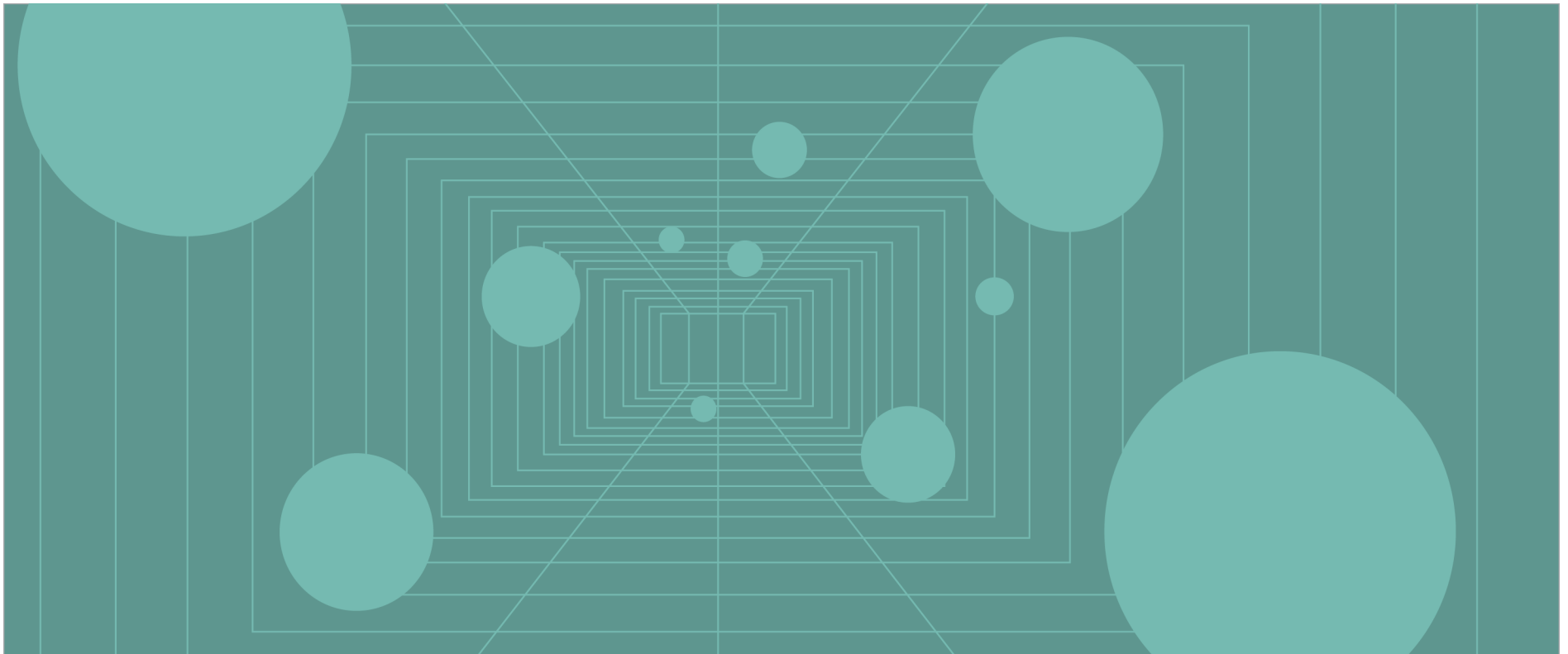


US MID- TO LARGE-CAP EQUITY MANAGER PERFORMANCE

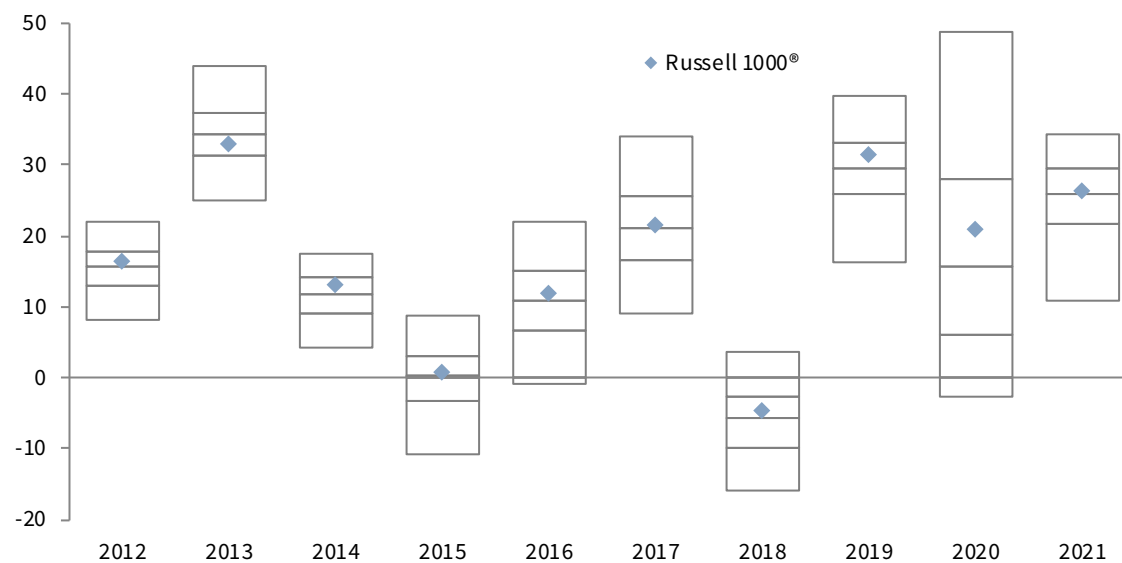
ANALYSIS OF 2021 AND PERFORMANCE SINCE 2001



Gross of fees, 54% of active US equity managers underperformed the index in 2021

US MID- TO LARGE-CAP EQUITY MANAGER ANNUAL RETURNS BY QUANTILES

2012–21 • Percent (%)



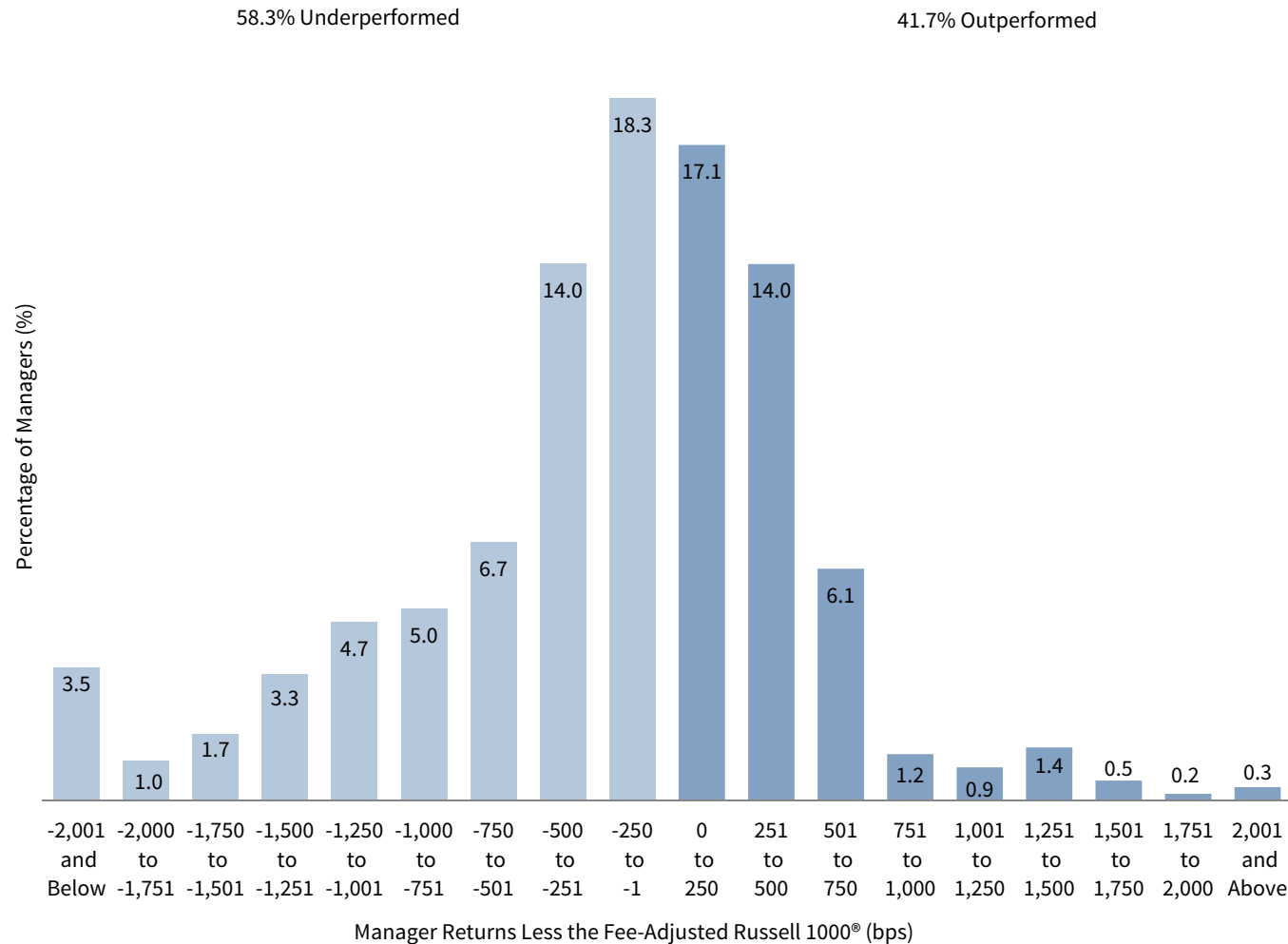
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
5th Percentile	22.0	44.0	17.5	8.8	22.1	34.0	3.6	39.7	48.7	34.2
25th Percentile	17.9	37.4	14.2	3.2	15.1	25.6	-2.7	33.0	27.9	29.5
Median	15.7	34.4	11.9	0.1	10.9	21.0	-5.7	29.6	15.6	26.0
75th Percentile	13.0	31.3	9.2	-3.2	6.6	16.6	-9.8	26.0	6.2	21.7
95th Percentile	8.0	24.9	4.2	-10.7	-0.9	9.1	-16.1	16.4	-2.7	10.7
Russell 1000®	16.4	33.1	13.2	0.9	12.1	21.7	-4.8	31.4	21.0	26.5
# of Managers	1,156	1,123	1,119	1,109	1,066	1,009	961	875	797	578
% Outperforming	41.2	60.6	35.5	42.7	42.1	45.3	40.7	37.8	34.4	46.0
% Underperforming	58.8	39.4	64.5	57.3	57.9	54.7	59.3	62.2	60.7	54.0

The median manager lagged the index in 2021 for the eighth straight year, albeit by its narrowest under-performance margin in that timeframe.

Median manager performance can be skewed by style, as value managers make up a larger proportion of the dataset than growth managers. The median value manager outperformed the broader index, though by a small margin, while the median growth manager trailed the broader index by more than 4 percentage points. Another way of looking at it is that a little over half of value managers outperformed the Russell 1000® Index, while three-quarters of growth managers lagged.

Adjusted for fees, the percentage of underperformers in 2021 was 58%

US MID- TO LARGE-CAP EQUITY MANAGER RETURNS RELATIVE TO THE FEE-ADJUSTED RUSSELL 1000® INDEX
 Calendar Year 2021 • n = 578



Nearly 60% of managers underperformed the Russell 1000® Index on a fee-adjusted basis.

The distribution of manager returns were relatively normal but exhibited negative skew. 19 managers reported returns more than 1,000 basis points (bps) above the fee-adjusted index, while more than 4 times that amount returned at least 1,000 bps below the fee-adjusted index.

Managers' sector tilts can affect relative performance

US MID- TO LARGE-CAP EQUITY MANAGER MEDIAN SECTOR ALLOCATIONS VERSUS INDEX WEIGHT

Percent (%) • n = 761

	Manager Median vs Index (bps)		12/31/2020 Index Weight (%)	CY 2021 Index Returns	Net Allocation Effect (+/-)
	Underweight vs Index	Overweight vs Index			
Con Disc		16	12.3	21.7	-
Con Stap	-221		6.0	17.9	+
Energy	-66		2.1	55.3	-
Financials		275	10.4	35.5	+
Healthcare		89	13.3	24.1	-
Industrials		486	8.9	19.4	-
IT	-580		27.8	30.4	-
Materials		82	2.7	25.0	-
Real Estate		-73	3.0	40.4	-
Comm Svcs	-530		10.3	18.7	+
Utilities	-197		2.7	17.6	+
			Russell 1000®	26.5	

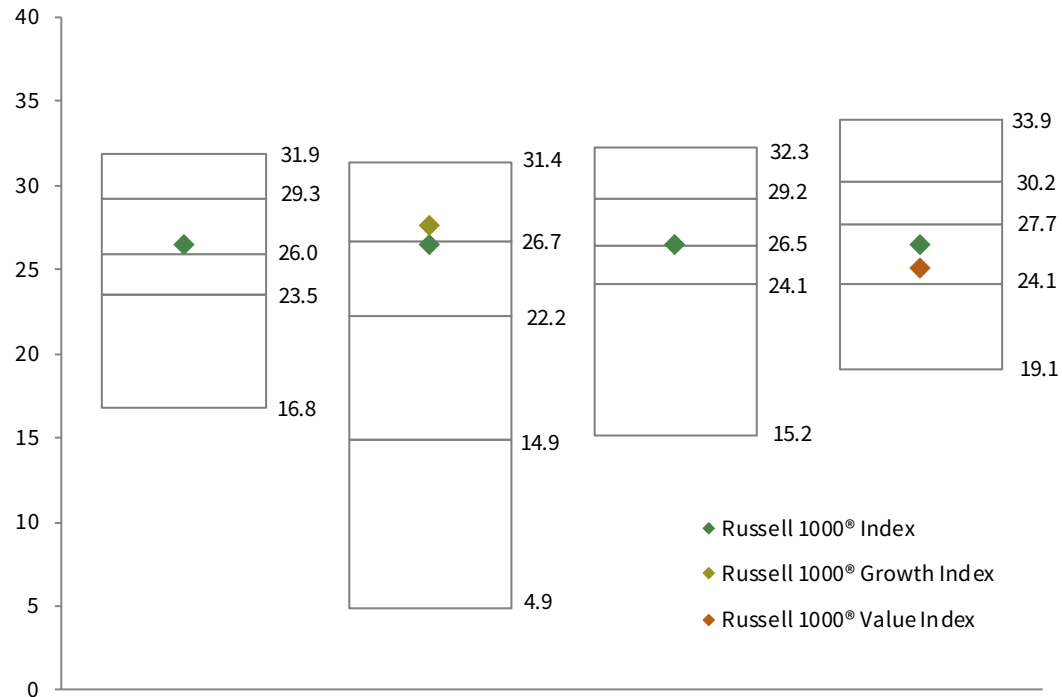
US managers' sector bets were hit or miss in 2021.

On a median basis, managers started 2021 with a substantial overweight to financials, which outgained the broad index, and industrials, which lagged. Similarly, the managers' deepest underweights were to information technology, which outperformed, and communication services, which underperformed.

Overall, median directional bets on seven out of the 11 GICS sectors weighed on performance.

The median value manager significantly outperformed other styles in 2021

US MID- TO LARGE-CAP EQUITY MANAGER UNIVERSE RETURN QUARTILES BY INVESTMENT PHILOSOPHY
 Calendar Year 2021 • Percent (%)



Value managers outperformed the broad index for the first time in five years, as more than two-thirds of value managers outgained the value index. In fact, value managers topped growth managers for the first time since 2016.

Relative to their respective style benchmarks, the median value manager topped the value benchmark for the third year in a row, while the median growth manager trailed the growth benchmark again for the eighth consecutive year.

	Diversified	Growth	Opportunistic	Value
High	34.5	41.0	33.5	42.0
Manager Median	26.0	22.2	26.5	27.7
Low	-2.3	-10.8	10.8	14.2
Index*	26.5	27.6	26.5	25.2
# of Managers	92	185	32	209

* Index represents Russell 1000® Index for Diversified and Opportunistic; Russell 1000® Growth Index for Growth; and Russell 1000® Value Index for Value.

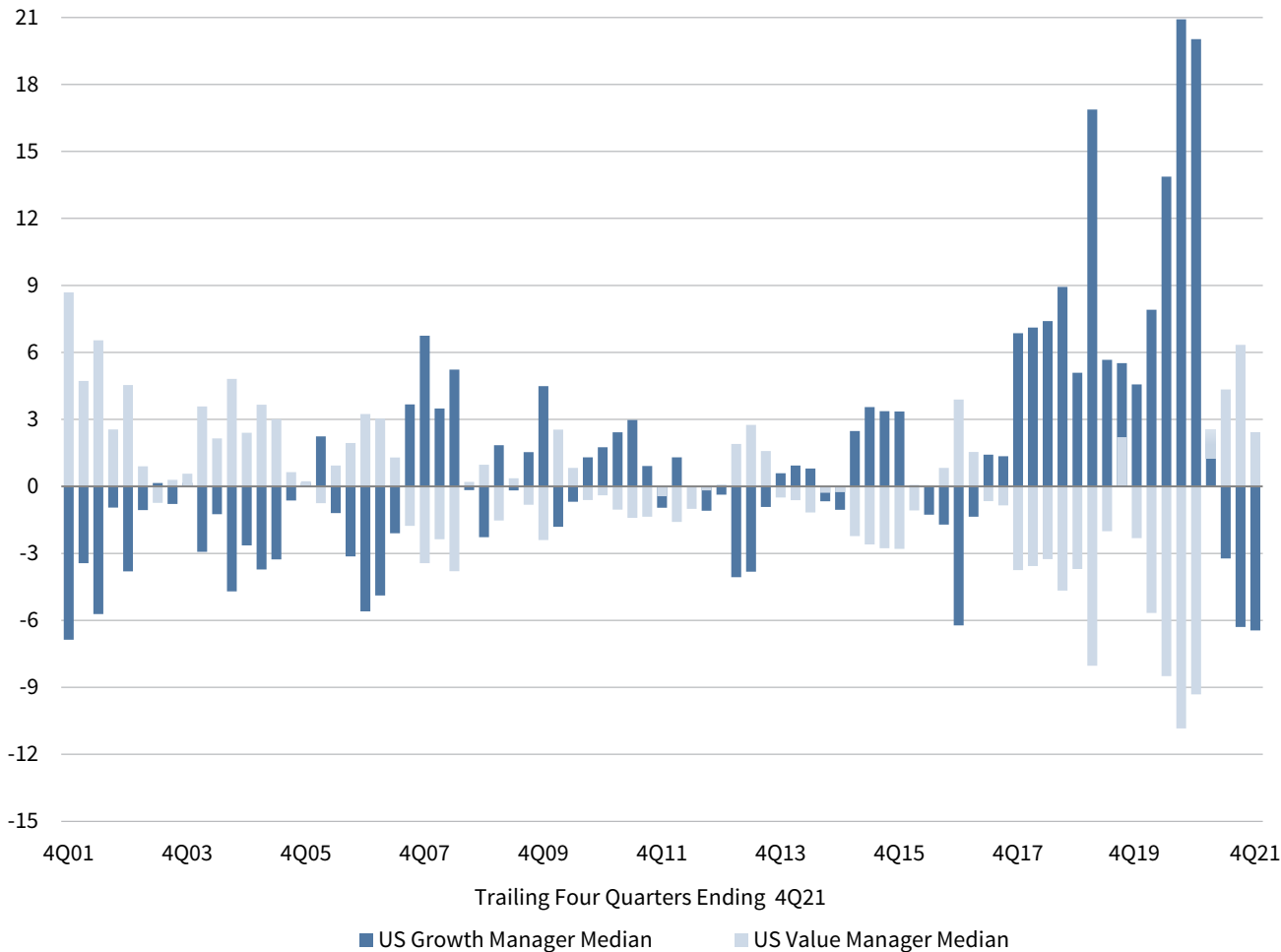
Sources: Cambridge Associates LLC, Frank Russell Company, and Thomson Reuters Datastream.

Notes: Cambridge Associates LLC's (CA) manager universe statistics are derived from CA's proprietary Investment Manager Database. Managers that do not report in US dollars, exclude cash reserves from reported total returns, or have less than \$50 million in product assets are excluded. Performance is generally reported gross of investment management fees. Only managers with performance available for the entire period measured are included.

Value managers topped growth every quarter in 2021

US GROWTH AND VALUE MANAGER MEDIAN RETURNS RELATIVE TO US EQUITY COMPOSITE MANAGER MEDIAN RETURNS

Fourth Quarter 2001 – Fourth Quarter 2021 • Percentage Point Differential Above/Below Composite Median



The median value manager bested the median broad equity manager in all four quarters in 2021, marking the first time this has happened over a full calendar year since 2005.

This also marks the first time the median value manager topped the median growth manager for any four consecutive quarters since second quarter 2016 through first quarter 2017.

Investment styles go in and out of favor over time

CYCLICAL NATURE OF US COMMON STOCK INVESTMENT PHILOSOPHIES

2001–21 • Percent (%)

Annual Total Returns

Year	Median Growth Mgr		Median Value Mgr		Median Opportunistic Mgr		Large-Cap Stocks (Russell 1000®)
	Median	<i>n</i>	Median	<i>n</i>	Median	<i>n</i>	
2001	-16.5	423	-1.1	381	-8.7	59	-12.4
2002	-24.6	423	-16.3	395	-19.7	55	-21.7
2003	30.8	425	30.9	402	27.9	56	29.9
2004	10.6	424	15.5	416	13.2	57	11.4
2005	8.4	431	8.3	427	8.1	57	6.3
2006	9.3	424	18.3	433	15.5	57	15.5
2007	14.2	425	4.1	460	7.8	57	5.8
2008	-39.3	410	-35.7	454	-34.7	56	-37.6
2009	34.7	383	27.9	438	27.8	53	28.4
2010	18.0	382	15.7	437	16.1	53	16.1
2011	-0.8	367	0.0	428	-0.6	54	1.5
2012	15.3	355	15.8	420	15.9	55	16.4
2013	34.9	351	33.9	403	34.9	54	33.1
2014	10.9	348	11.6	403	11.9	51	13.2
2015	3.3	323	-2.7	393	-0.2	50	0.9
2016	5.1	304	14.7	379	9.9	48	12.1
2017	27.8	293	17.1	359	20.7	44	21.7
2018	-2.0	263	-9.1	335	-5.6	45	-4.8
2019	33.5	249	27.8	311	28.3	41	31.4
2020	33.8	185	5.8	286	15.9	37	21.0
2021	22.2	185	27.7	209	26.5	32	26.5

Average Annual Compound Returns: Periods Ended December 31, 2021

Trailing 15-Yr	13.0	119	9.0	143	10.5	22	10.7
Trailing 10-Yr	18.3	147	13.9	174	15.7	25	16.5
Trailing 5-Yr	22.5	177	12.8	197	16.8	28	18.4
Trailing 3-Yr	29.6	180	20.2	200	23.4	31	26.2

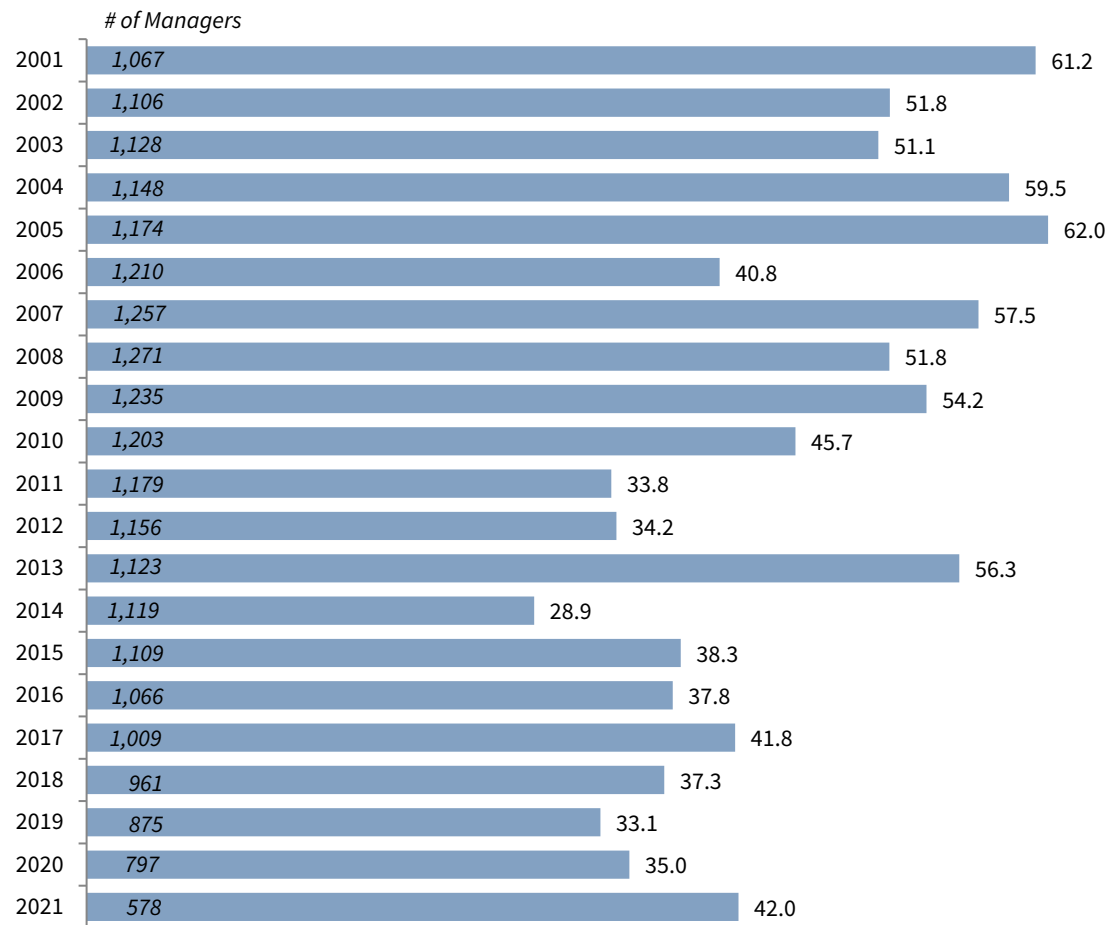
Value outpaced growth in 2021, but growth maintains a solid lead over longer time frames, especially trailing three- and five-year lookback periods.

Styles experience cyclical shifts; growth outperformed value five of six years from 2015 to 2020, while value led growth in five of six years between 2001 and 2006.

Active US equity manager relative performance is cyclical, but has struggled over the past decade

PERCENTAGE OF US MID- TO LARGE-CAP MANAGERS OUTPERFORMING THE FEE-ADJUSTED RUSSELL 1000® INDEX

2001-21



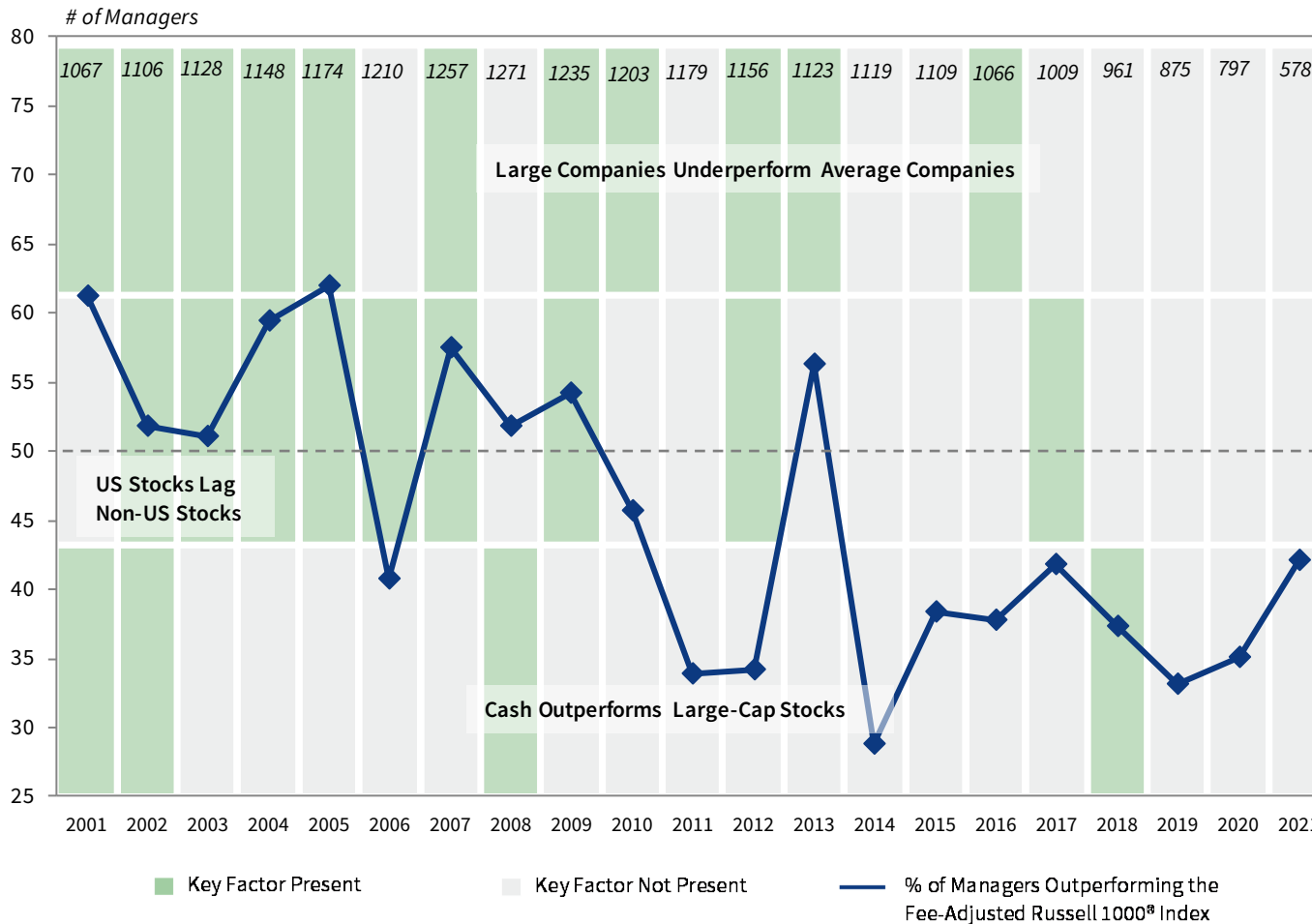
US equity fund managers have struggled to top the fee-adjusted benchmark on an annual basis over the last decade. Since 2011, only 38% of managers outperform each year on average.

However, from the tail end of the “dot-com” bust through the depths of the Global Financial Crisis, managers outperformed the fee-adjusted index eight of nine years.

The environment was again not favorable for active managers in 2021

PERCENTAGE OF MANAGERS OUTPERFORMING FEE-ADJUSTED RUSSELL 1000® INDEX

2001-21



Many factors contribute to active manager outperformance, but the presence of three key factors can create a more favorable environment for active management in general. No more than one of these factors have been present in each of the past nine years, and none in the past three.

Sources: BofA Merrill Lynch, Cambridge Associates LLC, Federal Reserve, Frank Russell Company, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided “as is” without any express or implied warranties.

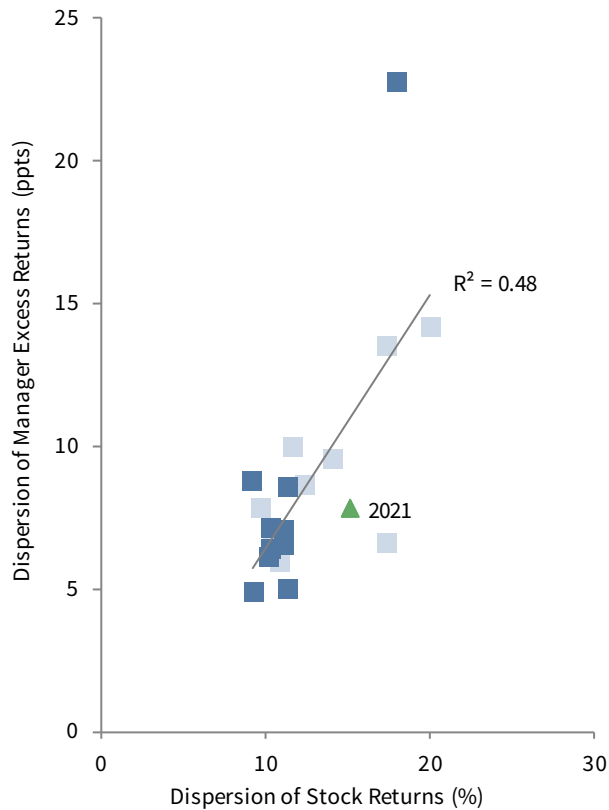
Notes: Factors are represented by cap-weighted Russell 1000® Index (“large companies”), Russell 1000® Equal Weight Index (“average companies”), MSCI US Index (“US stocks”), MSCI EAFE Index (“non-US stocks”), ICE BofAML 91-Day Treasury Bills (“cash”), and Russell 1000® Index (“large-cap stocks”). For more detail on the impact of these factors in each year, see the Appendix. Cambridge Associates LLC’s (CA) manager universe statistics are derived from CA’s proprietary Investment Manager Database. Managers that do not report in US dollars, exclude cash reserves from reported total returns, or have less than \$50 million in product assets are excluded. Performance is generally reported gross of investment management fees. We have added 60 bps to the Russell 1000® Index return as a proxy for manager fees. To be included in analysis of any period longer than one quarter, managers must have had performance available for the full period. MSCI index returns are net of dividend taxes.

Higher dispersion of stock returns often leads to higher dispersion of manager excess returns

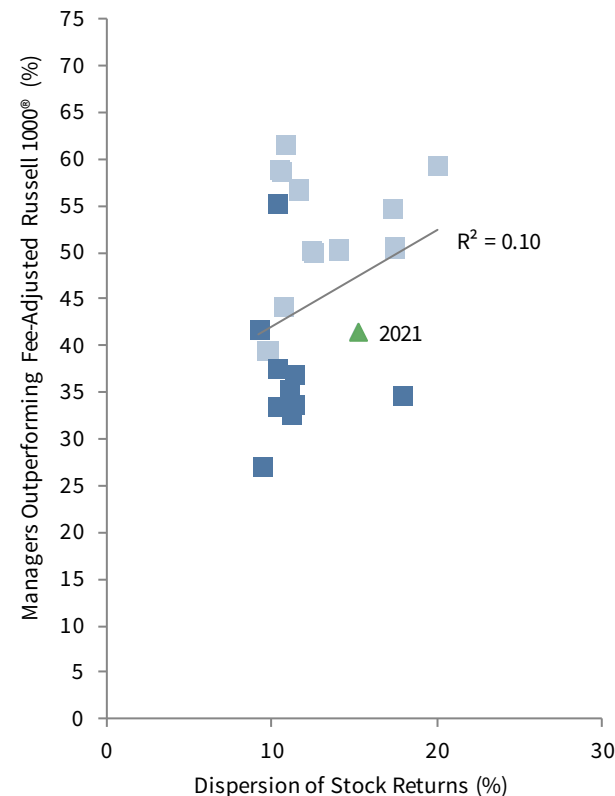
IMPACT OF ANNUAL DISPERSION OF US STOCK RETURNS ON DISPERSION OF MANAGER EXCESS RETURNS AND PERCENT OF MANAGERS OUTPERFORMING

2001–21

Dispersion of Stock Returns and Dispersion of Manager Performance ✓



Dispersion of Stock Returns and Managers Outperforming ✗



2001–10 2011–20 2021

Manager excess return dispersion is positively correlated with wider dispersion of stock returns, not the percentage of managers outperforming.

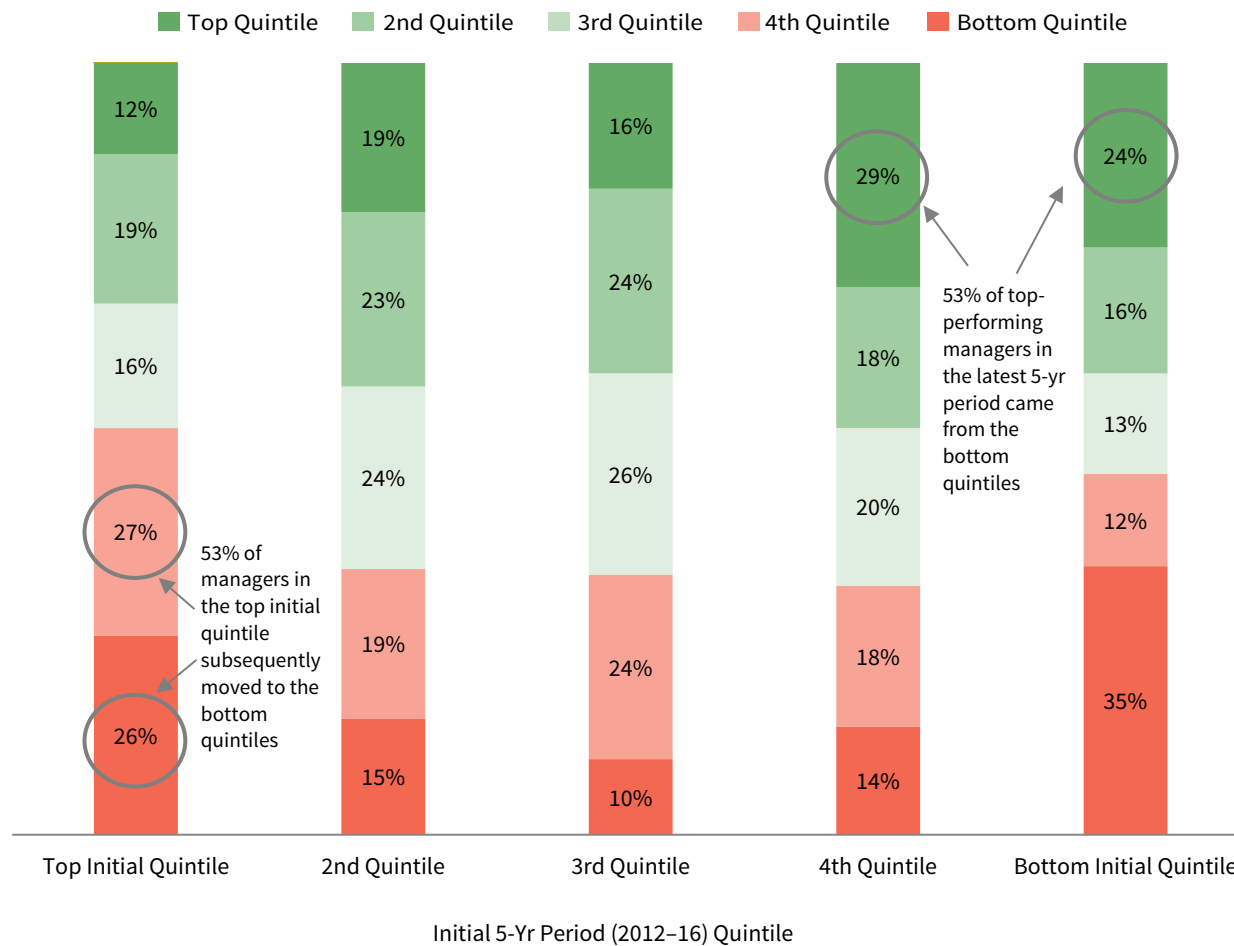
In 2021, stock return dispersion and manager excess return dispersion were both above average.

Movement between top and bottom quintiles is fairly common

ANALYSIS OF US MID- TO LARGE-CAP MANAGER RETURNS BY QUINTILE OVER 5-YR PERIODS

2012–21 • n = 463

Percent of Managers in Subsequent 5-Yr Period (2017–21) Quintile



Past performance is not a guarantee of future results—53% of top-quintile managers in the initial five-year period fell to the bottom two quintiles in the subsequent five-year period. Similarly, 53% of top-performing managers in the most recent five-year period were in the bottom two quintiles in the initial five-year period.

Long-term outperformers often underperform in shorter-term periods

HOW MANY TOP US MID- TO LARGE-CAP MANAGERS UNDERPERFORM AT SOME POINT?

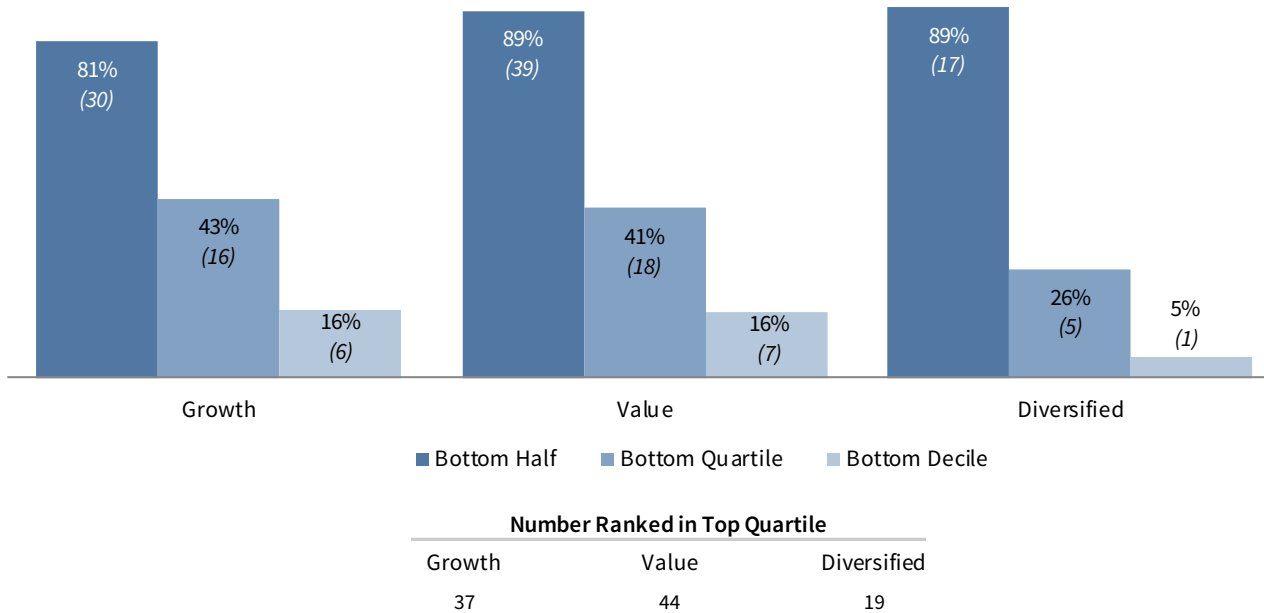
As of Fourth Quarter 2021

Sample Interpretation:

The graph shows that 81% of top-quartile growth managers in this ten-year period endured at least one three-year period of below-median performance during the ten years in which they were one of the best-performing managers among their peers. Of top quartile growth managers, 43% fell into the bottom quartile of peer manager returns for at least one three-year period in this decade. Note that the data apply to the winners—the top quartile managers over ten years.

Percentage (Number) of Top Managers Whose Rolling 3-Yr Ranking Fell at Least Once into the Bottom of the Managers' Respective Distribution

Top Quartile Over 10 Years Percent (%)



Top-quartile growth managers in the last ten years experienced short-term pain—more than 40% of them fell into the bottom performance quartile for at least one three-year period during the full ten-year period. Value managers experienced a similar pattern.

Regardless of style, nearly all top-performing managers experienced extended bouts of underperformance.

APPENDIX: YEAR-BY-YEAR ANALYSIS OF KEY FACTORS CONTRIBUTING TO A MORE OR LESS FAVORABLE ENVIRONMENT FOR ACTIVE MANAGEMENT



Large company underperformance has usually been a tailwind for active managers

The tailwind was nonexistent in 2021 as large-cap stocks outperformed the average company, and the median manager underperformed the index

ASSESSING THE IMPACT OF CAPITALIZATION BIAS ON ACTIVE MANAGER PERFORMANCE

2001–21

Active Managers Have Beaten the Russell 1000® Index 82% of the Time When the Largest Companies Have Underperformed the Average Company . . .

Year	Total Return (%)				Cap-Wtd Minus Equal-Wtd (ppts)	Mgr Value Added vs R1000® (ppts)
	Cap-Wtd R1000®	Equal-Wtd R1000®	Median Mid-/ Large-Cap Manager	<i>n</i>		
2009	28.4	52.6	30.1	1,313	-24.2	1.6
2001	-12.4	1.6	-9.4	1,118	-14.0	3.0
2003	29.9	42.9	30.6	1,183	-13.0	0.7
2004	11.4	19.7	13.1	1,209	-8.3	1.7
2005	6.3	14.0	8.1	1,240	-7.8	1.9
2010	16.1	23.8	16.2	1,282	-7.7	0.1
2016	12.1	16.4	10.9	1,153	-4.3	-1.2
2002	-21.7	-17.7	-20.8	1,159	-3.9	0.9
2007	5.8	9.5	7.6	1,333	-3.7	1.9
2013	33.1	35.3	34.4	1,207	-2.2	1.3
2012	16.4	16.5	15.7	1,241	-0.1	-0.7
Median	12.1	16.5	13.1		-7.7	1.3

. . . and Lagged the Index 90% of the Time When the Largest Companies Have Outperformed the Average Company

Year	Total Return (%)				Cap-Wtd Minus Equal-Wtd (ppts)	Mgr Value Added vs R1000® (ppts)
	Cap-Wtd R1000®	Equal-Wtd R1000®	Median Mid-/ Large-Cap Manager	<i>n</i>		
2006	15.5	14.9	14.9	1,277	0.5	-0.5
2011	1.5	0.7	0.3	1,263	0.8	-1.2
2008	-37.6	-38.9	-36.8	1,348	1.3	0.8
2014	13.2	11.1	11.9	1,204	2.2	-1.4
2021	26.5	23.4	26.0	578	3.1	-0.5
2018	-4.8	-8.8	-5.7	1,042	4.0	-0.9
2017	21.7	17.4	21.0	1,093	4.3	-0.7
2020	21.0	16.4	15.6	758	4.5	-5.4
2015	0.9	-4.0	0.1	1,196	4.9	-0.8
2019	31.4	24.7	29.6	955	6.7	-1.8
Median	14.3	13.0	13.4		3.5	-0.9

Off-benchmark holdings can benefit managers

Many active US managers own non-US stocks. When non-US stocks outperform US stocks, active managers have typically beaten the benchmark. In 2021, non-US stocks trailed US stocks by one of their widest margins over the past two decades, and active managers lagged the Russell 1000® Index

ASSESSING THE IMPACT OF NON-US DEVELOPED MARKET STOCK PERFORMANCE ON ACTIVE MANAGER PERFORMANCE

2001–21

Active Managers Have Outperformed the Russell 1000® Index 67% of the Time When the Index Has Lagged the MSCI EAFE Index . . .

Year	Total Return (%)				R1000® Minus MSCI EAFE (ppts)	Mgr Value Added vs R1000® (ppts)
	Russell 1000®	MSCI EAFE	Median Mid-/ Large-Cap Manager	<i>n</i>		
2006	15.5	26.3	14.9	1,210	-10.9	-0.5
2004	11.4	20.2	13.1	1,148	-8.8	1.7
2003	29.9	38.6	30.6	1,128	-8.7	0.7
2005	6.3	13.5	8.1	1,174	-7.3	1.9
2002	-21.7	-15.9	-20.8	1,106	-5.7	0.9
2007	5.8	11.2	7.6	1,257	-5.4	1.9
2017	21.7	25.0	21.0	1,009	-3.3	-0.7
2009	28.4	31.8	30.1	1,235	-3.3	1.6
2012	16.4	17.3	15.7	1,156	-0.9	-0.7

Median **15.5** **20.2** **14.9** **-5.7** **0.9**

. . . and Underperformed the Russell 1000® Index 67% of the Time When the US Index Has Beaten the Non-US Index

Year	Total Return (%)				R1000® Minus MSCI EAFE (ppts)	Mgr Value Added vs R1000® (ppts)
	Russell 1000®	MSCI EAFE	Median Mid-/ Large-Cap Manager	<i>n</i>		
2015	0.9	-0.8	0.1	1,109	1.7	-0.8
2008	-37.6	-43.4	-36.8	1,271	5.8	0.8
2010	16.1	7.8	16.2	1,203	8.3	0.1
2001	-12.4	-21.4	-9.4	1,067	9.0	3.0
2018	-4.8	-13.8	-5.7	961	9.0	-0.9
2019	31.4	22.0	29.6	875	9.4	-1.8
2013	33.1	22.8	34.4	1,123	10.3	1.3
2016	12.1	1.0	10.9	1,066	11.1	-1.2
2020	21.0	7.8	15.6	797	13.1	-5.4
2011	1.5	-12.1	0.3	1,179	13.6	-1.2
2021	26.5	11.3	26.0	578	15.2	-0.5
2014	13.2	-4.9	11.9	1,119	18.1	-1.4

Median **12.6** **0.1** **11.4** **9.9** **-0.9**

Years of cash outperformance have been good for active managers

But such years are uncommon; in 2021, the 91-day T-Bill lagged equities for the 16th time in the past 20 years, and active managers lagged the Russell 1000® Index

ASSESSING THE IMPACT OF CASH DRAG ON ACTIVE MANAGER PERFORMANCE

2001–21

Active Manager Performance versus the Russell 1000® Index Has Underperformed 59% of the Time When the Index Has Beaten the 91-Day T-Bill . . .

Year	Total Return (%)				R1000® Minus T-Bill (ppts)	Mgr Value Added vs R1000® (ppts)
	Russell 1000®	91-Day T-Bill	Median Mid-/ Large-Cap Manager	<i>n</i>		
2013	33.1	0.1	34.5	1,123	33.0	1.4
2019	31.4	2.3	29.7	875	29.1	-1.8
2003	29.9	1.1	30.6	1,128	28.7	0.7
2009	28.4	0.2	30.4	1,235	28.2	2.0
2021	26.5	0.0	26.0	578	26.4	-0.5
2017	21.7	0.9	21.0	1,009	20.8	-0.7
2020	21.0	0.7	15.2	797	20.3	-5.8
2012	16.4	0.1	15.7	1,156	16.3	-0.7
2010	16.1	0.1	16.2	1,203	16.0	0.1
2014	13.2	0.0	11.9	1,119	13.2	-1.3
2016	12.1	0.3	11.0	1,066	11.7	-1.1
2006	15.5	4.8	15.0	1,210	10.6	-0.5
2004	11.4	1.3	13.2	1,148	10.1	1.8
2005	6.3	3.1	8.3	1,174	3.2	2.0
2011	1.5	0.1	0.3	1,179	1.4	-1.2
2015	0.9	0.1	0.1	1,109	0.9	-0.8
2007	5.8	5.0	7.5	1,257	0.8	1.7
Median	16.1	0.3	15.2		16.0	-0.5

. . . But When the Russell 1000® Index Has Lagged the 91-Day T-Bill, Active Managers Have Outperformed the Index 75% of the Time

Year	Total Return (%)				R1000® Minus T-Bill (ppts)	Mgr Value Added vs R1000® (ppts)
	Russell 1000®	91-Day T-Bill	Median Mid-/ Large-Cap Manager	<i>n</i>		
2018	-4.8	1.9	-6.1	961	-6.7	-1.4
2001	-12.4	4.4	-9.3	1,067	-16.9	3.2
2002	-21.7	1.8	-20.7	1,106	-23.4	1.0
2008	-37.6	2.1	-36.9	1,271	-39.7	0.7
Median	-17.1	2.0	-15.0		-20.2	0.9



Contributors to this report include David Kautter, Sean Duffin, Davan Bazil, and Kristin Roesch.

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