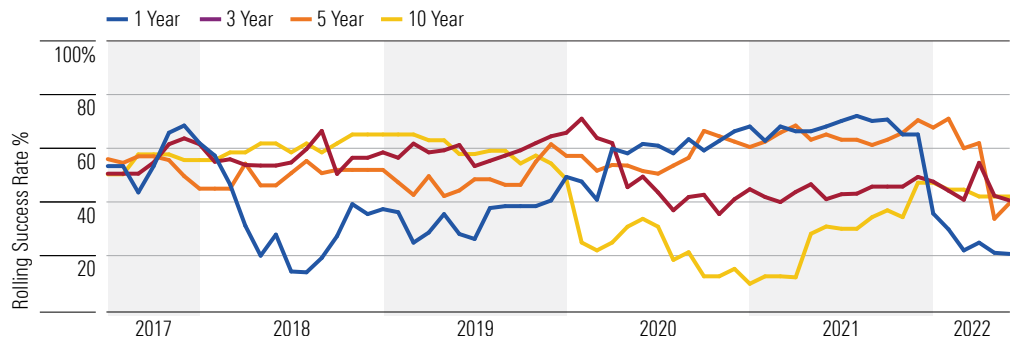
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 59 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 (%)	
Trailing Total Return									
1-Year	54	96.3	29	100.0	-13.9	-14.0	-13.7	-12.9	22.2
3-Year	57	87.7	24	95.8	-1	-0.9	-0.6	-0.7	42.1
5-Year	51	86.3	22	81.8	1.2	1.3	1.3	1.2	41.2
10-Year	39	74.4	13	76.9	2.8	2.5	2.5	2.5	43.6
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	3	100.0	2	100.0	2.8	2.9	2.6	3.1	33.3
40th Percentile	8	75.0	3	100.0	3.5	2.6	2.4	2.7	25.0
60th Percentile	7	42.9	1	100.0	2.6	2.4	2.4	2.4	14.3
80th Percentile	8	75.0	4	100.0	2.6	2.2	2.4	2.4	50.0
100th Percentile	8	87.5	3	0.0	2.7	1.3	2.8	1.3	75.0

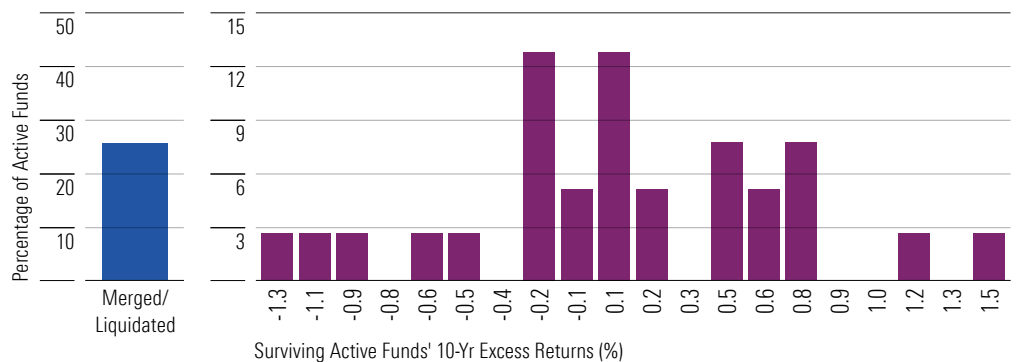
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 60 Rolling Success Rates for Surviving Active Corporate Bond Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 61 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Corporate Bond Funds



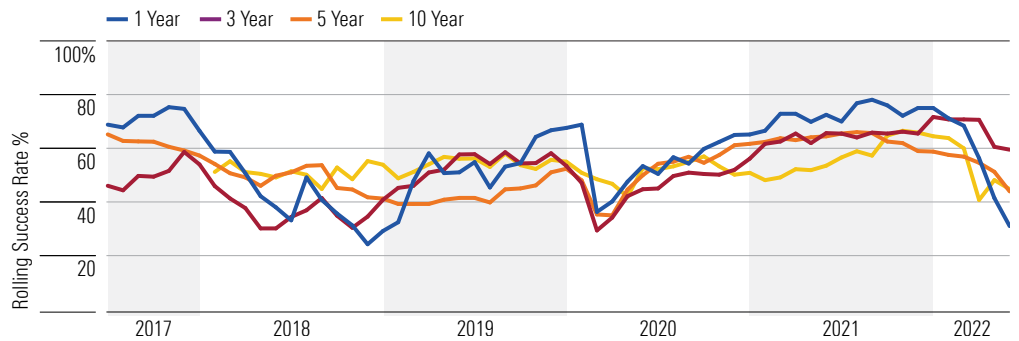
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 62 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 (%)	
Trailing Total Return									
1-Year	182	95.6	45	93.3	-11.7	-12.3	-11.8	-11.3	31.9
3-Year	189	87.3	38	81.6	0.2	-0.6	-0.2	-0.6	60.3
5-Year	192	80.7	22	72.7	2	1.4	1.5	1.5	44.8
10-Year	149	77.2	13	46.2	4.0	3.2	3.5	3.5	45.6
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	26	84.6	3	100.0	4.4	3.3	4.0	4.3	61.5
40th Percentile	30	83.3	0	0.0	3.8	0.0	3.8	0	60.0
60th Percentile	30	76.7	0	0.0	3.5	0.0	3.0	0	26.7
80th Percentile	30	70.0	7	0.0	4.1	2.3	3.8	2.3	50.0
100th Percentile	29	75.9	3	100.0	3.4	3.3	3.1	3.4	31.0

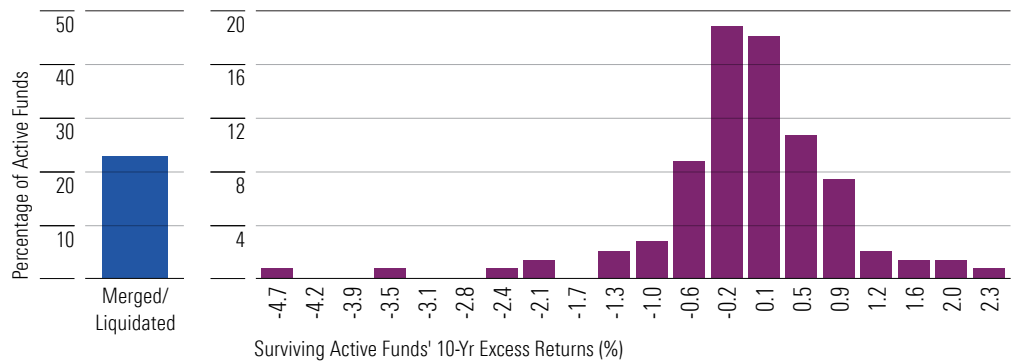
Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 63 Rolling Success Rates for Surviving Active High-Yield Bond Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Exhibit 64 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active High-Yield Bond Funds



Source: Morningstar. Data and calculations as of June 30, 2022.

Appendix A**Summary of Results for the Periods Ended Dec. 31, 2021, and June 30, 2021****Exhibit 65** Summary Results for the Period Ended Dec. 30, 2021

Category	Active Funds' Success Rates by Category (%)							10-Year	10-Year
	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	(Lowest Cost)	(Highest Cost)	
U.S. Large Blend	48.1	32.8	27.5	10.0	11.9	11.2	17.5	4.8	
U.S. Large Value	48.4	30.9	32.1	14.1	15.2	17.4	22.0	11.5	
U.S. Large Growth	37.1	41.1	31.8	12.0	8.2	6.6	19.3	6.9	
U.S. Mid Blend	45.1	31.5	21.9	12.0	6.7	6.5	24.0	4.0	
U.S. Mid Value	38.5	48.2	47.9	8.8	21.9	—	9.1	13.0	
U.S. Mid Growth	22.8	57.2	52.0	44.6	24.4	—	47.6	41.9	
U.S. Small Blend	44.9	30.7	20.0	14.2	10.2	19.0	25.7	10.8	
U.S. Small Value	23.8	29.2	31.9	13.3	16.5	12.9	5.0	5.0	
U.S. Small Growth	40.8	65.4	56.3	44.2	29.2	—	50.0	52.3	
Foreign Large Blend	63.6	46.4	45.9	39.9	32.1	22.5	55.6	26.3	
Foreign Large Value	52.3	40.2	36.9	37.7	26.1	—	40.0	27.3	
Foreign Small-Mid Blend	51.7	45.2	25.0	42.1	—	—	75.0	50.0	
World Large Blend	55.3	23.5	25.4	25.0	—	—	22.2	11.1	
Diversified Emerging Markets	65.9	57.8	52.8	50.0	34.8	—	58.3	48.0	
Europe Stock	62.5	45.8	33.3	47.6	34.6	15.1	75.0	40.0	
U.S. Real Estate	30.0	76.9	62.0	36.6	27.4	22.8	42.9	26.7	
Global Real Estate	66.7	64.3	46.0	48.9	—	—	33.3	66.7	
Intermediate Core Bond	83.8	46.7	52.4	31.2	18.0	10.9	37.9	14.3	
Corporate Bond	69.6	42.6	66.7	32.4	—	—	33.3	37.5	
High-Yield Bond	73.3	66.5	65.3	54.4	—	—	80.0	33.3	

Source: Morningstar. Calculations as of June 30, 2021.

Exhibit 66 Summary Results for the Period Ended June 30, 2021

Category	Active Funds' Success Rates by Category (%)						10-Year	10-Year
	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	(Lowest Cost)	(Highest Cost)
U.S. Large Blend	48.1	32.8	27.5	10.0	11.9	11.2	17.5	4.8
U.S. Large Value	48.4	30.9	32.1	14.1	15.2	17.4	22.0	11.5
U.S. Large Growth	37.1	41.1	31.8	12.0	8.2	6.6	19.3	6.9
U.S. Mid Blend	45.1	31.5	21.9	12.0	6.7	6.5	24.0	4.0
U.S. Mid Value	38.5	48.2	47.9	8.8	21.9	-	9.1	13.0
U.S. Mid Growth	22.8	57.2	52.0	44.6	24.4	-	47.6	41.9
U.S. Small Blend	44.9	30.7	20.0	14.2	10.2	19.0	25.7	10.8
U.S. Small Value	23.8	29.2	31.9	13.3	16.5	12.9	5.0	5.0
U.S. Small Growth	40.8	65.4	56.3	44.2	29.2	-	50.0	52.3
Foreign Large Blend	63.6	46.4	45.9	39.9	32.1	22.5	55.6	26.3
Foreign Large Value	52.3	40.2	36.9	37.7	26.1	-	40.0	27.3
Foreign Small-Mid Blend	51.7	45.2	25.0	42.1	-	-	75.0	50.0
World Large Stock	55.3	23.5	25.4	25.0	-	-	22.2	11.1
Diversified Emerging Markets	65.9	57.8	52.8	50.0	34.8	-	58.3	48.0
Europe Stock	62.5	45.8	33.3	47.6	34.6	15.1	75.0	40.0
U.S. Real Estate	30.0	76.9	62.0	36.6	27.4	22.8	42.9	26.7
Global Real Estate	66.7	64.3	46.0	48.9	-	-	33.3	66.7
Intermediate Core Bond	83.8	46.7	52.4	31.2	18.0	10.9	37.9	14.3
Corporate Bond	69.6	42.6	66.7	32.4	-	-	33.3	37.5
High-Yield Bond	73.3	66.5	65.3	54.4	-	-	80.0	33.3

Source: Morningstar. Calculations as of June 30, 2021.

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

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 quintiles. We then apply the same steps described above to calculate the success rates for funds in each quintile. 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 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 this is a better benchmark because it reflects the performance of actual investable options and not an index. One cannot directly invest in indexes. 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 the 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, as well as others) and we mitigate the effects that might stem from cherry-picking a single index as a benchmark. The net result is a much fairer 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 with returns exceeding 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 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 quintiles to highlight this relationship. ■■