A Division of S&P Global

Fleeting Alpha Scorecard

Contributors

Berlinda Liu, CFA

Director Global Research & Design berlinda.liu@spglobal.com

Gaurav Sinha

Managing Director Global Research & Design gaurav.sinha@spglobal.com

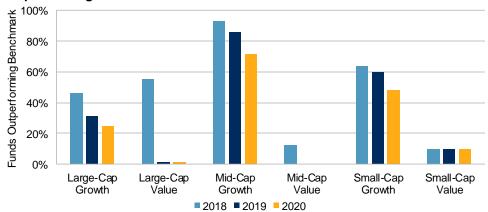
SUMMARY

The Fleeting Alpha Scorecard combines elements of the <u>SPIVA® U.S.</u>
<u>Scorecard</u> and the <u>Persistence Scorecard</u> to show how outperforming mutual funds from one three-year period continue to perform thereafter. The former report compares actively managed funds against their passive benchmarks, while the latter compares funds against their peers.

For the Fleeting Alpha Scorecard, we first identify funds that beat their benchmarks, based on three-year annualized returns, net-of-fees. We then examine whether these funds continue to outperform during each of the next three one-year periods.

There was significant dispersion in the likelihood of funds outperforming by category, with the most notable split occuring between growth and value funds. For example, as of Dec. 31, 2017, 84 of the 261 large-cap growth funds had outperformed the S&P 500" Growth in the previous three years. Of those winners, 21 (or 25%) outperformed for the subsequent three years. But on the value side, while 78 out of 338 funds had outperformed the S&P 500" Value as of Dec. 31, 2017, only 1 of those winners managed to continue outperforming annually through 2020 (see Exhibit 1 and Report 1).

Exhibit 1: Growth Funds Were Far More Likely than Value Funds to Continue Outperforming the Benchmark



Source: S&P Dow Jones Indices LLC, CRSP. Data as of Dec. 31, 2020. Chart is provided for illustrative purposes. Past performance is no guarantee of future results.

In 4 of the 18 domestic equity categories tracked, no funds managed to repeat their outperformance, and fewer than 10% did so in an additional four categories (see Report 1).

Echoing a point from the <u>SPIVA U.S. Year-End 2020 Scorecard</u>, prior to the evaluation of alpha persistence, few funds beat the benchmark for the initial three years (2015-2017). In 13 of the 18 domestic equity categories, fewer than 20% surpassed the benchmark, significantly reducing the original universe into the pool of "winners" for subsequent tracking.

International equity funds had slightly higher rates of outperformance in the initial period and were more stable in their alpha maintenance across categories and time. The conspicuous exception was emerging market funds where no active manager managed to repeat their positive alpha through 2020.

We take into consideration that cyclical market conditions can unduly influence a snapshot of the performance persistence figure. The figures in Report 2 are calculated by: 1) creating a version of Report 1 for each quarter between December 2011 and December 2020, and 2) taking simple averages of the persistence figures for each of the categories.

This analysis showed that **the average outperformance persistence in each of the subsequent three years fell rapidly**. Across all funds in the tracking universe, the average outperformance persistence by year was 33.8%, 13.7%, and 6.7%, respectively.

The growth/value split was visible in this longer timeframe as well. As Exhibit 2 shows, while the percentage of outperforming value funds was reasonably similar to their growth counterparts in year one, their alpha proved substantially less durable, suffering a harsher decline by year three.

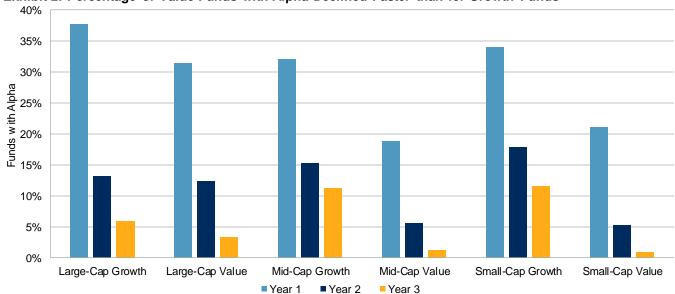


Exhibit 2: Percentage of Value Funds with Alpha Declined Faster than for Growth Funds

Source: S&P Dow Jones Indices LLC, CRSP. Data as of Dec. 31, 2020. Chart is provided for illustrative purposes. Past performance is no guarantee of future results.

ABOUT THE FLEETING ALPHA SCORECARD

The warning "past performance is no guarantee of future results" can be found in most funds' literature, and for good reason: numerous studies show a lack of long-term performance persistence among actively managed mutual funds. Yet many investors believe that winning performance persists, and past performance and related metrics remain important factors in manager selection.

The S&P Fleeting Alpha Scorecard tracks how well historical relative performance is reflective of future relative performance and which outperforming funds from one period continue to beat their benchmarks thereafter. As in our widely followed SPIVA Scorecards, our underlying data source is the University of Chicago's Center for Research in Security Prices (CRSP) Survivorship Bias Free Mutual Fund Database.

Key features of the S&P Fleeting Alpha Scorecard include:

- Historical rankings without survivorship bias: When making an investment decision, all
 available mutual funds are part of the initial opportunity set. Ignoring funds that liquidate or
 merge during a period of study leads to biased measurements of persistence. Using the CRSP
 database, the S&P Fleeting Alpha Scorecard ranks all funds available at each point in time and
 tracks the outperforming funds throughout the time period.
- Clean universe: The mutual fund universe used in these reports comprises actively managed equity funds. Index funds, sector funds, and index-based dynamic (bull or bear) funds are excluded from the sample. To avoid double counting multiple share classes, only the share class with the highest previous period return of each fund is used.
- Tracking top performers: Based on the earliest availability of Lipper style classifications, our study covers the period from Dec. 31, 2005, through Dec. 31, 2020. On a quarterly basis beginning on Dec. 31, 2008, we compute the trailing three-year annualized returns for each fund in our universe, as well as for their benchmarks. We then identify funds that beat their benchmarks and track their relative performance in each of the next three years. By identifying funds that beat their benchmarks as winners and those that do not as losers, this approach applies the "winner-winner, winner-loser" methodology developed by Brown and Goetzmann (1995) and examines if winners in period *t* are also winners in *t* + *j*, where *j* = Year 1, Year 2, and Year 3.

S&P Dow Jones Indices is one of the world's leading index providers, maintaining a wide variety of investable and benchmark indices to meet an array of investor needs. Our Global Research & Design team is dedicated to conducting unbiased, in-depth analysis on a broad range of topics and issues facing investors in today's marketplace.

The earliest work on mutual fund performance persistence is by Jensen (1968), who found that historically, mutual funds had not outperformed a buy-and-hold strategy, on average. For additional key studies on mutual fund performance, see Grinblatt and Titman (1989, 1992), Goetzmann and Ibbotson (1994), Brown and Goetzmann (1995), and Carhart (1997).

REPORTS

FUND CATEGORY	BENCHMARK	TOTAL NUMBER	NUMBER OF FUNDS OUTPERFORMING THE BENCHMARK	PERCENTAGE OF FUNDS OUTPERFORMING THE BENCHMARK	PERCENTAGE CONTINUING TO OUTPERFORM THE BENCHMARK (PERIOD END)		THE
		OF FUNDS	DEC. 31, 2017		DEC. 31, 2018	DEC. 31, 2019	DEC. 31, 2020
DOMESTIC EQUIT	Υ						
All Domestic	S&P Composite 1500 [®]	2379	407	17.11	60.93	41.03	39.56
All Large-Cap	S&P 500	915	182	19.89	68.13	41.21	39.01
All Mid-Cap	S&P MidCap 400 [®]	344	47	13.66	65.96	57.45	46.81
All Small-Cap	S&P SmallCap 600 [®]	553	64	11.57	54.69	48.44	42.19
All Multi-Cap	S&P Composite 1500	568	93	16.37	53.76	30.11	26.88
Large-Cap Growth	S&P 500 Growth	261	84	32.18	46.43	30.95	25.00
Large-Cap Core	S&P 500	316	40	12.66	30.00	2.50	0.00
Large-Cap Value	S&P 500 Value	338	78	23.08	55.13	1.28	1.28
Mid-Cap Growth	S&P MidCap 400 Growth	165	14	8.48	92.86	85.71	71.43
Mid-Cap Core	S&P MidCap 400	117	13	11.11	38.46	7.69	7.69
Mid-Cap Value	S&P MidCap 400 Value	62	16	25.81	12.50	0.00	0.00
Small-Cap Growth	S&P SmallCap 600 Growth	194	25	12.89	64.00	60.00	48.00
Small-Cap Core	S&P SmallCap 600	247	18	7.29	11.11	5.56	0.00
Small-Cap Value	S&P SmallCap 600 Value	112	20	17.86	10.00	10.00	10.00
Multi-Cap Growth	S&P Composite 1500 Growth	188	33	17.55	39.39	30.30	24.24
Multi-Cap Core	S&P Composite 1500	273	20	7.33	15.00	5.00	5.00
Multi-Cap Value	S&P Composite 1500 Value	107	26	24.30	7.69	0.00	0.00
Real Estate	S&P United States REIT	82	35	42.68	20.00	8.57	8.57
INTERNATIONAL	EQUITY						
Global	S&P Global 1200	241	55	22.82	32.73	27.27	21.82
International	S&P International 700	387	128	33.07	32.81	25.78	23.44
International Small-Cap	S&P Developed Ex-U.S. SmallCap	74	26	35.14	46.15	34.62	34.62
Emerging Markets	S&P/IFCI Composite	227	49	21.59	10.20	8.16	0.00

Source: S&P Dow Jones Indices LLC and CRSP. Data as of Dec. 31, 2020. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

FUND CATEGORY	BENCHMARK	TOTAL AVERAGE NUMBER	NUMBER OF FUNDS OUTPERFORMING THE BENCHMARK	PERCENTAGE OF FUNDS OUTPERFORMING THE BENCHMARK	PERCENTAGE CONTINUING TO OUTPERFORM THE BENCHMARK (PERIOD END)		HE
		OF FUNDS	CURREN'	PERIOD	YEAR 1	YEAR 2	YEAR 3
DOMESTIC EQUIT	Y						
All Domestic	S&P Composite 1500	2462	692	28.42	39.53	16.27	8.07
All Large-Cap	S&P 500	878	222	26.89	33.36	15.16	8.17
All Mid-Cap	S&P MidCap 400	388	87	22.57	29.70	13.34	8.36
All Small-Cap	S&P SmallCap 600	545	124	23.03	31.80	12.84	6.37
All Multi-Cap	S&P Composite 1500	655	162	24.66	29.07	11.19	5.02
Large-Cap Growth	S&P 500 Growth	272	52	19.59	37.66	13.20	5.85
Large-Cap Core	S&P 500	328	72	23.37	25.46	8.19	2.24
Large-Cap Value	S&P 500 Value	279	97	38.31	31.46	12.36	3.37
Mid-Cap Growth	S&P MidCap 400 Growth	181	34	19.01	32.04	15.33	11.31
Mid-Cap Core	S&P MidCap 400	122	26	21.89	22.50	8.79	3.92
Mid-Cap Value	S&P MidCap 400 Value	85	24	27.84	18.84	5.54	1.24
Small-Cap Growth	S&P SmallCap 600 Growth	200	38	19.14	33.97	17.82	11.56
Small-Cap Core	S&P SmallCap 600	237	49	21.44	20.10	4.05	0.25
Small-Cap Value	S&P SmallCap 600 Value	109	30	27.76	21.06	5.28	0.91
Multi-Cap Growth	S&P Composite 1500 Growth	190	35	18.09	32.05	11.74	3.88
Multi-Cap Core	S&P Composite 1500	331	77	23.12	20.15	4.75	1.39
Multi-Cap Value	S&P Composite 1500 Value	134	47	33.48	21.59	5.68	1.37
Real Estate	S&P United States REIT	83	22	27.41	30.99	11.21	7.73
INTERNATIONAL	EQUITY						
Global	S&P Global 1200	154	48	33.38	38.38	16.74	8.72
International	S&P International 700	283	100	34.94	43.82	20.23	9.95
International Small-Cap	S&P Developed Ex-U.S. SmallCap	51	25	48.98	49.76	24.05	14.14
Emerging Markets	S&P/IFCI Composite	131	34	24.42	37.09	13.75	5.72

Source: S&P Dow Jones Indices LLC and CRSP. Data as of Dec. 31, 2020. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

APPENDIX I: NUMBER OF FUNDS

Report 3: Universe Statistics				
FUND CATEGORY	AVERAGE	MEDIAN		
DOMESTIC EQUITY				
All Domestic	2462	2440		
All Large-Cap	878	949		
All Mid-Cap	388	382		
All Small-Cap	545	544		
All Multi-Cap	655	651		
Large-Cap Growth	272	284		
Large-Cap Core	328	351		
Large-Cap Value	279	295		
Mid-Cap Growth	181	182		
Mid-Cap Core	122	120		
Mid-Cap Value	85	86		
Small-Cap Growth	200	194		
Small-Cap Core	237	238		
Small-Cap Value	109	107		
Multi-Cap Growth	190	193		
Multi-Cap Core	331	332		
Multi-Cap Value	134	140		
Real Estate	83	86		
INTERNATIONAL EQUITY				
Global	154	149		
International	283	281		
International Small-Cap	51	51		
Emerging Markets	131	130		

Source: S&P Dow Jones Indices LLC and CRSP. Data as of Dec. 31, 2020. Average and median are calculated based on all quarterly snapshots between Dec. 31, 2005, and Dec. 31, 2020. Table is provided for illustrative purposes.

REFERENCES

- Brown, S. J., and Goetzmann, W. N. (1995). <u>Performance Persistence</u>. *The Journal of Finance*, 50(2), 679-698.
- Goetzmann, W. N., and Ibbotson, R. G. (1994). <u>Do Winners Repeat?</u> The Journal of Portfolio Management, 20(2), 9-18.
- Grinblatt, M., and Titman, S. (1989). <u>Mutual Fund Performance: An Analysis of Quarterly Portfolio</u> Holdings. *The Journal of Business*, *6*2(3), 393-416.
- Grinblatt, M., and Titman, S. (1992). <u>The Persistence of Mutual Fund Performance</u>. *The Journal of Finance*, *47*(5), 1977-1984.
- Jensen, M. C. (1968). <u>The Performance of Mutual Funds in the Period 1945-1964</u>. *The Journal of Finance*, 23(2), 389-416.
- Mark, C. M. (1997). On Persistence in Mutual Fund Performance. The Journal of Finance, 52(1), 57-82.

S&P DJI RESEARCH CONT	RIBUTORS				
Sunjiv Mainie, CFA, CQF	Global Head	sunjiv.mainie@spglobal.com			
Jake Vukelic	Business Manager	jake.vukelic@spglobal.com			
GLOBAL RESEARCH & DE	SIGN				
AMERICAS					
Gaurav Sinha	Americas Head	gaurav.sinha@spglobal.com			
Laura Assis	Analyst	laura.assis@spglobal.com			
Cristopher Anguiano, FRM	Senior Analyst	cristopher.anguiano@spglobal.com			
Nazerke Bakytzhan, PhD	Senior Analyst	nazerke.bakytzhan@spglobal.com			
Smita Chirputkar	Director	smita.chirputkar@spglobal.com			
Rachel Du	Senior Analyst	rachel.du@spglobal.com			
Bill Hao	Director	wen li.hao@spglobal.com			
Qing Li	Director	qing.li@spglobal.com			
Berlinda Liu, CFA	Director	berlinda.liu@spglobal.com			
Lalit Ponnala, PhD	Director	lalit.ponnala@spglobal.com			
Maria Sanchez, CIPM	Associate Director	maria.sanchez@spglobal.com			
Hong Xie, CFA	Senior Director	hong.xie@spglobal.com			
APAC					
Priscilla Luk	APAC Head	priscilla.luk@spglobal.com			
Arpit Gupta	Senior Analyst	arpit.gupta1@spglobal.com			
Akash Jain	Associate Director	akash.jain@spglobal.com			
An urag Kumar	Senior Analyst	an urag.kumar@spglobal.com			
Xiaoya Qu	Senior Analyst	xiaoya.qu@spglobal.com			
Yan Sun	Senior Analyst	yan.sun@spglobal.com			
Tim Wang	Senior Analyst	tim.wang@spglobal.com			
Liyu Zeng, CFA	Director	liyu.zeng@spglobal.com			
EMEA					
Andrew Innes	EMEA Head	andrew.innes@spglobal.com			
Alberto Allegrucci, PhD	Senior Analyst	alberto.allegrucci@spglobal.com			
Panos Brezas, PhD	Senior Analyst	panos.brezas@spglobal.com			
Leonardo Cabrer, PhD	Associate Director	leonardo.cabrer@spglobal.com			
Andrew Cairns, CFA	Associate Director	andrew.caims@spglobal.com			
Niall Gilbride, CFA	Senior Analyst	niall.gilbride@spglobal.com			
Rui Li, ACA	Senior Analyst	rui.li@spglobal.com			
Jingwen Shi, PhD	Senior Analyst	jingwen.shi@spglobal.com			
INDEX INVESTMENT STRATEGY					
Craig J. Lazzara, CFA	Global Head	craig.lazzara@spglobal.com			
Fei Mei Chan	Director	feimei.chan@spglobal.com			
Tim Edwards, PhD	Managing Director	tim.edwards@spglobal.com			
Anu R. Ganti, CFA	Senior Director	anu.ganti@spglobal.com			
Sherifa Issifu	Associate	sherifa.issifu@spglobal.com			

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