
Morningstar's Active/Passive Barometer

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Morningstar Manager Research

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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 nearly 4,000 unique funds that accounted for approximately \$17.4 trillion in assets, or about 65% of the U.S. fund market, as of the end of June 2021.

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

- ▶ In 2020, the coronavirus sell-off and subsequent rebound tested the narrative that active funds are generally better able to navigate market volatility than their passive peers. As we documented in our year-end 2020 report, active funds' annual performance showed that there's little merit to this notion. Across all 20 categories we examined, just 49% of the nearly 3,500 active funds included in our analysis survived and outperformed their average passive counterpart.
- ▶ During the 12 months through June 2021, active funds' one-year success rates dipped slightly versus their full-year 2020 level. Roughly 47% of the nearly 3,000 active funds that were available to investors across the 20 categories included in our analysis in June 2020 both survived and outperformed their average passive peer in their respective Morningstar category.
- ▶ Actively managed U.S. growth funds struggled during the year through June 2021. Success rates among large-, mid-, and small-cap growth managers declined precipitously versus the 12 months through June 2020. The combined success rate among managers of active growth funds was just 27.5%.
- ▶ The one-year success rate for active funds in the intermediate core bond category jumped nearly 54 percentage points versus the year through June 2020, registering at nearly 85%. The post-COVID-crisis rebound in credit markets has been favorable for active funds in the category, which tend to take more credit risk than their indexed peers.
- ▶ In general, actively managed funds have failed to survive and beat their passive peers, especially over longer time horizons; only 25% of all active funds topped the average of their passive rivals over the 10-year period ended June 2021; 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 12 of the 20 categories examined; this implies that investors have favored cheaper, higher-quality funds (see Exhibit 4).
- ▶ The cheapest funds succeeded about twice as often as the priciest ones (a 35% success rate versus a 17% success rate) over the 10-year period ended June 30, 2021. This not only reflects cost advantages but also differences in survival, as 66% of the cheapest funds survived, whereas 59% of the most expensive did so.

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	44.8	27.4	26.4	11.0	9.9	10.3	23.4	4.0
U.S. Large Value	48.8	29.3	31.3	18.8	19.2	16.3	27.9	5.8
U.S. Large Growth	25.6	42.8	32.1	11.9	5.1	8.6	24.7	5.8
U.S. Mid Blend	46.1	32.4	26.5	14.3	6.7	8.0	22.7	4.5
U.S. Mid Value	43.1	48.8	39.0	9.7	27.1	—	13.6	4.5
U.S. Mid Growth	17.3	58.9	51.1	42.9	26.0	9.8	57.9	35.9
U.S. Small Blend	37.6	34.0	22.7	13.3	9.2	12.5	13.9	11.1
U.S. Small Value	27.6	26.5	21.4	12.1	20.2	17.7	13.6	17.4
U.S. Small Growth	40.3	68.8	56.0	42.9	29.7	15.5	42.9	46.5
Foreign Large Blend	60.8	46.4	42.0	33.5	27.0	17.8	51.4	19.4
Foreign Large Value	50.5	39.8	35.5	32.1	12.0	—	40.9	23.8
Foreign Small-Mid Blend	58.6	34.4	28.6	38.1	—	—	50.0	25.0
World Large-Blend	49.0	25.9	24.3	22.2	—	—	22.2	11.1
Diversified Emerging Markets	65.5	57.5	47.4	50.0	33.3	—	60.0	37.5
Europe Stock	75.0	54.5	35.0	33.3	40.9	14.0	50.0	25.0
U.S. Real Estate	20.3	70.8	57.4	45.2	27.0	37.7	58.3	38.5
Global Real Estate	70.0	67.9	52.4	54.0	—	—	50.0	50.0
Intermediate Core Bond	84.8	42.9	52.9	27.8	16.0	10.6	46.7	12.9
Corporate Bond	82.0	63.0	71.4	64.5	—	—	—	16.7
High-Yield Bond	68.8	55.4	55.4	46.7	—	—	74.1	19.4

Source: Morningstar. Data and calculations as of June 30, 2021. *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 (%)

	2021	2020	Year-Over-Year Change
U.S. Large Blend	44.8	39.7	5.1
U.S. Large Value	48.8	39.5	9.3
U.S. Large Growth	25.6	52.3	-26.7
U.S. Mid Blend	46.1	35.7	10.4
U.S. Mid Value	43.1	71.2	-28.1
U.S. Mid Growth	17.3	62.0	-44.7
U.S. Small Blend	37.6	35.8	1.9
U.S. Small Value	27.6	39.2	-11.6
U.S. Small Growth	40.3	73.0	-32.6
Foreign Large Blend	60.8	58.6	2.2
Foreign Large Value	50.5	64.2	-13.7
Foreign Small-Mid Blend	58.6	17.6	41.0
World Large-Blend	49.0	29.9	19.1
Diversified Emerging Markets	65.5	65.1	0.3
Europe Stock	75.0	70.6	4.4
U.S. Real Estate	20.3	83.9	-63.5
Global Real Estate	70.0	74.5	-4.5
Intermediate Core Bond	84.8	31.0	53.8
Corporate Bond	82.0	52.0	30.0
High-Yield Bond	68.8	52.4	16.4

Source: Morningstar. Data and calculations as of June 30, 2021.

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

	2014		2015		2016		2017		2018		2019		2020		2021		Trend
	Dec	Jun															
U.S. Large Blend	24.4	39.6	34.3	19.4	24.7	48.0	37.9	38.0	27.7	26.3	35.1	39.7	36.9	44.8			
U.S. Large Value	21.2	48.4	32.8	14.2	24.0	58.7	34.7	32.2	29.0	32.7	37.7	39.5	43.4	48.8			
U.S. Large Growth	12.8	44.4	49.0	25.3	31.8	32.4	46.5	43.8	50.7	52.9	48.2	52.3	41.7	25.6			
U.S. Mid-Blend	37.6	45.5	45.2	22.8	26.8	38.1	34.5	28.8	37.5	46.8	50.9	35.7	28.4	46.1			
U.S. Mid-Value	16.8	57.8	45.8	12.8	20.2	52.0	50.0	28.1	21.0	30.4	61.3	71.2	79.6	43.1			
U.S. Mid-Growth	47.3	58.5	48.1	31.7	20.7	43.2	60.8	45.2	79.6	84.2	78.5	62.0	39.4	17.3			
U.S. Small Blend	41.9	36.5	47.8	36.8	35.5	36.5	46.9	19.2	19.1	44.2	53.0	35.8	41.6	37.6			
U.S. Small Value	30.6	46.4	68.2	31.8	21.1	48.1	38.8	21.1	32.8	63.6	50.0	39.2	43.8	27.6			
U.S. Small Growth	49.0	51.8	21.6	23.4	25.6	46.1	59.2	46.3	53.6	76.2	74.5	73.0	74.7	40.3			
Foreign Large Blend	35.7	54.5	59.9	45.8	29.0	43.2	56.3	33.7	18.2	30.1	60.8	58.6	61.9	60.8			
Foreign Large Value	26.7	85.1	87.3	25.0	26.2	53.3	64.8	36.0	17.0	15.3	37.8	64.2	72.9	50.5			
Foreign Small-Mid Blend	23.8	33.3	59.1	16.0	22.2	60.7	70.0	19.4	18.2	25.0	39.4	17.6	39.4	58.6			
World Large-Blend	14.3	29.2	56.7	26.5	24.7	50.0	48.7	42.9	32.5	41.2	45.3	29.9	38.0	49.0			
Diversified Emg Mrkts	57.0	47.4	70.7	70.2	26.4	56.4	62.3	48.1	20.3	32.6	68.4	65.1	70.7	65.5			
Europe Stock	13.6	65.0	75.0	36.8	20.0	25.0	52.4	18.2	27.3	22.7	50.0	70.6	77.8	75.0			
U.S. Real Estate	72.3	81.5	82.1	62.7	4.3	16.2	29.4	37.9	20.6	63.1	82.0	83.9	74.2	20.3			
Global Real Estate	77.8	72.7	43.9	74.1	50.8	17.5	12.9	25.4	64.4	76.8	69.1	74.5	71.7	70.0			
Intermediate Core Bond	32.8	26.5	36.6	11.9	54.0	77.7	45.5	59.7	42.0	21.8	38.3	31.0	55.3	84.8			
Corporate Bond	63.9	26.3	15.8	82.5	78.6	78.0	78.0	30.2	23.9	34.8	55.1	52.0	70.0	82.0			
High-Yield Bond	68.2	72.5	48.1	25.3	57.3	67.7	48.0	40.4	24.7	41.4	59.3	52.4	61.7	68.8			

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

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	13.2	12.9	0.3	14.7	14.2	0.5	1.5	1.3
U.S. Large Value	11.3	10.9	0.4	11.9	11.6	0.3	0.6	0.7
U.S. Large Growth	16.5	15.9	0.6	18.5	17.4	1.1	2.0	1.5
U.S. Mid Blend	11.2	11.2	0.0	12.7	12.1	0.6	1.5	0.9
U.S. Mid Value	10.9	10.6	0.3	11.6	11.7	-0.1	0.7	1.1
U.S. Mid Growth	14.4	14.4	0.0	13.9	13.1	0.8	-0.5	-1.3
U.S. Small Blend	10.8	11.0	-0.2	12.7	12.1	0.6	1.9	1.1
U.S. Small Value	9.9	9.8	0.1	11.4	11.2	0.2	1.5	1.4
U.S. Small Growth	13.7	14.3	-0.6	13.6	12.9	0.7	-0.1	-1.4
Foreign Large Blend	5.7	5.9	-0.2	5.9	5.6	0.3	0.2	-0.3
Foreign Large Value	4.9	4.4	0.5	3.7	4.1	-0.4	-1.2	-0.3
Foreign Small-Mid Blend	7.3	7.2	0.1	7.2	6.8	0.4	-0.1	-0.4
World Large-Blend	9.2	8.8	0.4	10.2	10.4	-0.2	1.0	1.6
Diversified Emerging Markets	5.0	4.7	0.3	3.7	3.5	0.2	-1.3	-1.2
Europe Stock	6.1	7.1	-1.0	6.0	6.1	-0.1	-0.1	-1.0
U.S. Real Estate	9.6	9.3	0.3	9.4	8.8	0.6	-0.2	-0.5
Global Real Estate	6.5	6.7	-0.2	5.2	5.6	-0.4	-1.3	-1.1
Intermediate Core Bond	3.7	3.3	0.4	3.4	3.2	0.2	-0.3	-0.1
Corporate Bond	4.9	5.0	-0.1	5.1	4.8	0.3	0.2	-0.2
High-Yield Bond	5.8	5.5	0.3	5.4	5.3	0.1	-0.4	-0.2

Source: Morningstar. Data and calculations as of June 30, 2021.

Results by Category

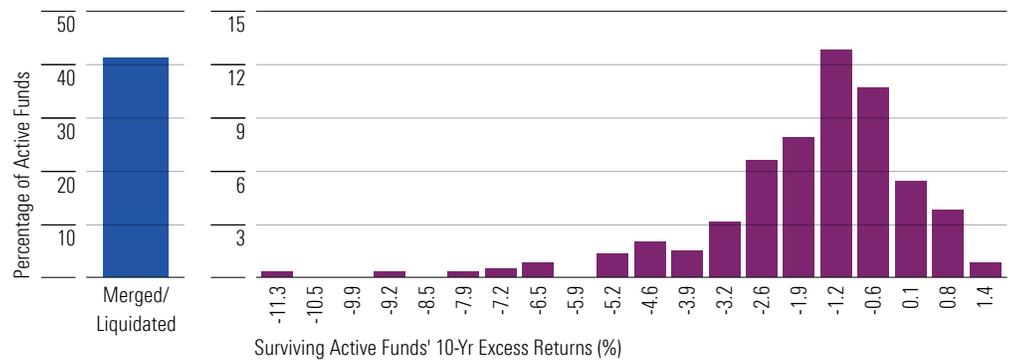
U.S. Large-Cap Funds

- ▶ Over the long haul, actively managed U.S. large-cap equity funds have generally succeeded less often than active U.S. mid- and small-cap funds. That said, they flipped the script in the 12 months through June 2021. Over that span, nearly 40% of active large-cap funds lived and outperformed their average passive peer versus 33% and 36% for active mid-cap and small-cap funds, respectively.
- ▶ Active managers in the large-growth category have had a particularly difficult time delivering value for investors. Nearly two thirds of the active funds that existed in this category 20 years ago have died, and just 10.5% managed to both survive and outperform their average passive peer.
- ▶ The spread between growth and value stocks' performance has recently narrowed dramatically. During the 12 months ending June 30, 2020, the Morningstar U.S. Growth Index outperformed the Morningstar U.S. Value Index by about 35 percentage points. During the year through June 30, 2021, the growth index outperformed its value counterpart by about 4 percentage points. This partly explains 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 36% of large-cap funds survived the 20-year period ended June 30, 2021. The odds of survival improved to about 63% for the lowest-cost funds but sagged to 51% for the highest-cost funds during that same time frame.
- ▶ Pricey active large-cap funds are doomed to failure: Just 5% of these funds beat their passive composite over the decade ended June 30, 2021.
- ▶ At 42%, passively managed large-blend funds had the lowest 20-year survivorship rate of any U.S. equity category for which we have 20 years of data. This was driven largely by attrition among the most expensive passive options in this category.
- ▶ 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 most large-cap categories and 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 (%)	
Trailing Total Return									
1-Year	364	92.6	193	96.4	40.7	41.8	40.9	41.1	44.8
3-Year	369	85.4	161	90.7	16.4	18.5	16.4	17.7	27.4
5-Year	368	75.5	141	85.1	16.1	17.6	15.9	16.7	26.4
10-Year	391	58.8	116	73.3	13.2	14.7	12.9	14.2	11.0
15-Year	453	41.7	111	56.8	9.6	10.7	9.7	10.4	9.9
20-Year	399	34.1	100	42.0	7.8	8.6	8.1	8.4	10.3
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	77	61.0	31	80.6	14.4	14.7	13.9	14.8	23.4
40th Percentile	80	62.5	15	86.7	13.0	14.1	12.9	14.5	11.3
60th Percentile	76	67.1	23	65.2	12.9	14.3	12.8	14.3	5.3
80th Percentile	81	58.0	23	69.6	12.7	14.1	12.9	14.0	11.1
100th Percentile	75	45.3	23	65.2	11.9	13.9	11.7	13.2	4.0

Source: Morningstar. Data and calculations as of June 30, 2021.

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

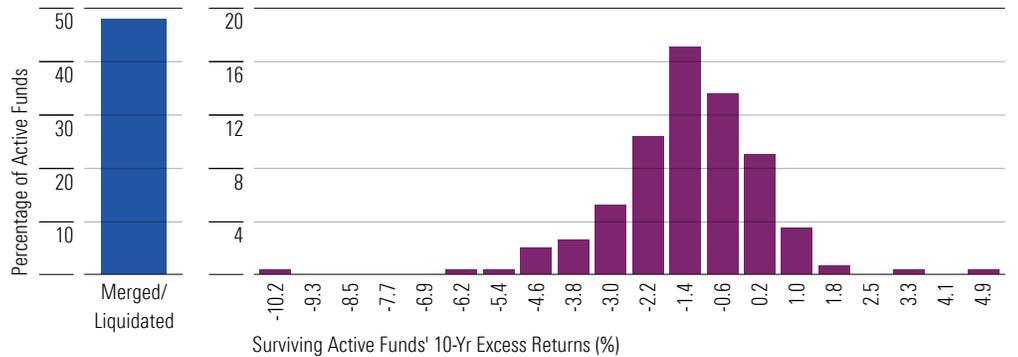
Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	328	93.3	107	96.3	43.6	40.8	42.9	42.3	48.8
3-Year	358	85.2	100	88.0	12.7	12.7	11.9	12.6	29.3
5-Year	358	76.8	72	94.4	12.7	12.3	12.1	12.4	31.3
10-Year	345	66.4	40	92.5	11.3	11.9	10.9	11.6	18.8
15-Year	370	50.8	21	85.7	7.9	8.4	8.0	8.2	19.2
20-Year	307	42.7	12	50.0	7.1	7.4	7.4	7.6	16.3
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	68	61.8	7	85.7	12.2	12.0	11.6	12.0	27.9
40th Percentile	69	72.5	8	100.0	10.6	12.0	10.9	11.8	11.6
60th Percentile	69	72.5	7	100.0	11.0	11.9	11.0	11.4	15.9
80th Percentile	68	63.2	9	100.0	10.8	11.8	11.0	12.4	13.2
100th Percentile	69	59.4	7	71.4	9.5	11.1	9.9	10.8	5.8

Source: Morningstar. Data and calculations as of June 30, 2021.

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

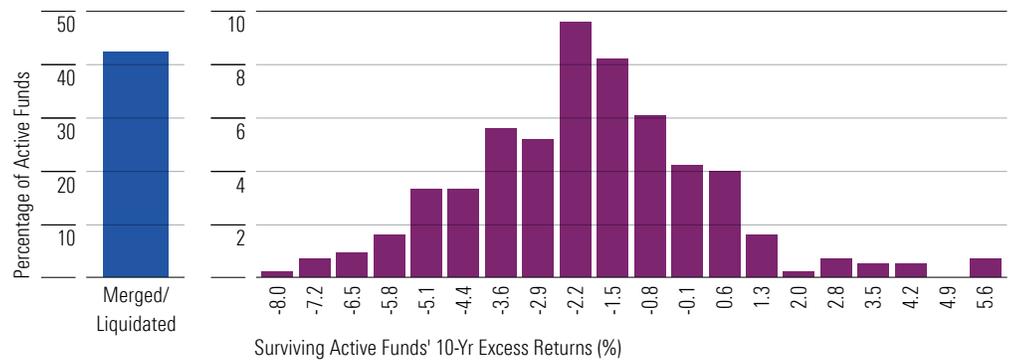


Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	344	95.1	69	97.1	42.1	42.5	41.4	43.4	25.6
3-Year	362	86.7	64	85.9	22.9	25.1	22.8	22.3	42.8
5-Year	380	75.0	47	97.9	22.9	24.0	22.1	22.2	32.1
10-Year	427	57.6	36	88.9	16.5	18.5	15.9	17.4	11.9
15-Year	514	40.3	23	87.0	12.1	14.4	12.0	13.8	5.1
20-Year	453	32.5	13	76.9	9.3	10.3	9.3	9.8	8.6
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	85	64.7	7	100.0	17.1	18.7	16.8	18.2	24.7
40th Percentile	85	60.0	7	85.7	16.0	17.4	15.6	17.5	10.6
60th Percentile	85	56.5	8	75.0	16.5	18.3	16.3	17.9	15.3
80th Percentile	85	57.6	6	100.0	15.6	16.9	15.2	17.0	3.5
100th Percentile	86	48.8	7	85.7	15.9	18.5	15.2	15.9	5.8

Source: Morningstar. Data and calculations as of June 30, 2021.

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

Source: Morningstar. Data and calculations as of June 30, 2021.

U.S. Mid-Cap Funds

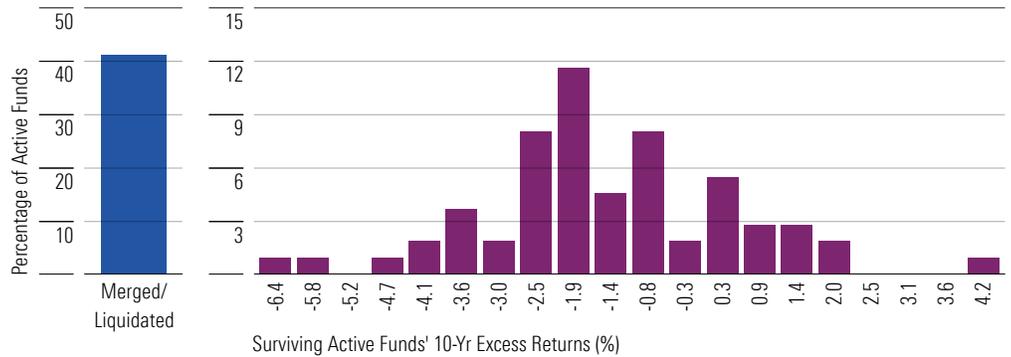
- ▶ One third of active mid-cap funds beat their average passive counterpart in the 12 months ending June 30, 2021.
- ▶ Active mid-cap value and growth funds' success rates declined significantly versus the 12 months through June 30, 2020, falling 28 and nearly 45 percentage points, respectively. Success 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, as 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 (%)	
Trailing Total Return									
1-Year	102	97.1	63	93.7	51.0	49.7	50.6	49.7	46.1
3-Year	111	84.7	57	87.7	13.6	14.9	13.3	13.3	32.4
5-Year	113	72.6	45	84.4	14.0	15.0	13.8	14.2	26.5
10-Year	112	58.9	33	78.8	11.2	12.7	11.2	12.1	14.3
15-Year	105	49.5	25	68.0	8.5	10.3	8.7	10.0	6.7
20-Year	75	45.3	12	66.7	8.3	9.9	8.6	9.8	8.0
Performance by Fee Quintile									
(Trailing 10 Years)									
20th Percentile	22	68.2	7	71.4	12.1	12.4	11.8	12.5	22.7
40th Percentile	24	62.5	5	100.0	10.5	12.0	11.4	12.1	20.8
60th Percentile	21	61.9	11	72.7	11.0	11.6	11.4	12.0	9.5
80th Percentile	22	50.0	4	75.0	11.1	11.8	10.9	11.2	13.6
100th Percentile	22	50.0	5	80.0	8.7	12.3	9.7	11.8	4.5

Source: Morningstar. Data and calculations as of June 30, 2021.

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



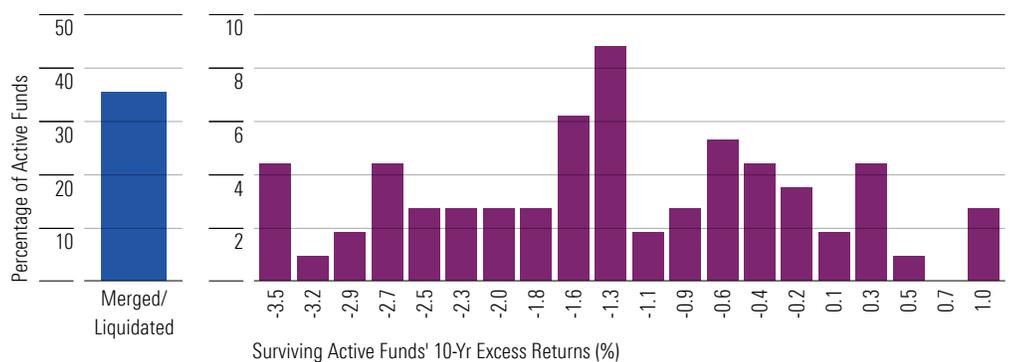
Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	109	93.6	37	91.9	53.3	51.8	55.8	55.2	43.1
3-Year	125	80.8	28	82.1	11.7	10.6	11.2	10.5	48.8
5-Year	123	78.0	23	87.0	12.4	11.6	12.1	11.7	39.0
10-Year	113	64.6	12	91.7	10.9	11.6	10.6	11.7	9.7
15-Year	96	59.4	8	87.5	8.6	8.9	8.4	8.4	27.1
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	22	54.5	2	100.0	11.4	11.5	11.4	11.6	13.6
40th Percentile	23	73.9	2	100.0	10.8	12.1	10.7	11.8	13.0
60th Percentile	22	77.3	2	100.0	10.9	11.6	10.4	12.1	13.6
80th Percentile	23	60.9	2	50.0	10.0	12.9	10.4	13.2	4.3
100th Percentile	22	59.1	3	100.0	9.9	10.9	10.2	10.8	4.5

Source: Morningstar. Data and calculations as of June 30, 2021.

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

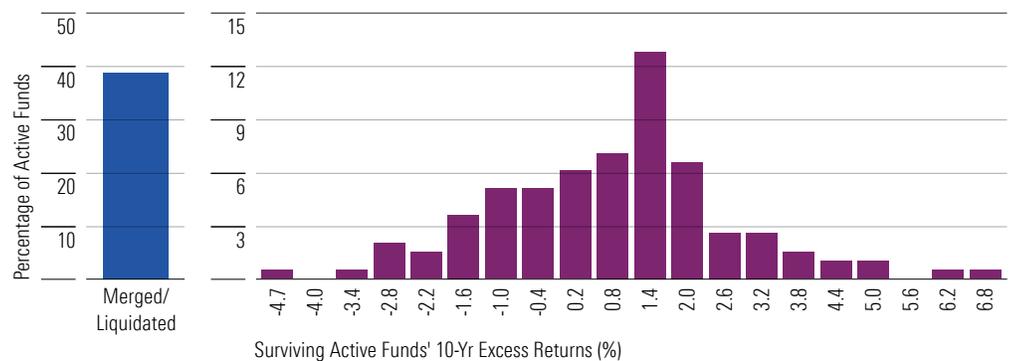


Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	156	97.4	31	100.0	42.9	56.5	47.0	52.5	17.3
3-Year	158	91.8	31	87.1	21.2	18.8	21.9	18.9	58.9
5-Year	176	77.8	27	81.5	20.4	18.7	20.7	18.2	51.1
10-Year	196	61.2	18	77.8	14.4	13.9	14.4	13.1	42.9
15-Year	254	40.9	13	76.9	11.5	11.2	11.5	10.9	26.0
20-Year	204	35.8	4	75.0	9.4	10.5	9.7	10.3	9.8
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	38	68.4	4	100.0	15.8	14.0	15.0	13.9	57.9
40th Percentile	39	76.9	2	100.0	14.2	12.7	14.2	13.7	56.4
60th Percentile	39	43.6	5	60.0	13.4	12.8	14.4	12.6	38.5
80th Percentile	39	59.0	2	50.0	13.5	15.2	13.7	14.9	28.2
100th Percentile	39	61.5	4	100.0	14.6	13.1	14.3	11.9	35.9

Source: Morningstar. Data and calculations as of June 30, 2021.

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

Source: Morningstar. Data and calculations as of June 30, 2021.

U.S. Small-Cap Funds

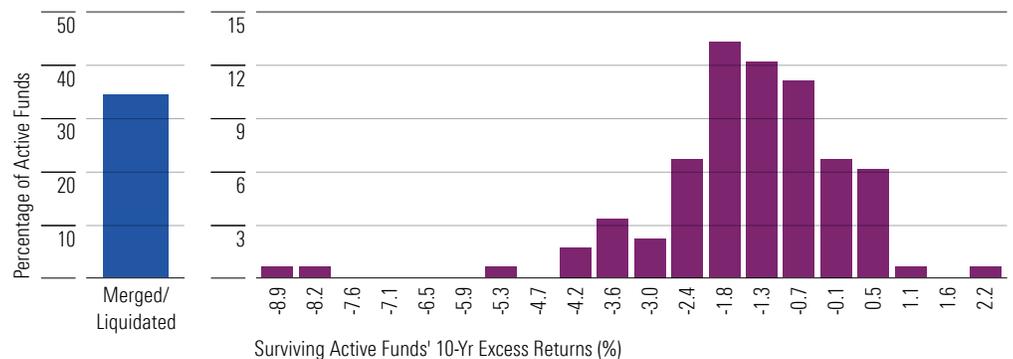
- ▶ Just over a third (36%) of all active small-cap funds outperformed their average passive peer in the 12 months through June 2021.
- ▶ Long-run success rates among actively managed U.S. small-cap funds have generally been higher than those seen among large-cap funds, though not materially so.
- ▶ Small-cap managers' higher long-term success rates can be explained in part by their staying power. At 49%, active small-cap funds' 15-year survivorship rate is higher than it is for large-cap funds (44%) and mid-cap funds (47%).

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 (%)	
Trailing Total Return									
1-Year	178	94.4	68	98.5	59.9	61.1	60.2	61.1	37.6
3-Year	206	78.2	65	92.3	11.8	13.4	11.2	11.9	34.0
5-Year	203	74.4	50	82.0	14.1	15.8	13.8	15.0	22.7
10-Year	180	65.6	35	80.0	10.8	12.7	11.0	12.1	13.3
15-Year	173	52.0	32	59.4	8.5	10.0	8.7	9.5	9.2
20-Year	128	50.0	19	47.4	8.9	9.7	9.2	9.7	12.5
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	36	72.2	6	83.3	11.6	12.6	11.6	12.6	13.9
40th Percentile	36	80.6	7	85.7	10.4	12.6	10.9	12.3	8.3
60th Percentile	36	61.1	8	87.5	10.4	12.4	11.2	12.6	13.9
80th Percentile	36	41.7	6	66.7	9.7	12.4	11.5	12.3	16.7
100th Percentile	36	69.4	7	71.4	9.9	11.5	10.1	10.6	11.1

Source: Morningstar. Data and calculations as of June 30, 2021.

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

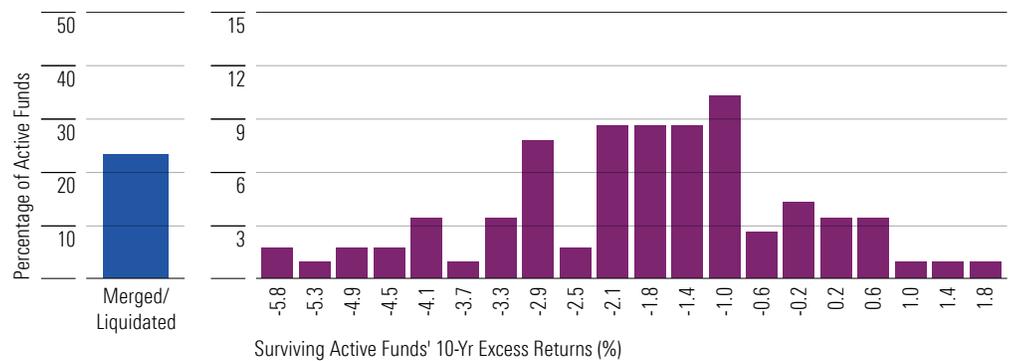


Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	123	93.5	26	96.2	70.6	69.0	69.0	75.8	27.6
3-Year	132	83.3	26	92.3	9.3	10.4	9.4	10.1	26.5
5-Year	131	81.7	23	95.7	12.4	12.9	12.2	13.1	21.4
10-Year	116	76.7	17	88.2	9.9	11.4	9.8	11.2	12.1
15-Year	119	61.3	12	83.3	7.9	8.5	7.9	8.2	20.2
20-Year	79	59.5	5	80.0	8.9	9.3	9.3	9.9	17.7
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	22	77.3	3	100.0	10.1	11.4	10.2	12.1	13.6
40th Percentile	23	73.9	3	100.0	9.1	10.3	9.5	10.8	4.3
60th Percentile	23	82.6	3	100.0	10.1	10.0	9.7	11.1	8.7
80th Percentile	23	82.6	3	66.7	9.7	12.2	9.8	13.1	13.0
100th Percentile	23	69.6	4	75.0	10.3	9.0	9.5	9.2	17.4

Source: Morningstar. Data and calculations as of June 30, 2021.

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

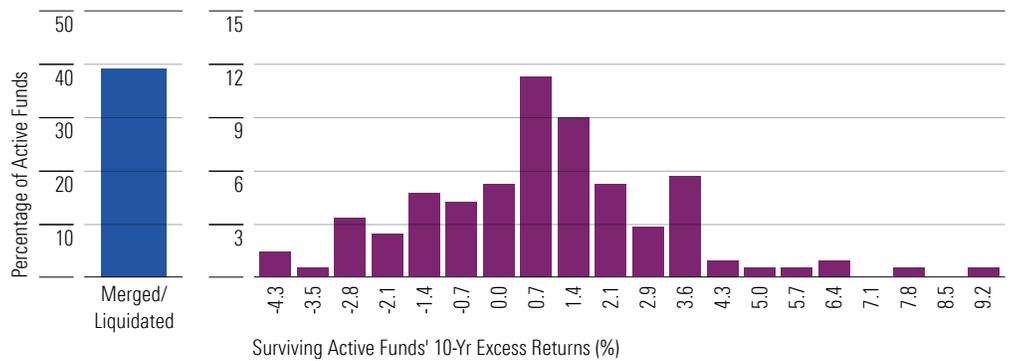
Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	176	95.5	16	100.0	47.4	48.9	55.6	54.9	40.3
3-Year	189	86.2	15	100.0	18.7	16.9	19.9	14.2	68.8
5-Year	191	78.5	13	100.0	20.2	18.7	21.2	17.5	56.0
10-Year	212	60.8	9	100.0	13.7	13.6	14.3	12.9	42.9
15-Year	266	42.5	9	88.9	10.8	11.2	11.4	10.3	29.7
20-Year	207	37.7	4	100.0	9.2	10.1	10.0	10.1	15.5
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	42	64.3	2	100.0	13.5	13.6	13.9	13.7	42.9
40th Percentile	42	57.1	1	100.0	14.0	13.8	14.8	13.8	45.2
60th Percentile	42	64.3	1	100.0	13.2	13.6	13.7	13.6	38.1
80th Percentile	42	59.5	2	100.0	13.7	12.2	14.0	12.6	40.5
100th Percentile	43	55.8	2	100.0	14.7	11.3	15.2	10.9	46.5

Source: Morningstar. Data and calculations as of June 30, 2021.

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



Source: Morningstar. Data and calculations as of June 30, 2021.

Foreign Stock

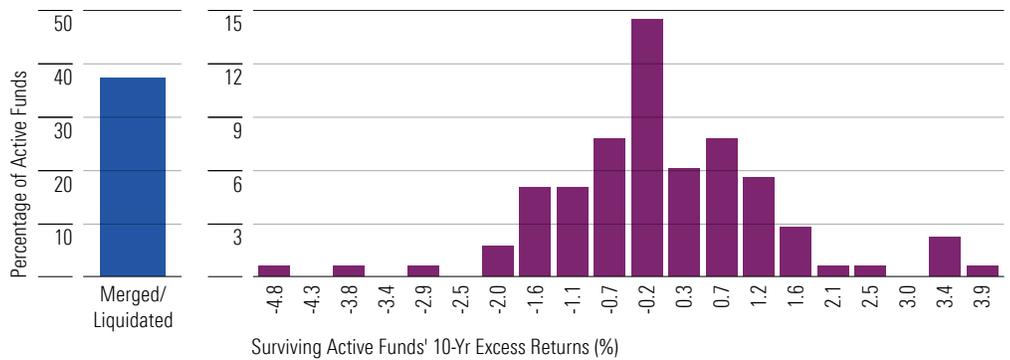
- ▶ A majority (59%) of active foreign-stock funds outperformed their average passive peer in the 12 months through June 30, 2021.
- ▶ Actively managed funds in the foreign small/mid blend had their success rate spike higher, jumping 41 percentage points to 58.6%.
- ▶ As of April 30, 2021, the world 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 who 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 36.5%, foreign stock funds' 10-year active success rate was materially higher than that of U.S. stock funds (19.1%).
- ▶ The median 10-year excess return for surviving active managers was positive in three of the six foreign-stock categories we examined—a much more appealing payout profile for investors relative to U.S. stock funds.
- ▶ The difference between 10-year asset-weighted returns for passive and active funds in four of the six foreign-stock categories was 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 (%)	
Trailing Total Return									
1-Year	186	92.5	94	96.8	35.0	35.0	34.6	32.0	60.8
3-Year	183	84.2	81	90.1	8.9	9.2	8.6	8.3	46.4
5-Year	176	79.5	59	86.4	10.4	10.8	10.2	10.1	42.0
10-Year	179	62.6	30	70.0	5.7	5.9	5.9	5.6	33.5
15-Year	159	49.1	24	50.0	4.7	4.6	4.7	4.3	27.0
20-Year	157	34.4	17	29.4	5.6	6.0	5.8	5.7	17.8
Performance by Fee Quintile									
(Trailing 10 Years)									
20th Percentile	35	65.7	5	60.0	5.9	6.3	6.3	5.9	51.4
40th Percentile	36	66.7	8	87.5	5.7	5.8	5.8	5.7	36.1
60th Percentile	36	66.7	4	75.0	5.3	5.7	6.0	5.6	30.6
80th Percentile	36	63.9	6	83.3	6.0	5.6	5.9	5.6	30.6
100th Percentile	36	47.2	6	50.0	5.1	5.5	5.4	5.2	19.4

Source: Morningstar. Data and calculations as of June 30, 2021.

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



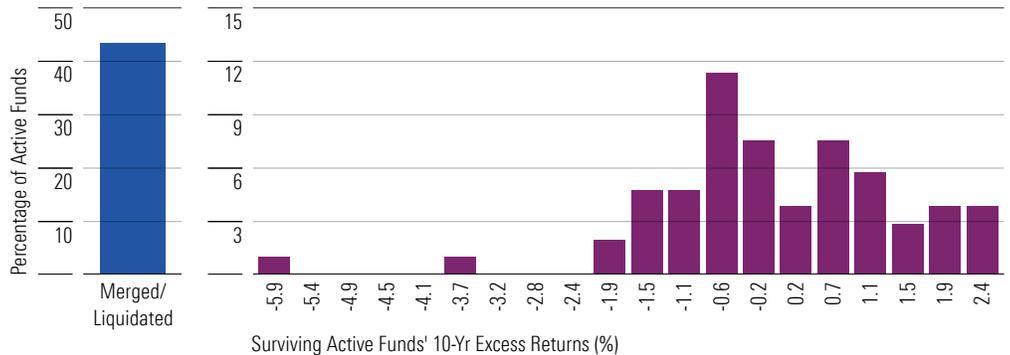
Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	93	89.2	41	97.6	40.6	36.6	36.0	34.3	50.5
3-Year	98	85.7	37	89.2	6.5	5.8	6.1	5.7	39.8
5-Year	107	69.2	35	74.3	9.2	8.5	8.3	8.3	35.5
10-Year	106	56.6	15	73.3	4.9	3.7	4.4	4.1	32.1
15-Year	75	53.3	3	33.3	4.1	3.8	3.5	4.1	12.0
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	22	59.1	2	100.0	5.0	2.6	4.7	2.5	40.9
40th Percentile	19	68.4	3	100.0	4.4	4.9	4.3	4.6	31.6
60th Percentile	21	57.1	6	66.7	5.9	4.2	4.5	4.0	38.1
80th Percentile	21	42.9	—	—	5.1	—	4.6	—	19.0
100th Percentile	21	52.4	3	66.7	3.7	4.8	3.8	5.2	23.8

Source: Morningstar. Data and calculations as of June 30, 2021.

Exhibit 26 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, 2021.

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 (%)	
Trailing Total Return									
1-Year	29	86.2	8	87.5	43.1	42.7	43.9	41.4	58.6
3-Year	32	75.0	7	100.0	7.4	8.3	7.6	8.0	34.4
5-Year	28	67.9	9	77.8	11.0	11.4	11.0	11.3	28.6
10-Year	21	57.1	7	71.4	7.3	7.2	7.2	6.8	38.1

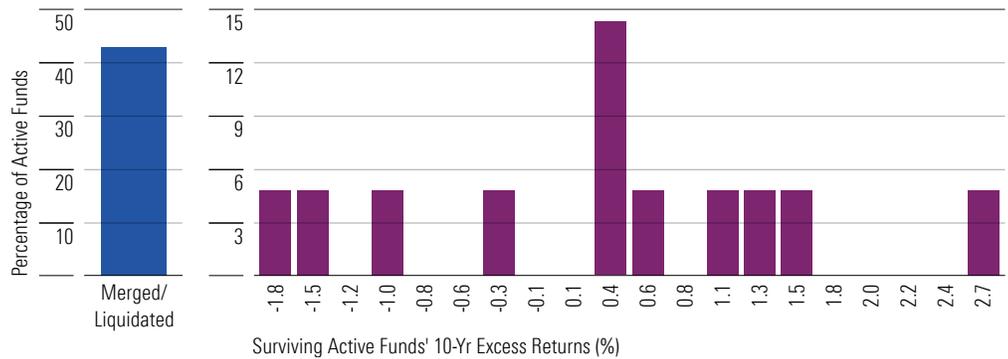
Performance by Fee Quintile

(Trailing 10 Years)

20th Percentile	4	75.0	1	100.0	6.8	5.9	6.9	5.9	50.0
40th Percentile	4	25.0	1	100.0	7.2	8.4	7.8	8.4	25.0
60th Percentile	4	50.0	1	—	6.7	-2.0	6.2	—	25.0
80th Percentile	4	75.0	1	—	8.2	2.4	8.0	—	50.0
100th Percentile	4	50.0	1	100.0	6.3	6.6	6.7	6.6	25.0

Source: Morningstar. Data and calculations as of June 30, 2021.

Exhibit 28 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active Foreign Small/Mid-Blend Funds

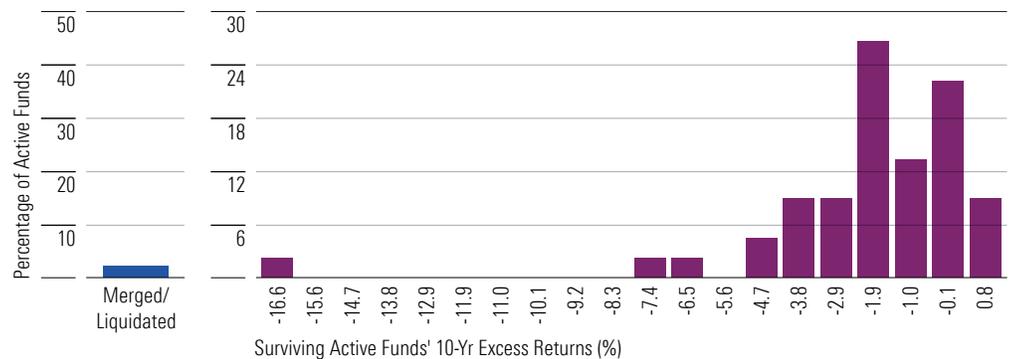


Source: Morningstar. Data and calculations as of June 30, 2021.

Exhibit 29 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	96	95.8	20	100.0	36.4	37.1	36.9	37.2	49.0
3-Year	85	96.5	19	100.0	12.6	14.1	12.4	14.4	25.9
5-Year	74	95.9	13	100.0	13.0	13.9	12.6	14.3	24.3
10-Year	45	97.8	6	100.0	9.2	10.2	8.8	10.4	22.2
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	9	100.0	1	100.0	6.2	10.2	6.9	10.1	22.2
40th Percentile	9	100.0	1	100.0	9.6	10.1	9.4	10.1	22.2
60th Percentile	9	100.0	1	100.0	9.7	10.9	9.7	10.9	33.3
80th Percentile	9	100.0	1	100.0	10.0	10.7	10.0	10.7	33.3
100th Percentile	9	88.9	1	100.0	9.1	9.4	8.3	9.4	11.1

Source: Morningstar. Data and calculations as of June 30, 2021.

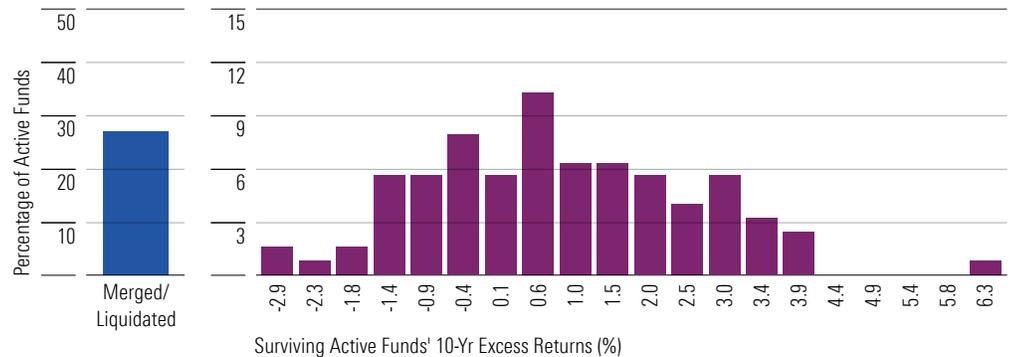
Exhibit 30 Mortality and Distribution of 10-Year Annualized Excess Returns for Surviving Active World Large-Blend Fund

Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	220	94.5	75	94.7	42.3	39.8	43.0	38.5	65.5
3-Year	233	84.5	72	80.6	12.7	11.0	12.2	9.5	57.5
5-Year	234	72.6	62	72.6	13.1	12.0	12.8	11.0	47.4
10-Year	126	73.0	24	70.8	5.0	3.7	4.7	3.5	50.0
15-Year	75	72.0	3	100.0	6.6	6.1	6.3	6.3	33.3
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	25	92.0	4	75.0	4.2	3.8	4.4	4.1	60.0
40th Percentile	26	73.1	5	80.0	5.9	2.7	4.9	3.7	50.0
60th Percentile	24	75.0	4	50.0	5.2	3.7	4.5	3.6	50.0
80th Percentile	26	65.4	5	80.0	4.7	3.4	5.0	2.5	50.0
100th Percentile	24	58.3	5	60.0	4.8	2.2	4.5	3.4	37.5

Source: Morningstar. Data and calculations as of June 30, 2021.

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

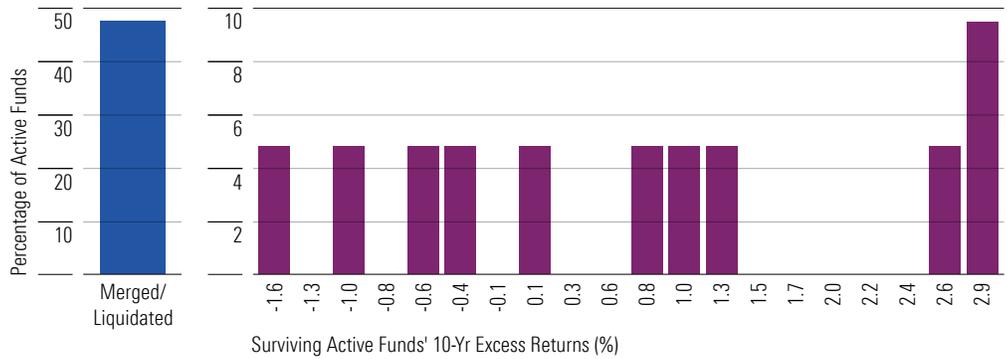
Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	16	100.0	31	83.9	39.2	36.4	41.2	35.0	75.0
3-Year	22	77.3	38	68.4	9.3	8.9	11.4	8.4	54.5
5-Year	20	65.0	37	62.2	9.8	11.1	11.5	10.6	35.0
10-Year	21	52.4	13	76.9	6.1	6.0	7.1	6.1	33.3
15-Year	22	45.5	7	85.7	5.2	4.6	5.9	3.6	40.9
20-Year	50	16.0	3	66.7	6.4	5.9	7.4	5.8	14.0
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	4	50.0	3	66.7	7.1	4.9	7.3	4.9	50.0
40th Percentile	4	50.0	1	100.0	6.1	8.7	6.9	8.7	50.0
60th Percentile	4	50.0	3	100.0	5.4	5.8	7.0	7.8	25.0
80th Percentile	4	25.0	2	100.0	6.2	5.3	5.1	5.0	0.0
100th Percentile	4	75.0	3	33.3	5.6	4.1	7.0	2.8	25.0

Source: Morningstar. Data and calculations as of June 30, 2021.

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



Source: Morningstar. Data and calculations as of June 30, 2021.

Real Estate

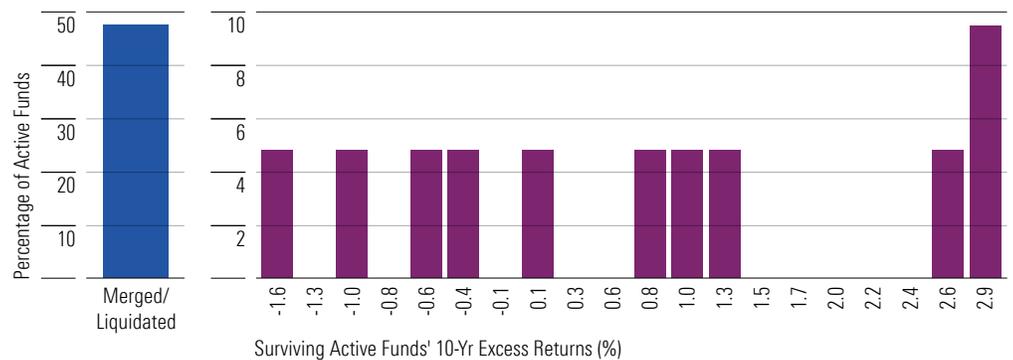
- ▶ At nearly 38%, the 20-year success rate of actively managed real estate funds is significantly higher than that for U.S. stock funds (11.8%), foreign-stock funds (16.9%), and bond funds (10.6%).
- ▶ Success rates in the global real estate category fluctuate dramatically over shorter time horizons. 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 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 (%)	
Trailing Total Return									
1-Year	59	96.6	31	96.8	34.3	34.6	35.9	38.5	20.3
3-Year	65	90.8	27	92.6	11.8	11.1	11.6	8.7	70.8
5-Year	68	80.9	20	95.0	7.6	6.7	7.6	6.1	57.4
10-Year	62	74.2	14	71.4	9.6	9.4	9.3	8.8	45.2
15-Year	63	58.7	5	80.0	7.0	7.1	6.7	6.7	27.0
20-Year	53	47.2	5	80.0	9.9	9.1	9.7	8.9	37.7
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	12	75.0	2	100.0	9.7	9.7	9.7	9.0	58.3
40th Percentile	12	75.0	3	66.7	8.7	9.3	9.9	9.3	58.3
60th Percentile	12	75.0	6	50.0	9.8	8.0	9.1	9.2	25.0
80th Percentile	12	66.7	—	—	9.8	—	9.3	—	41.7
100th Percentile	13	76.9	2	100.0	9.1	8.0	8.7	7.7	38.5

Source: Morningstar. Data and calculations as of June 30, 2021.

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

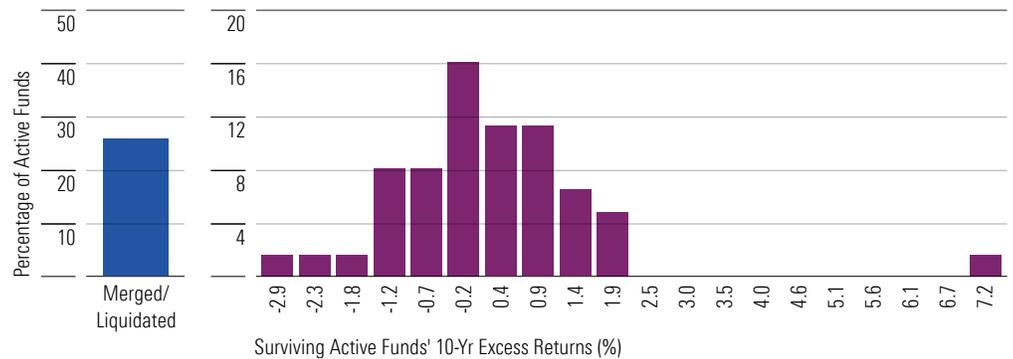


Source: Morningstar. Data and calculations as of June 30, 2021.

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 (%)	
Trailing Total Return									
1-Year	50	94.0	12	91.7	32.7	29.3	32.9	30.3	70.0
3-Year	56	80.4	12	91.7	8	4.9	8.4	5	67.9
5-Year	63	71.4	15	73.3	6.3	4.9	7	5.3	52.4
10-Year	50	68.0	9	77.8	6.5	5.2	6.7	5.6	54.0
Performance by Fee Quintile (Trailing 10 Years)									
20th Percentile	8	62.5	0	0.0	6.0	0.0	6.8	0	50.0
40th Percentile	10	80.0	0	0.0	6.6	0.0	6.7	0	70.0
60th Percentile	10	30.0	1	100.0	6.0	6.5	6.5	6.5	30.0
80th Percentile	10	90.0	3	100.0	7.3	4.2	7.3	5.2	70.0
100th Percentile	10	70.0	1	100.0	6.4	6.3	6.1	6.3	50.0

Source: Morningstar. Data and calculations as of June 30, 2021.

Exhibit 38 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, 2021.

Fixed Income

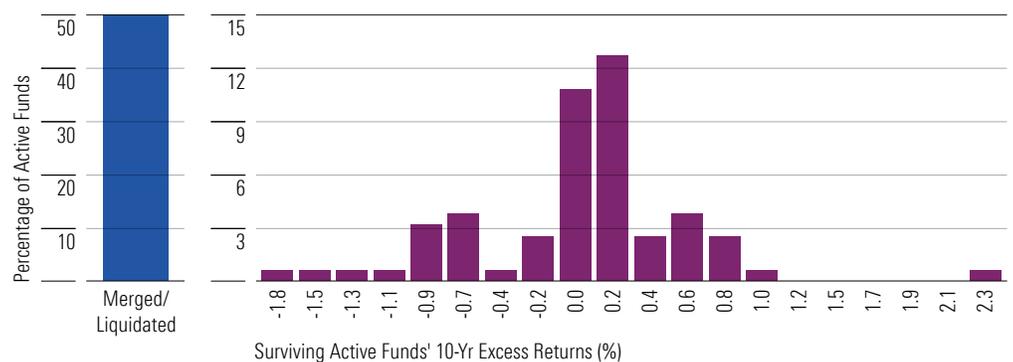
- ▶ The post-COVID-crisis rebound in credit markets was favorable for active bond funds, which tend to take more credit risk than their indexed peers. The one-year success rate for active bond funds across the three fixed-income categories included in our analysis was almost 76%.
- ▶ Long-term success 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 39 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	112	96.4	29	96.6	1.1	-0.4	0.9	-0.5	84.8
3-Year	119	85.7	27	92.6	5.8	5.4	5.3	5.3	42.9
5-Year	121	73.6	24	87.5	3.5	3.0	3.1	2.8	52.9
10-Year	158	49.4	21	81.0	3.7	3.4	3.3	3.2	27.8
15-Year	219	30.6	17	47.1	4.0	4.4	4.2	4.3	16.0
20-Year	236	21.6	15	33.3	4.2	4.4	4.3	4.5	10.6
Performance by Fee Quintile									
(Trailing 10 Years)									
20th Percentile	30	53.3	5	100.0	4.0	3.4	3.8	3.5	46.7
40th Percentile	32	46.9	3	100.0	3.3	3.3	3.3	3.2	31.3
60th Percentile	30	43.3	4	50.0	3.6	3.2	3.3	3.1	30.0
80th Percentile	31	58.1	4	75.0	3.4	2.9	3.1	2.9	16.1
100th Percentile	31	38.7	4	75.0	3.5	3.1	2.9	2.7	12.9

Source: Morningstar. Data and calculations as of June 30, 2021.

Exhibit 40 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, 2021.

Exhibit 41 Corporate Bond

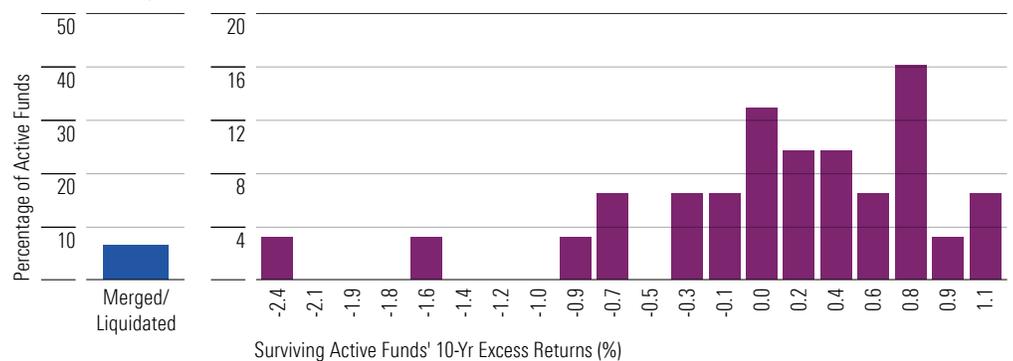
	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	50	98.0	22	100.0	3.7	2.8	4.9	2.8	82.0
3-Year	46	93.5	22	86.4	7.4	8.0	7.7	7.3	63.0
5-Year	42	90.5	17	76.5	4.7	4.8	5.0	4.5	71.4
10-Year	31	93.5	8	87.5	4.9	5.1	5.0	4.8	64.5

Performance by Fee Quintile

(Trailing 10 Years)

20th Percentile	1	—	1	100.0	4.1	5.6	—	5.6	—
40th Percentile	6	100.0	2	100.0	4.7	4.0	4.6	4.4	50.0
60th Percentile	6	83.3	3	100.0	5.5	4.3	5.2	4.7	66.7
80th Percentile	6	100.0	—	—	5.2	—	5.2	—	100.0
100th Percentile	6	100.0	1	—	4.6	1.3	4.4	—	16.7

Source: Morningstar. Data and calculations as of June 30, 2021.

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

Source: Morningstar. Data and calculations as of June 30, 2021.

Exhibit 43 High-Yield Bond

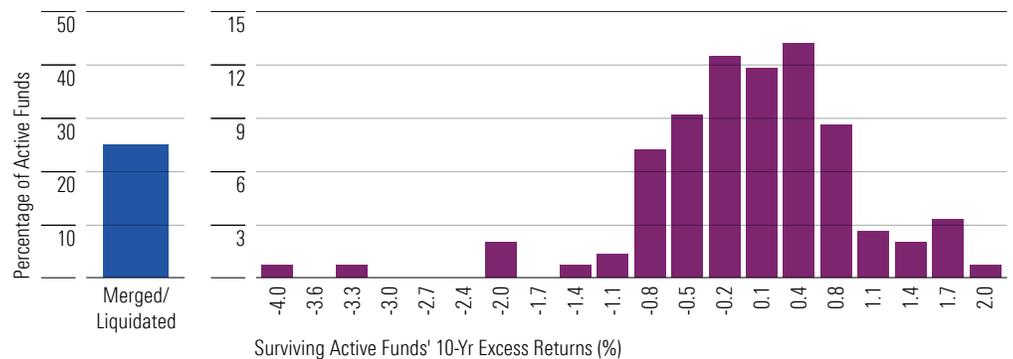
	Active Funds		Passive Funds		Asset-Weighted Performance		Equal-Weighted Performance		Active Success Rate (%)
	# at Beginning of Period	Survivorship Rate (%)	# at Beginning of Period	Survivorship Rate (%)	Active (%)	Passive (%)	Active (%)	Passive (%)	
Trailing Total Return									
1-Year	186	94.6	41	95.1	15.6	13.8	15.0	13.2	68.8
3-Year	186	90.9	32	84.4	6.8	6.2	6.2	6.0	55.4
5-Year	193	80.8	26	69.2	6.8	6.1	6.3	5.9	55.4
10-Year	152	75.0	8	50.0	5.8	5.4	5.5	5.3	46.7

Performance by Fee Quintile

(Trailing 10 Years)

20th Percentile	27	81.5	4	—	6.2	1.7	5.8	—	74.1
40th Percentile	30	83.3	—	—	5.6	—	5.6	—	60.0
60th Percentile	30	70.0	4	—	5.2	1.7	5.5	—	43.3
80th Percentile	30	80.0	2	100.0	6.0	5.5	5.4	5.3	40.0
100th Percentile	31	64.5	1	100.0	5.4	5.1	5.0	5.1	19.4

Source: Morningstar. Data and calculations as of June 30, 2021.

Exhibit 44 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, 2021.

Appendix A**Summary of Updated Results for the Periods Ended June 30, 2020, and Dec. 31, 2020****Exhibit 45** Summary Results for the Period Ended Dec. 31, 2020

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	36.9	28.8	18.6	9.7	9.0	13.1	21.8	3.8
U.S. Large Value	43.4	30.7	18.3	13.6	21.4	11.0	25.7	2.8
U.S. Large Growth	41.7	44.2	28.7	11.3	6.3	9.7	20.9	5.7
U.S. Mid Blend	28.4	31.3	21.4	12.5	6.8	12.0	18.2	4.3
U.S. Mid Value	79.6	48.4	40.3	11.1	32.6	—	26.1	—
U.S. Mid Growth	39.4	63.6	57.0	44.6	27.3	11.5	60.5	33.3
U.S. Small Blend	41.6	26.2	19.6	13.7	9.5	17.6	17.1	8.1
U.S. Small Value	43.8	32.3	18.2	18.4	24.6	—	18.2	17.4
U.S. Small Growth	74.7	62.9	57.8	41.2	29.0	—	38.1	38.1
Foreign Large Blend	61.9	48.1	42.4	32.4	29.6	19.4	41.2	18.9
Foreign Large Value	72.9	37.0	28.0	27.5	—	—	35.0	18.2
Foreign Small-Mid Blend	39.4	18.2	18.5	42.1	—	—	33.3	50.0
World Large Blend	38.0	25.0	20.3	26.1	—	—	11.1	11.1
Diversified Emerging Markets	70.7	57.3	47.7	49.6	35.1	—	56.0	34.8
Europe Stock	77.8	45.5	30.0	35.0	43.5	—	66.7	25.0
U.S. Real Estate	74.2	67.6	50.7	40.3	25.8	14.0	46.2	28.6
Global Real Estate	71.7	61.0	38.1	48.1	—	—	44.4	27.3
Intermediate Core Bond	55.3	36.2	37.2	27.9	15.4	7.3	46.7	15.2
Corporate Bond	70.0	58.7	65.1	70.0	—	—	—	33.3
High-Yield Bond	61.7	43.9	45.4	44.1	—	—	73.1	23.3

Source: Morningstar. Calculations as of Dec. 31, 2020.

Exhibit 46 Summary Results for the Period Ended June 30, 2020

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	39.7	28.3	15.9	10.6	9.6	14.1	16.9	4.9
U.S. Large Value	39.5	27.0	13.7	12.1	20.9	12.7	22.5	4.2
U.S. Large Growth	52.3	45.6	32.9	10.3	6.5	20.7	20.9	6.9
U.S. Mid Blend	35.7	32.4	21.9	13.5	6.2	10.3	27.3	9.1
U.S. Mid Value	71.2	43.8	31.2	20.9	36.4	—	36.4	8.7
U.S. Mid Growth	62.0	69.6	60.7	44.3	27.3	17.5	60.0	34.1
U.S. Small Blend	35.8	30.1	23.3	15.8	12.7	22.5	26.5	13.9
U.S. Small Value	39.2	30.3	32.8	25.9	38.3	—	26.1	26.1
U.S. Small Growth	73.0	62.1	55.2	42.3	28.3	—	45.5	39.5
Foreign Large Blend	58.6	36.2	34.9	33.0	27.4	19.4	42.4	25.0
Foreign Large Value	64.2	27.0	20.2	25.0	—	—	31.6	14.3
Foreign Small-Mid Blend	17.6	12.9	32.0	33.3	—	—	33.3	75.0
World Large Stock	29.9	26.9	18.8	20.9	—	—	25.0	22.2
Diversified Emerging Markets	65.1	48.1	52.3	49.6	34.8	—	63.6	30.4
Europe Stock	70.6	45.5	31.6	52.6	41.7	12.8	66.7	75.0
U.S. Real Estate	83.9	75.8	68.7	44.6	26.2	9.1	58.3	30.8
Global Real Estate	74.5	64.4	46.6	45.3	—	—	50.0	27.3
Intermediate Core Bond	31.0	19.8	25.8	27.1	14.1	5.8	51.6	15.2
Corporate Bond	52.0	44.2	65.9	75.0	—	—	—	50.0
High-Yield Bond	52.4	37.9	30.3	43.6	—	—	68.0	16.7

Source: Morningstar. Calculations as of June 30, 2020. *This data appears as it was originally presented for the legacy intermediate-term bond Morningstar Category.

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. ■■