

Discussion of:
Characteristics of Mutual Fund Portfolios:
Where Are the Value Funds?

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Mutual Fund Facts

- Current total US stock market capitalization ~ 31 Trillion.
- Compared to ~ 3 Trillion in 1989.

Wilshire 5000 Total Market Index (^W5000) ☆

NYSE - NYSE Delayed Price. Currency in USD

31,302.98 -48.56 (-0.15%)

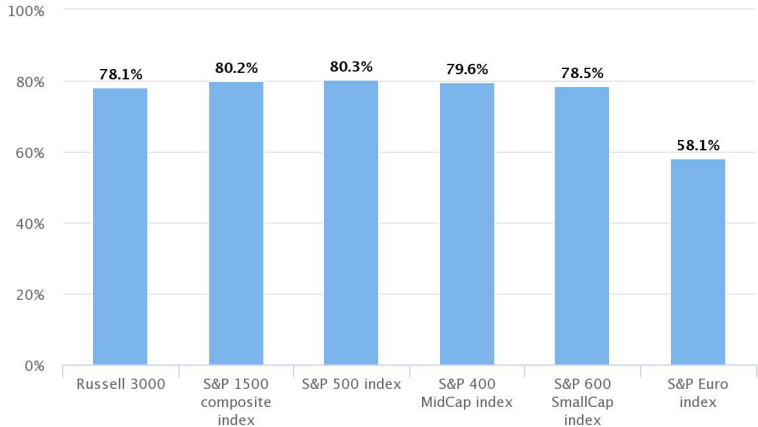
As of 9:43AM EST. Market open.



Mutual Fund Facts

Index institutional ownership

(April 24, 2017)

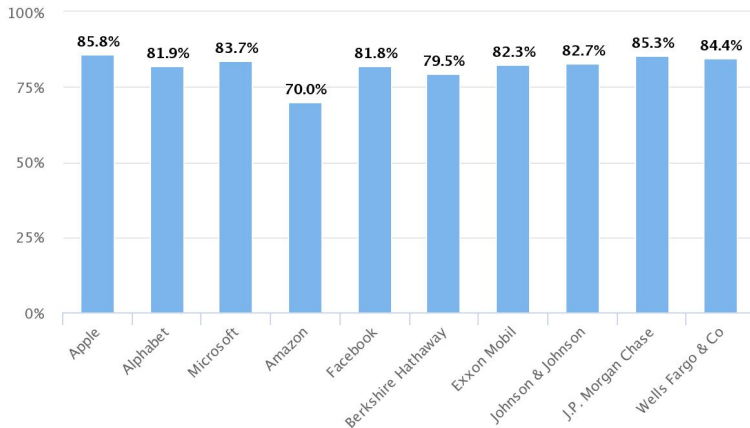


Bloomberg

Mutual Fund Facts

Institutional ownership of largest companies

(April 24, 2017)



Bloomberg

Mutual Fund Facts

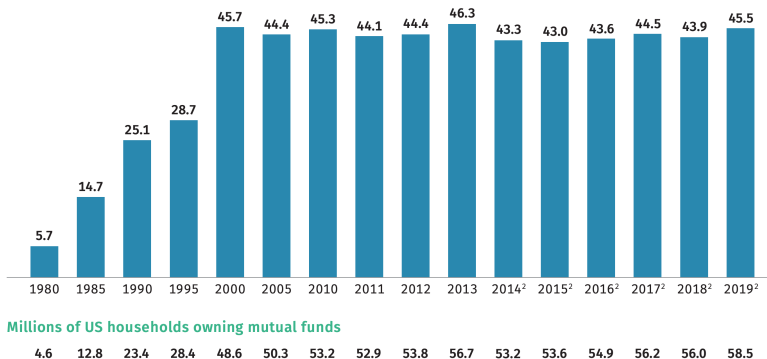
Total worldwide assets invested in regulated open-end funds*	\$46.7 trillion
United States	\$21.1 trillion
Europe	\$16.5 trillion
Asia-Pacific	\$6.4 trillion
Rest of the world	\$2.7 trillion
US-registered investment company total net assets	\$21.4 trillion
Mutual funds	\$17.7 trillion
Exchange-traded funds	\$3.4 trillion
Closed-end funds	\$250 billion
Unit investment trusts	\$70 billion

Mutual Fund Facts

FIGURE 1

Nearly 46 Percent of US Households Owned Mutual Funds in 2019

Number and percentage of US households owning mutual funds¹

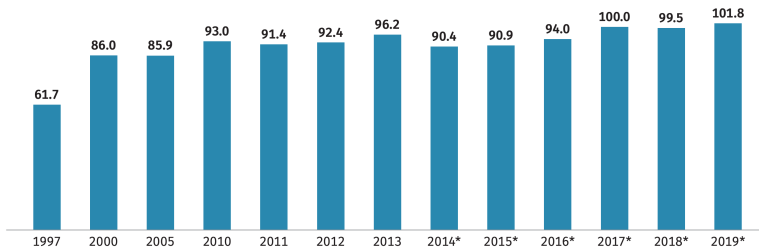


Mutual Fund Facts

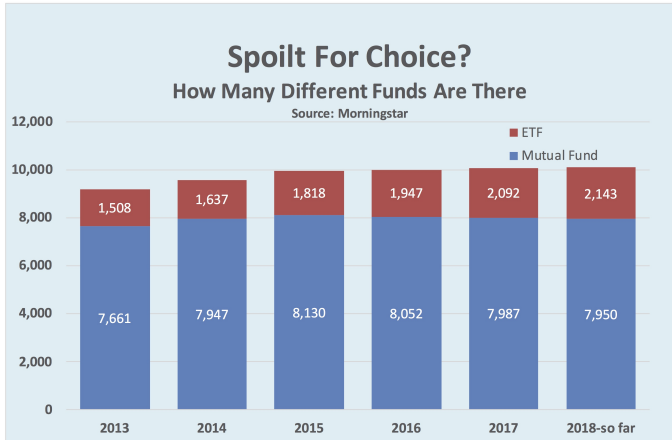
FIGURE 2

More Than 100 Million Individual US Investors Owned Mutual Funds in 2019

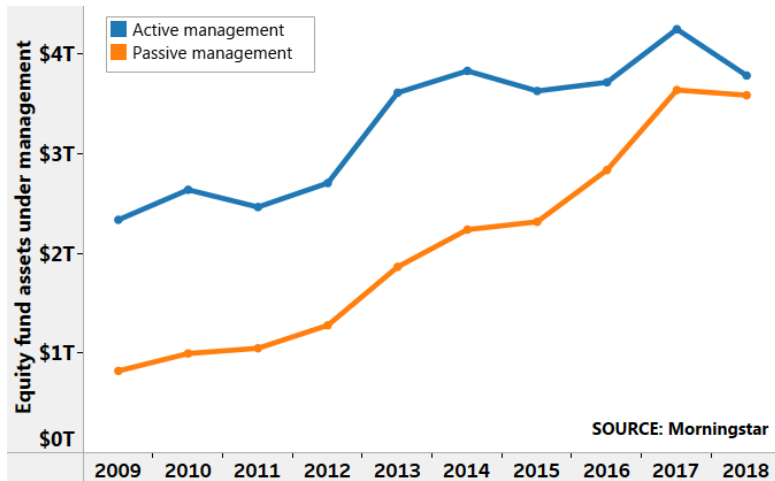
Millions of individual US investors owning mutual funds



Mutual Fund Facts



Mutual Fund Facts



The Stylized Facts

From the Conclusion (p. 20):

These stylized facts raise a number of questions about active mutual funds:

- *Why is the distribution of mutual fund portfolios so strongly tilted towards low book-to-market ratios and why are there virtually no high BM funds at all even though high BM stocks are associated with higher returns than low BM stocks?*

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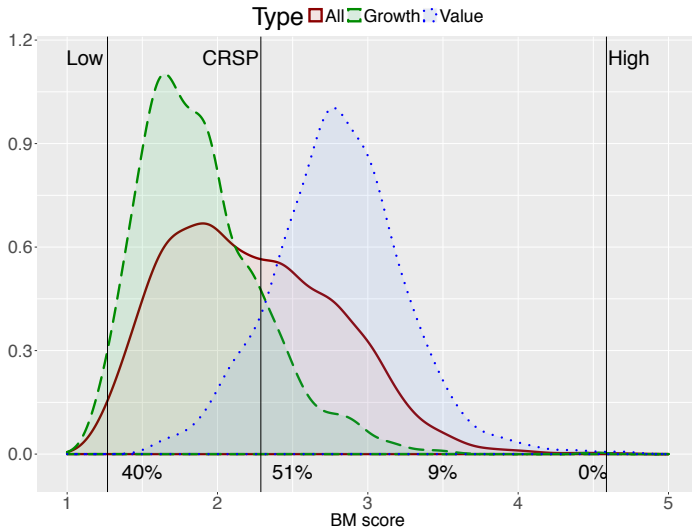
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Characteristic Distributions

Figure 3, Panel B:



The “average” mutual fund

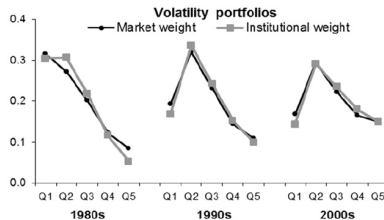
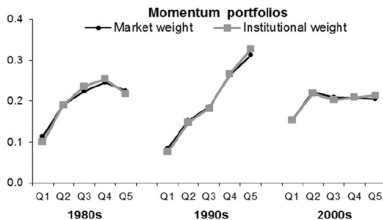
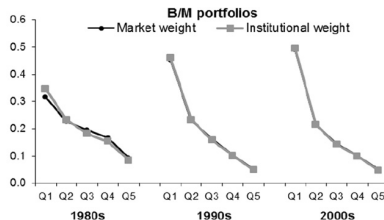
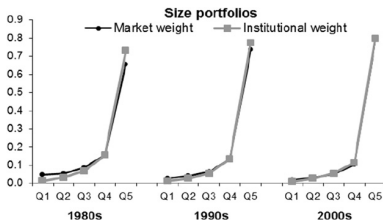
From Fama and French (2010):

The period is January 1984 through September 2006. On average there are 1,308 funds and their average AUM is \$648.0 million.

	12 * a						
	Net	Gross	b	s	h	m	R^2
EW Returns							
$Coef$	-1.11	0.18	1.01				0.96
$t(Coef)$	-1.80	0.31	1.12				
$Coef$	-0.93	0.36	0.98	0.18	-0.00		0.98
$t(Coef)$	-2.13	0.85	-1.78	16.09	-0.24		
$Coef$	-0.92	0.39	0.98	0.18	-0.00	-0.00	0.98
$t(Coef)$	-2.05	0.90	-1.78	16.01	-0.25	-0.14	
VW Returns							
$Coef$	-1.13	-0.18	0.99				0.99
$t(Coef)$	-3.03	-0.49	-2.10				
$Coef$	-0.81	0.13	0.96	0.07	-0.03		0.99
$t(Coef)$	-2.50	0.40	-5.42	7.96	-3.22		
$Coef$	-1.00	-0.05	0.97	0.07	-0.03	0.02	0.99
$t(Coef)$	-3.02	-0.15	-5.03	7.78	-3.03	2.60	

Mutual Fund Facts

From Lewellen (2011), Figure 3:



FF 5×5 Size-BM Sorted Portfolios — 2019:09

Number of Firms:

	<i>Lo</i>	2	3	4	<i>Hi</i>	Total
<i>Small</i>	224	181	246	336	441	1428
2	111	105	129	118	79	542
3	99	89	68	82	50	388
4	130	80	61	48	34	353
<i>Big</i>	121	70	58	42	23	314
Total	685	525	562	626	627	3025

Fraction of Market Cap (in %):

	<i>Lo</i>	2	3	4	<i>Hi</i>
<i>Small</i>	0.20	0.18	0.23	0.33	0.29
2	0.57	0.56	0.64	0.56	0.39
3	1.17	1.05	0.80	0.94	0.56
4	4.30	2.54	1.90	1.32	0.93
<i>Big</i>	37.15	19.06	8.93	11.72	3.69

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3. *Why are portfolios of active mutual funds not more tilted towards characteristics that are associated with high returns, i.e. small, high BM and high momentum stocks?*

The Size Anomaly – early evidence

- Banz (1981) and Keim (1983) present evidence of a strong “size” (market cap) effect that is not explained by the loading on the market portfolio.
 - Note that both Banz and Keim use equal-weighted portfolios.
 - From Keim (1983):
 - (Note that $1.0008^{252} = 1.223$)

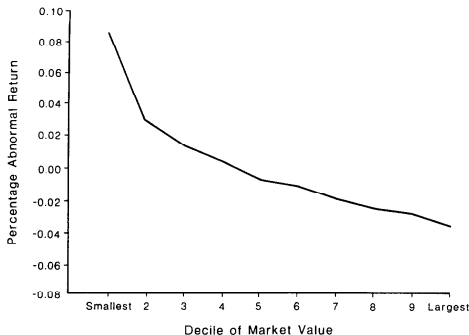
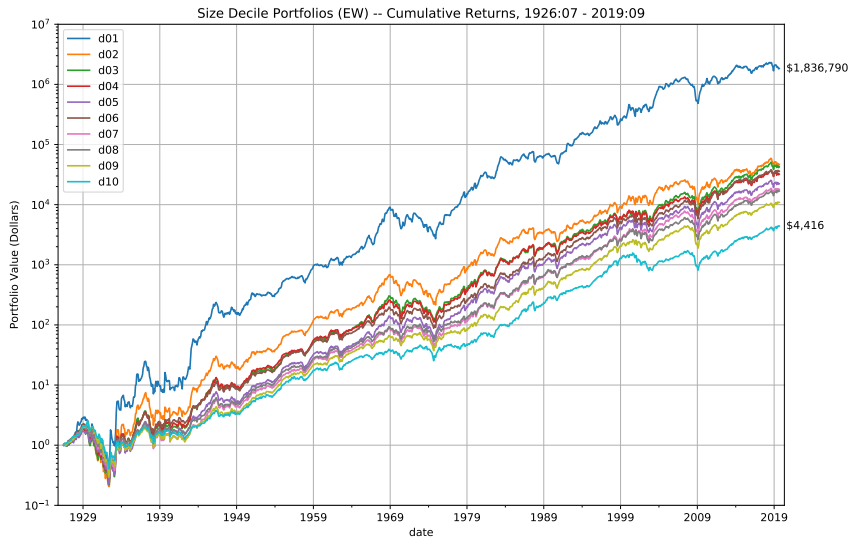
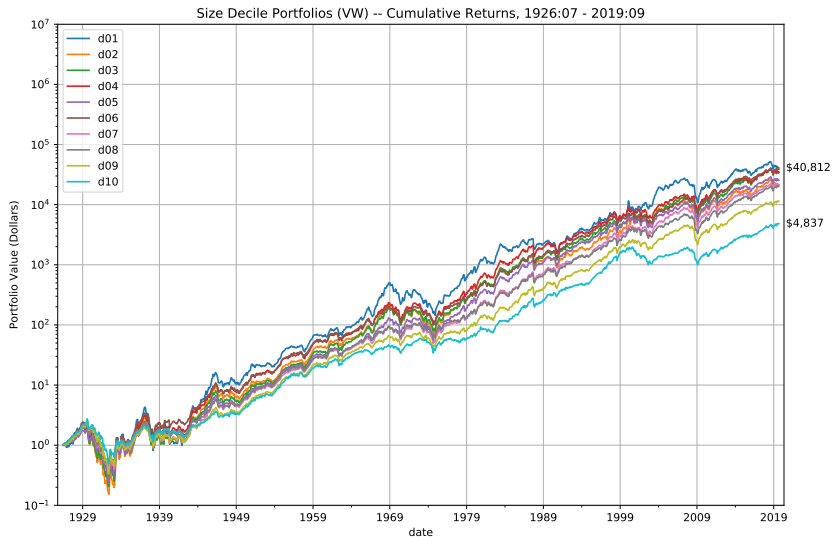


Fig. 1. Average daily abnormal returns (in percent) for ten market value portfolios constructed from firms on the NYSE and AMEX over the period 1963–1979. Abnormal returns are provided by CRSP.

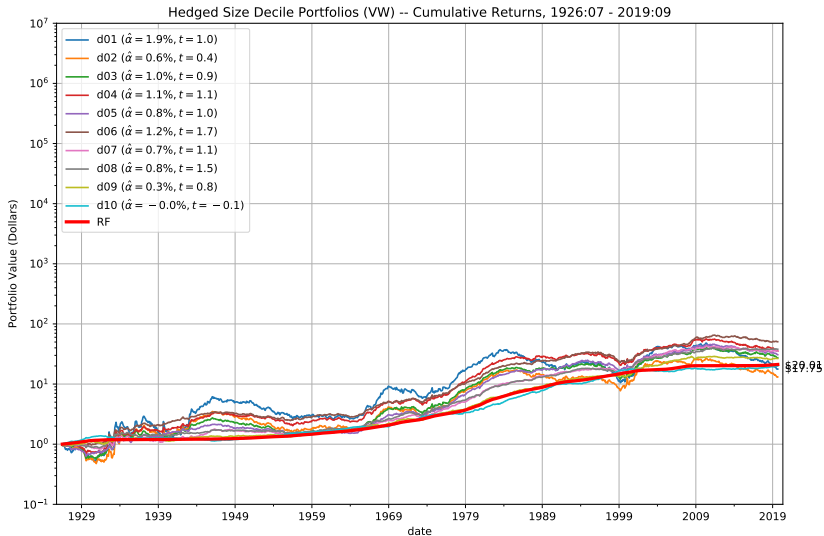
EW Size Decile Portfolio Returns



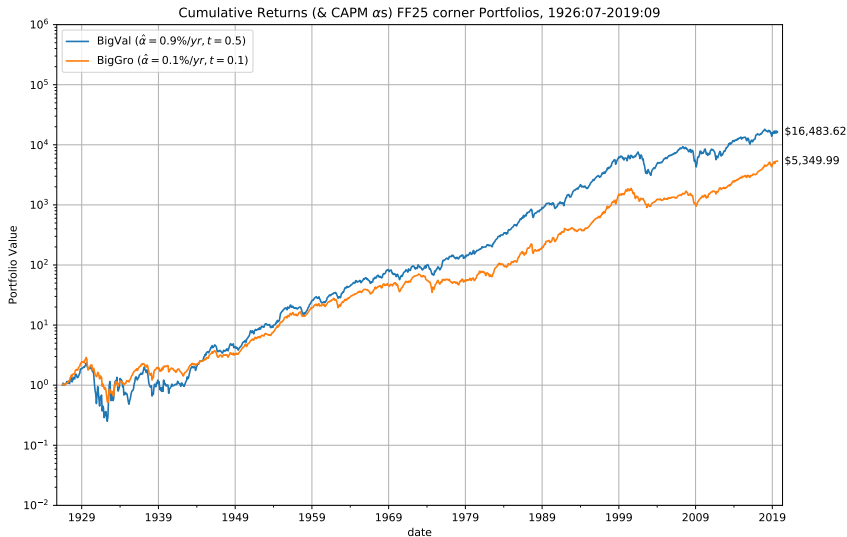
VW Size Decile Portfolio Returns



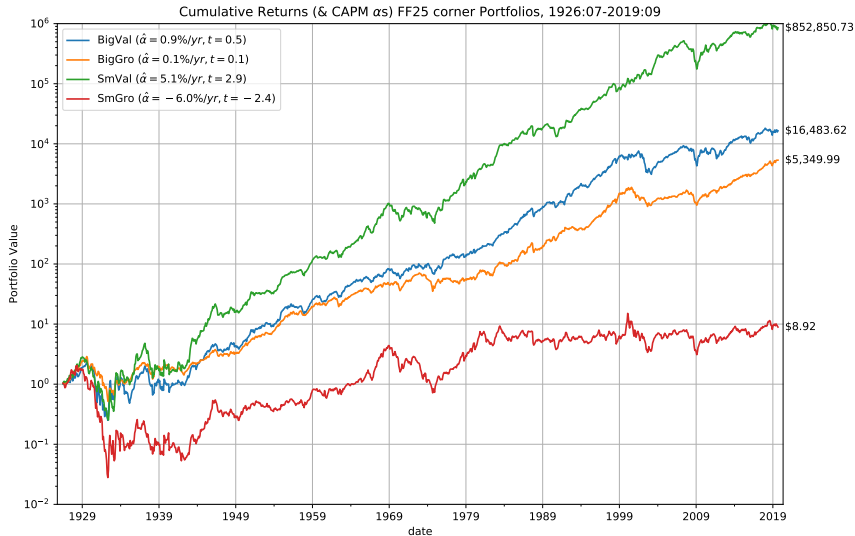
Size Decile Portfolio Returns



Size-Value Interactions



Size-Value Interactions



Are there *any* small, value, momentum funds?

- It was probably once true that you couldn't buy funds that had strong size/value/momentum/etc. tilts, defined based on metrics developed by academics.
- This is certainly not true now:
 - Fidelity/Vanguard small cap funds (FSSVX, NAESX)
 - NAESX tracks the CRSP small cap index, which has stocks between the 3rd and 15th percentile in Market Cap.
 - Fidelity/Vanguard small cap-value funds (FCPVX, VISVX)
 - AQR/Guggenheim momentum funds (AMOMX, RYAMX)
 - Numerous low-beta/low-volatility funds (AUEIX, SPLV,...)
- These are all passive and (relatively) low fee products.

Characteristics vs. Factor Loadings

- The paper has some interesting and relevant discussion of the difference between *characteristics* and *factor loadings*.
 - The authors make the point that the factor loadings don't line up with the characteristics.
- This is because the “factor portfolios” are not well designed.
 - A version of the Riesz representation theorem shows that you can construct a set of factors for which the loadings will be equal to the characteristics.
 - See Daniel, Mota, Rottke, and Santos (2018)

What is the Theory?

- There are a bunch of interesting facts here.
- As the authors correctly note, we don't have a good theory of what this distribution should look like.
- I would suggest expanding the analysis to include dynamics; a static theory won't explain the data:
 - There were no index funds before Jensen (1968); now index funds are ~\$7T AUM.
 - The distribution of fees has changed dramatically.
 - The first ETF (SPY) launched in 1993; 2,300 ETFs now manage ~\$3.4T.
 - There were no real “quant” funds before the academic metrics were developed.
 - Now we have DFA, AQR, and numerous others.
- What theory drives these dynamics?

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References I

- Banz, Rolf W., 1981, The relationship between return and market value of common stocks, *Journal of Financial Economics* 9, 3–18.
- Daniel, Kent, Lira Mota, Simon Rottke, and Tano Santos, 2018, The cross section of risk and return, Columbia Business School working paper.
- Fama, Eugene F., and Kenneth R. French, 2010, Luck versus skill in the cross-section of mutual fund returns, *The Journal of Finance* 65, 1915–1947.
- Jensen, Michael C, 1968, The performance of mutual funds in the period 1945-1964, *Journal of Finance* 23, 389–416.
- Keim, Donald B., 1983, Size-related anomalies and stock return seasonality: Further evidence, *Journal of Financial Economics* 12, 13–32.
- Lewellen, Jonathan, 2011, Institutional investors and the limits of arbitrage, *Journal of Financial Economics* 102, 62–80.