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November 4, 2015

Portfolio Strategy November 2015

Great Rotations: Hedge Funds and the Growth Stocks

Capitulate or Fight?

- Hedge fund favorites have had a rough couple of months. Stocks in the highest quintile of hedge fund ownership have lagged the market by (5) percentage points since the beginning of August, the fifth-worst spate of underperformance by stocks of that ilk in history. The only bigger collapses came during the implosion of the New Economy era in early-2000 and the throes of the financial crisis in late-2008.
- While erstwhile superstars like Valeant have garnered most of the headlines, we're more interested in whether we can learn anything from past hedge fund rotations that might help us this time around. Will they capitulate or fight on? Hedge funds today hold about 7% of the shares of the average large-cap stock, up seven-fold over the past decade-and-a-half, so they do exert a bigger influence than they have historically. As we've shown frequently in our research, understanding the character of the players on the opposing team is an advantage when drawing up the next play.

Giving Up On Growth?

- Back in mid-August, before global growth concerns boiled over, hedge funds' aggregate exposure to growth stocks was at its highest level since the lofty days of the New Economy; meanwhile their exposure to value was close to an all-time low. Since then, there's been a part-repudiation of that all-in bet on growth. Does that tell us anything about what might come next?
- In terms of future style performance the answer is no. We studied seven past episodes where hedge funds threw in the towel on the growth trade. In four instances that was the right call because value stocks outperformed in the next 12 months, but in the other three episodes growth stocks bounced back. Collectively the style-timing ability of hedge funds is a touch better than a coin toss, but it's not so high that we want to blindly follow their lead.
- In past hedge fund rotations we found the level of the market's valuation spread to be more deterministic to the performance of growth or value than hedge fund positioning per se. In the episodes where growth outperformed over the following year, the valuation spread averaged (0.8) standard deviations below the long-term average; when value won the average was +0.2 standard deviations. Today's reading is about +0.3, a starting point that's just in the value camp.

Macro Rotations Create Micro Opportunities

- We did find one alpha opportunity that has been consistently triggered when hedge funds capitulate on the growth trade: it's historically created opportunities to focus on stocks with sound fundamentals that might have been unfairly caught up in the rush to the exits. We noticed for example that our earnings quality and capital deployment frameworks both have a consistent track record of generating outperformance in the aftermath of a hedge fund rotation away from growth, irrespective of whether growth or value outperformed thereafter.
- Taking that a step further, we found our growth stock selection model has been particularly effective at sifting through the wreckage of a hedge fund growth capitulation. Appendix 2 on page 10 screens erstwhile hedge fund favorites that have been sold down a lot but still have the fundamental attributes our growth model is looking for. United Therapeutics, AerCap Holdings, and Voya Financial feature, among others.

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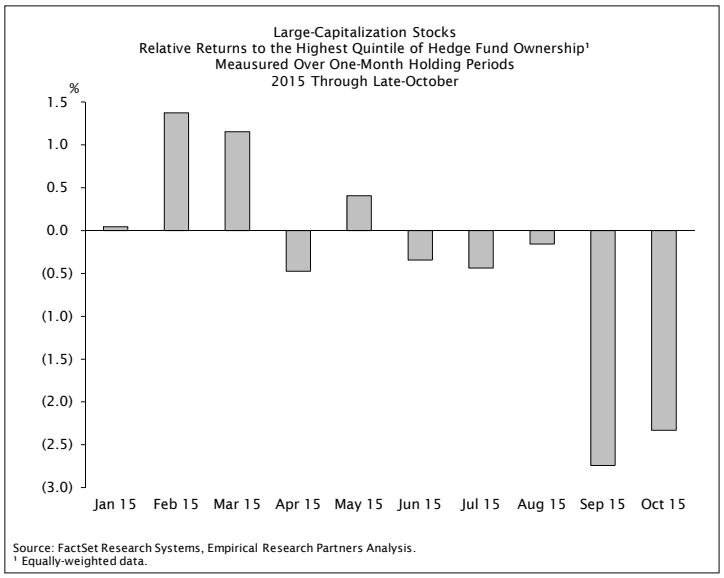
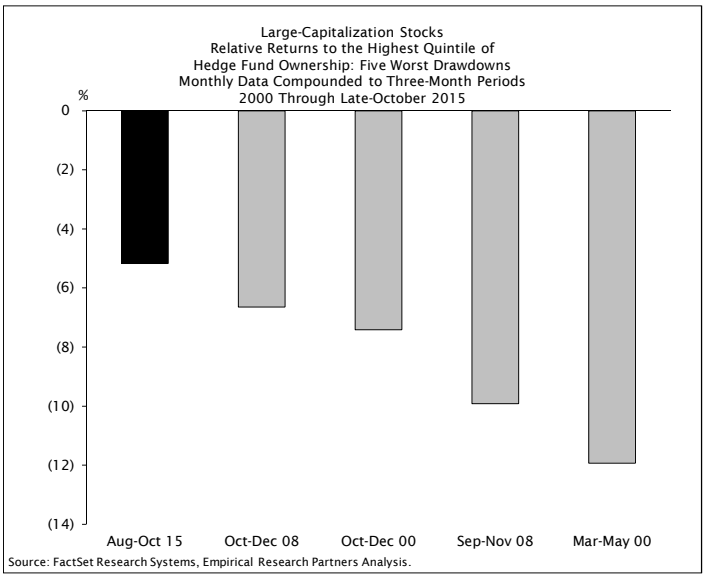
Conclusions in Brief

- Hedge fund favorites have had a rough couple of months:



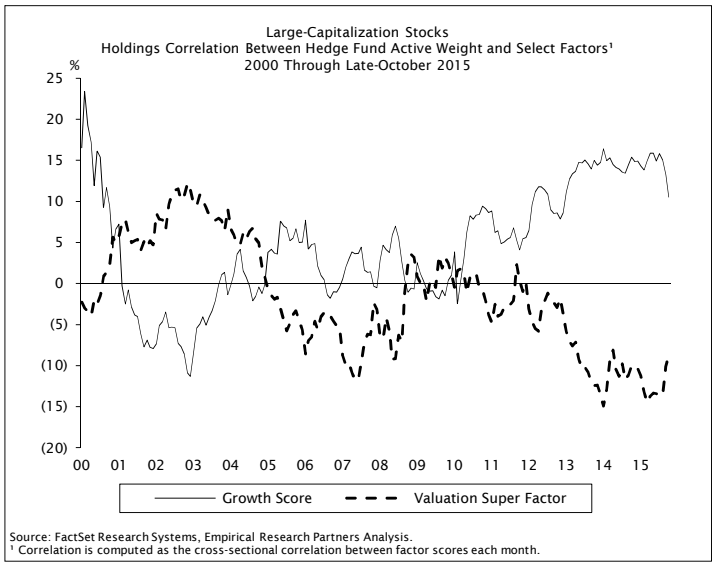
Source: FactSet Research Systems, Empirical Research Partners Analysis.
¹ Equally-weighted data.

- The recent underperformance is the fifth-worst in history:



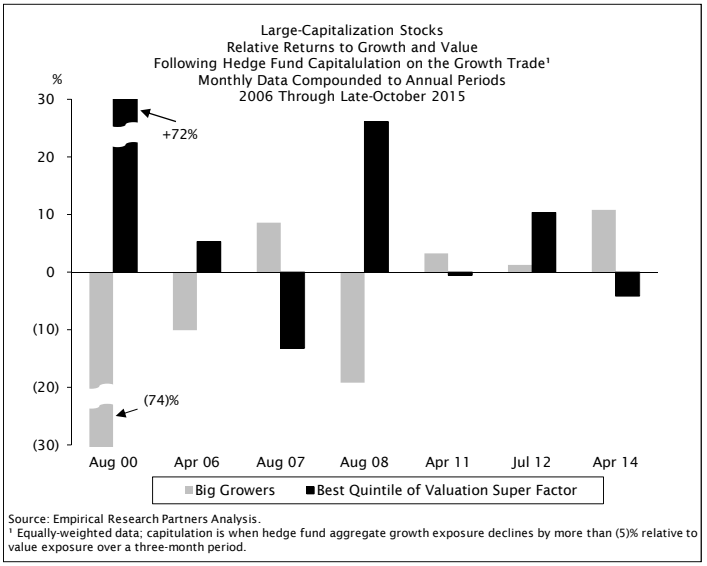
Source: FactSet Research Systems, Empirical Research Partners Analysis.

- Hedge funds' all-in growth bet has wavered…



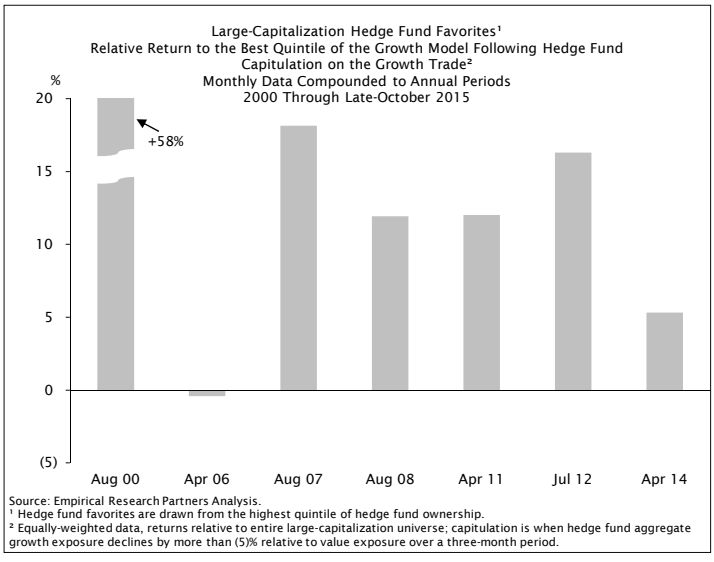
Source: FactSet Research Systems, Empirical Research Partners Analysis.
¹ Correlation is computed as the cross-sectional correlation between factor scores each month.

- …But that doesn't tell us much about future growth and value performance:



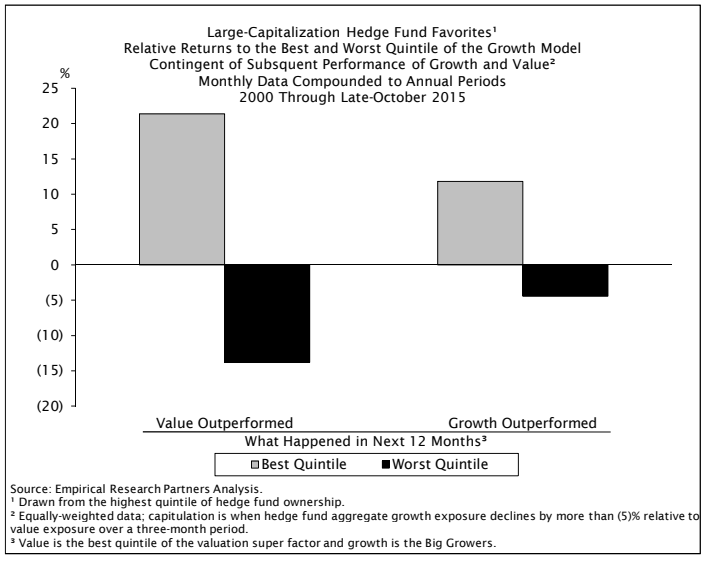
Source: Empirical Research Partners Analysis.
¹ Equally-weighted data; capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period.

- Hedge fund style rotations create opportunity for our growth model…



Source: Empirical Research Partners Analysis.
¹ Hedge fund favorites are drawn from the highest quintile of hedge fund ownership.
² Equally-weighted data, returns relative to entire large-capitalization universe; capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period.

- …Which has a good track record regardless of which style ultimately carries the day:



Source: Empirical Research Partners Analysis.
¹ Drawn from the highest quintile of hedge fund ownership.
² Equally-weighted data; capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period.
³ Value is the best quintile of the valuation super factor and growth is the Big Growers.

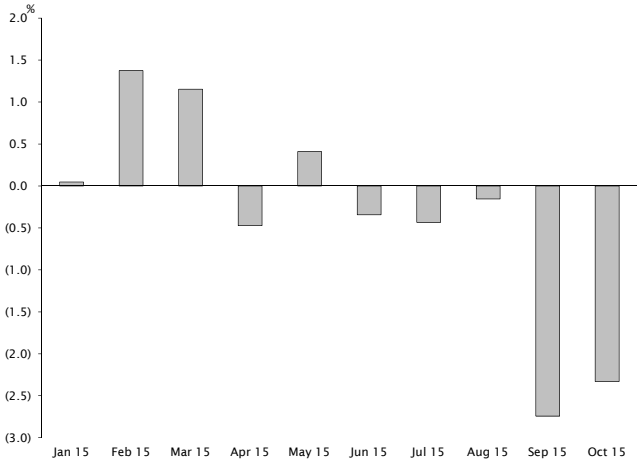
Great Rotations: Hedge Funds and the Growth Stocks

Capitulate or Fight?

Hedge funds love stocks with a good story, but when things go wrong they occasionally *become* the story. Much like past meltdowns, schadenfreude is rife as gleeful headlines excoriate the Masters of the Universe. However, as fun as it is to throw rotten tomatoes at the villainy-of-the-month, our goal is a bit more prosaic: can we learn anything from past hedge fund rotations that might help us this time around? Will they capitulate or fight on?

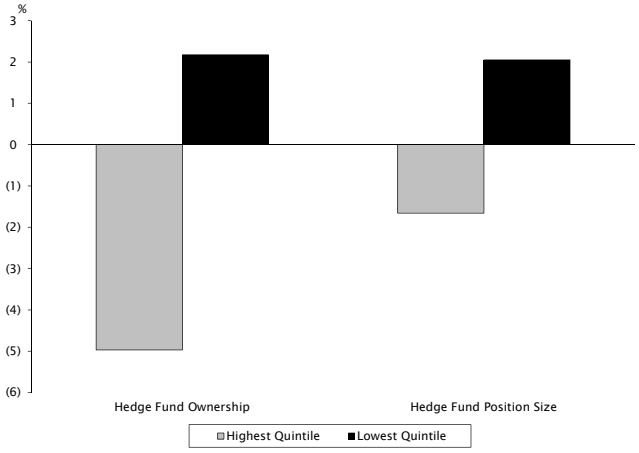
It's certainly true that some hedge fund darlings have been under tremendous pressure over the past couple of months (see Exhibit 1). Stocks in the highest quintile of hedge fund ownership, which measures the percent of a firm's share register held by hedge funds, have lagged the market by (5) percentage points since August (see Exhibit 2). Over that same period stocks that represent big dollar positions in the aggregate hedge fund portfolio were also down, albeit by only about (2) points. We see hedge fund position size as a closer proxy for the performance of hedge funds themselves, or at least that of their long-side equity allocations, because it captures the significance of a stock in the aggregate hedge fund portfolio rather than the significance of hedge funds in a given stock.[1]

Exhibit 1: Large-Capitalization Stocks
Relative Returns to the Highest Quintile of Hedge Fund Ownership[1]
Measured Over One-Month Holding Periods
2015 Through Late-October



Source: FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 2: Large-Capitalization Stocks
Relative Returns to the Highest and Lowest Quintiles of Hedge Fund Ownership and Hedge Fund Position Size
Monthly Data Compounded
August Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1] Equally-weighted data.

Regardless of which metric we use, Valeant is the star, or perhaps villain, of the show. Back in August, before the market's late-summer swoon, hedge funds held about a quarter of Valeant's shares (see Exhibit 3). Those holdings were large enough to represent almost 2% of the aggregate hedge fund portfolio (see Exhibit 4). Since then Valeant has underperformed by more than (50)%, followed by a number of fellow health care issues. SunEdison, another oft-cited hedge fund favorite, has also featured prominently in the sell-off.

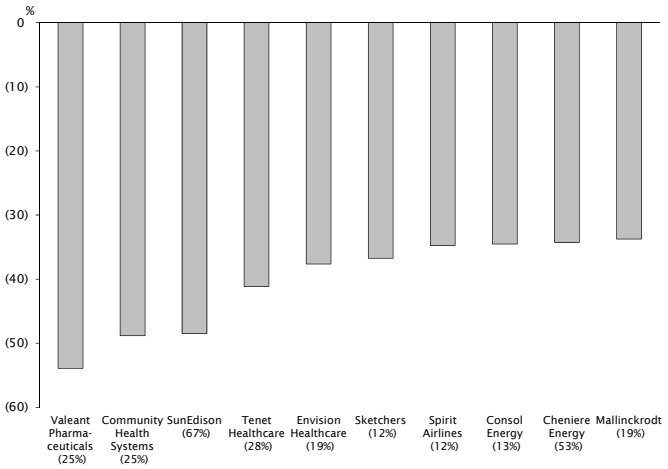
In fact, sector performance since mid-August has been highly correlated with the level of hedge fund ownership in each sector, with the possible exception of media and transports (see Exhibit 5). The heavily-owned pharmaceutical and biotechnology sectors in particular have been decimated. We recently studied health care in detail and came to the conclusion that hedge funds weren't the culprit, rather the rise of ETFs contributed in a bigger way.[2]

Nonetheless, we've consistently found that hedge funds can occasionally act as catalysts; they don't necessarily *cause* a sell-off, but they can certainly make it more violent. That's been true this time too. We took a look at the range of stock performance since August, among stocks with high and low hedge fund ownership (see Exhibit 6). Unsurprisingly the variance in outcomes since then has been a lot wider for stocks in the highest quintile of hedge fund ownership than for those in the lowest quintile.

[1] *Stock Selection: Research and Results* August 2015. "Hedge Funds: The Growth Gurus?"

[2] *Stock Selection: Research and Results* October 2015. "Health Care's Correction: A Technical Matter?"

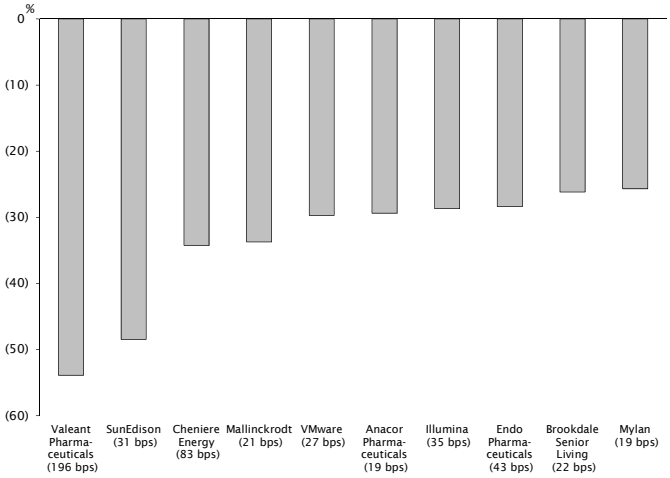
Exhibit 3: Large-Capitalization Stocks
Relative Returns to Ten Worst Performers Drawn from the Highest Quintile of Hedge Fund Ownership[1]
Mid-August Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1] Numbers in parentheses denote hedge fund ownership at start of period in mid-August 2015.

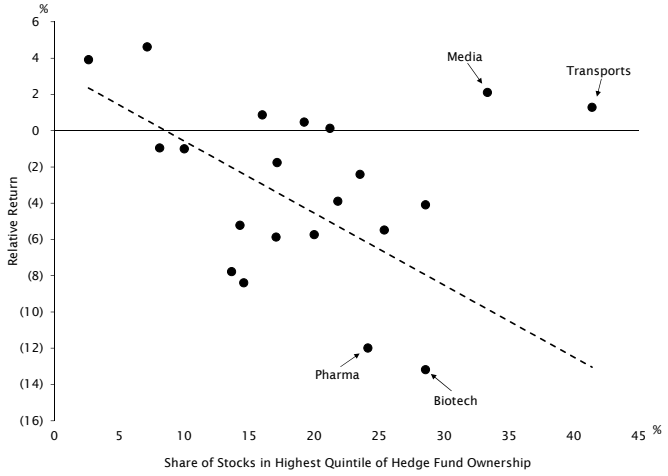
Exhibit 4: Large-Capitalization Stocks
Relative Returns to Ten Worst Performers Drawn from the Highest Quintile of Hedge Fund Position Size[1]
Mid-August Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1] Numbers in parentheses denote weight in aggregate hedge fund portfolio at start of period in mid-August 2015.

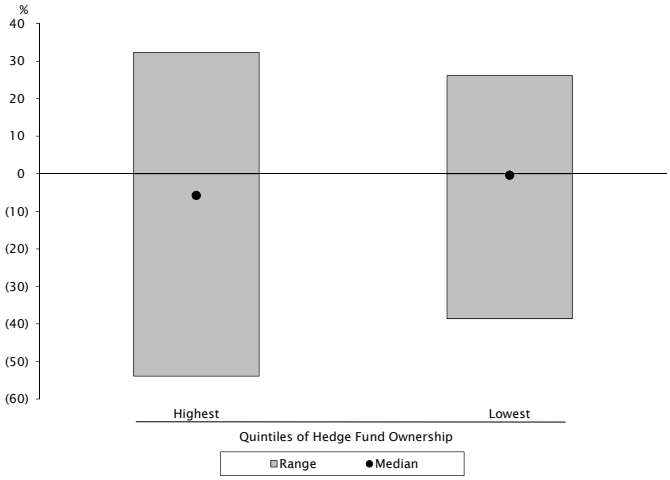
Exhibit 5: Large-Capitalization Stocks
Relative Returns Versus Hedge Fund Ownership by Sector[1]
Mid-August Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1] Returns are equally-weighted; sector's hedge fund ownership is measured as share of stocks in sector that are drawn from the highest quintile of hedge fund ownership, as of mid-August 2015; trend line is ex-media and transports.

Exhibit 6: Large-Capitalization Stocks
Distribution of Relative Returns by Quintile of Hedge Fund Ownership
Mid-August Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

In our view, keeping an eye on who else is invested in a stock has become a basic tenant of risk management these days, because the loss aversion of the players involved is having a bigger influence on the outcome than it has in the past. At the start of the year we built a screen to track the holdings of aggressive owners, which includes the likes of hedge funds, growth managers, high-turnover traders, and short sellers.[3] Having aggressive shareholders on the register isn't automatically good or bad, but it does mean things can transpire quicker, for better or worse.

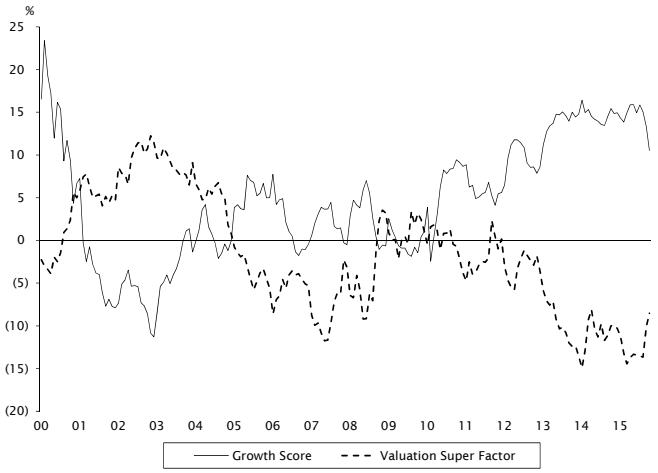
Appendix 1 on page 9 lists stocks that currently have an aggressive clientele chomping at the bit and also exhibit high arbitrage risk. Halloween may be over, but be prepared for frights here.

[3] *Stock Selection: Research and Results* January 2015. "A New Aggressive Ownership Indicator."

Giving Up On Growth?

The savage sell-off in hedge fund-owned sectors is just the most visible manifestation of a bigger underlying force: a part-repudiation of the growth trade by hedge funds. In the post-Crisis years hedge funds had steadily dialed-up their growth exposure, and before August's turmoil it hit its highest level since the heady days of the New Economy (see Exhibit 7). But over the past few months their all-in bet on growth has started to waver. That's significant because hedge funds hold about seven times more shares than they did 15 years ago, so the impact of their style reversal is magnified compared to history (see Exhibit 8).

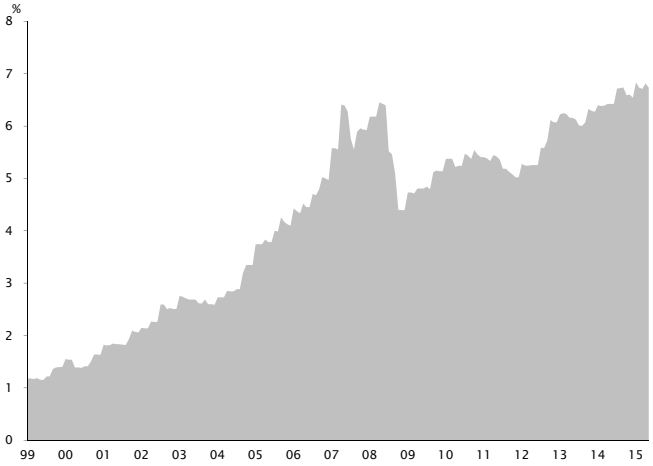
Exhibit 7: Large-Capitalization Stocks
Holdings Correlation Between Hedge Fund Active Weight and Select Factors[1]
2000 Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1] Correlation is computed as the cross-sectional correlation between factor scores each month.

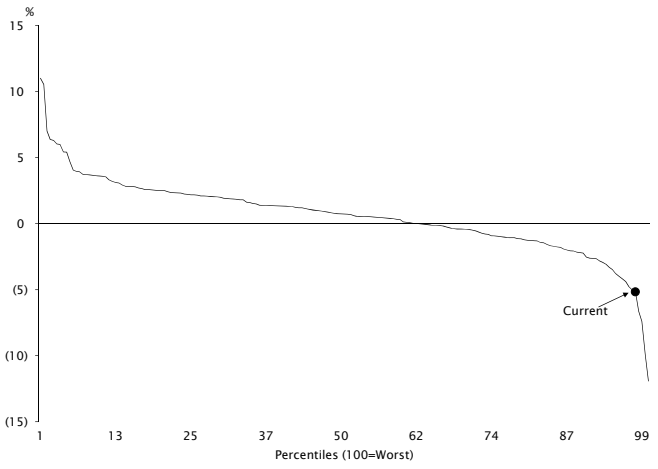
Exhibit 8: Large-Capitalization Stocks
Share of Ownership by Hedge Funds
1999 Through September 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

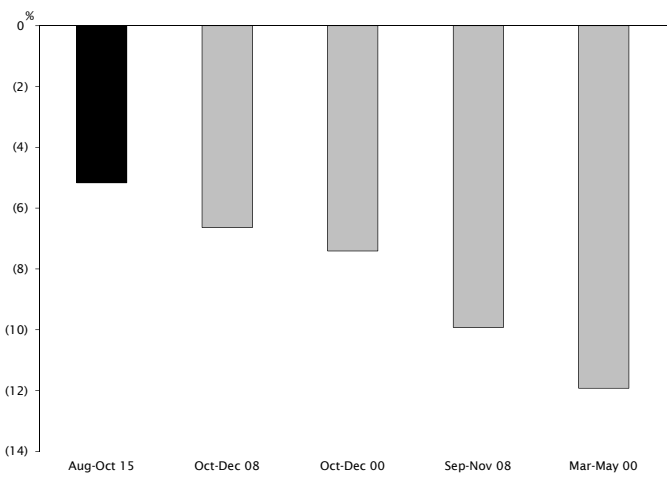
Certainly the magnitude of the underperformance of stocks with high hedge fund ownership has been large by historical standards; the (5) percentage point sell-off over the past three months ranks in the 97th percentile of history (see Exhibit 9). The only episodes worse than today's came either in the darkest days of the financial crisis at the end 2008 or in the New Economy meltdown at the beginning of 2000 (see Exhibit 10).

Exhibit 9: Large-Capitalization Stocks
Relative Returns to the Highest Quintile of Hedge Fund Ownership
Monthly Data Compounded to Three-Month Periods
2000 Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

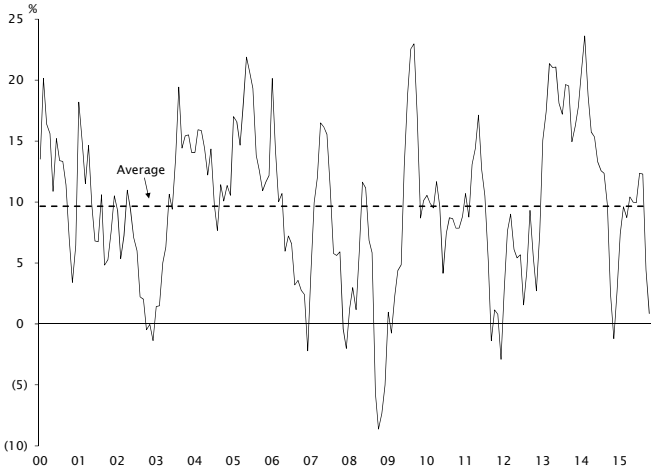
Exhibit 10: Large-Capitalization Stocks
Relative Returns to the Highest Quintile of Hedge Fund Ownership: Five Worst Drawdowns
Monthly Data Compounded to Three-Month Periods
2000 Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

Meanwhile, with a number of formerly high flying momentum stocks reversing course, hedge funds' exposure to price momentum has fallen to levels only seen six times before (see Exhibit 11). Like in those episodes, the trend ultimately proved to be a fair weather friend. The question now is whether hedge funds will give up on the growth/momentum complex completely and jump fully into the value trade, or will they grit their teeth and double down on the beaten-up growth stocks? Or does it even matter what they do?

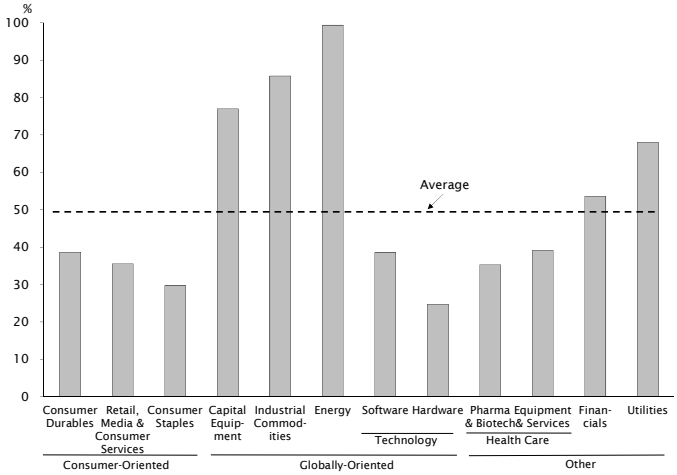
Exhibit 11: Large-Capitalization Stocks
Holdings Correlation Between Hedge Fund Active Weight and Nine-Month Price Trends[1]
2000 Through Late-October 2015



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1] Correlation is computed as the cross-sectional correlation between factor scores each month.

Exhibit 12: The U.S.
Intra-Sectoral Valuation Spreads[1]
Current Readings Compared to Long-Term History
Percentiles (1=Narrowest, 100=Widest)
1952 Through Early-October 2015

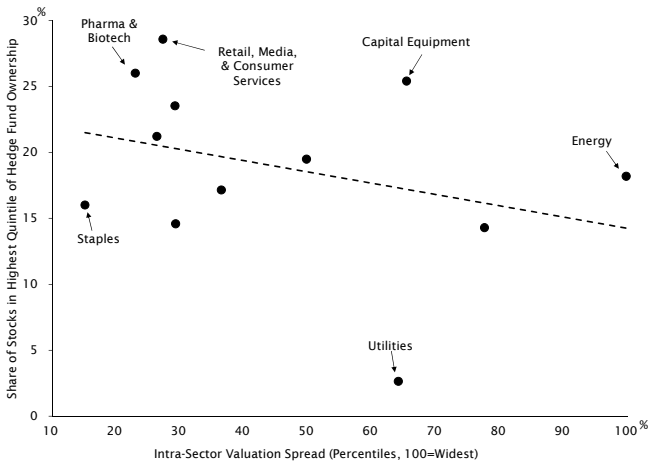


Source: Empirical Research Partners Analysis.

[1] Based on an analysis of a 1,500 stock universe. Framework varies across sectors depending on what's efficacious.

Part of the answer lies in the valuation spreads (see Exhibit 12). Back in August hedge funds were mostly underweight the wide-spread sectors and overweight those with narrower spreads (see Exhibit 13). As the spreads widened they lightened their growth tilt a bit, but they're still much more pro-growth compared to other times when the valuation spreads hit half a standard deviation above average, roughly today's reading (see Exhibit 14). In other words, hedge funds haven't yet been fully tempted by emerging value opportunities in wide-spread sectors like energy, commodities, and capital equipment.

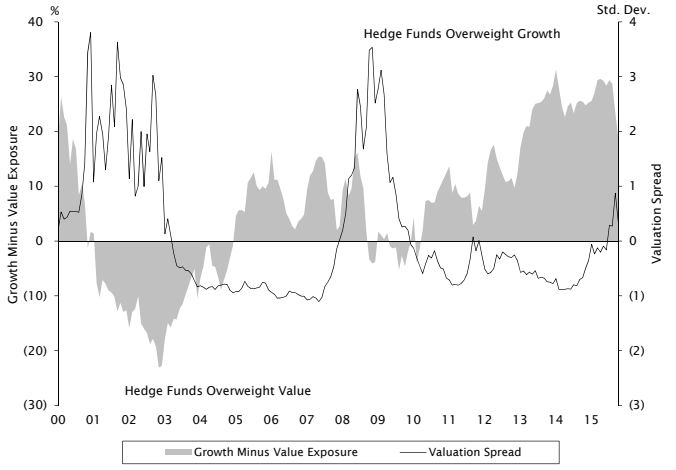
Exhibit 13: Large-Capitalization Stocks
Sector Hedge Fund Ownership Versus Intra-Sector Valuation Spread[1]
As of Mid-August 2015



Source: Empirical Research Partners Analysis.

[1] Hedge fund ownership is measured as share of stocks in sector that are drawn from the highest quintile of hedge fund ownership, as of mid-August 2015; intra-sector valuation spread is as of end-July 2015.

Exhibit 14: Large-Capitalization Stocks
Hedge Funds' Growth Minus Value Exposure and the Valuation Spread
2000 Through Late-October 2015

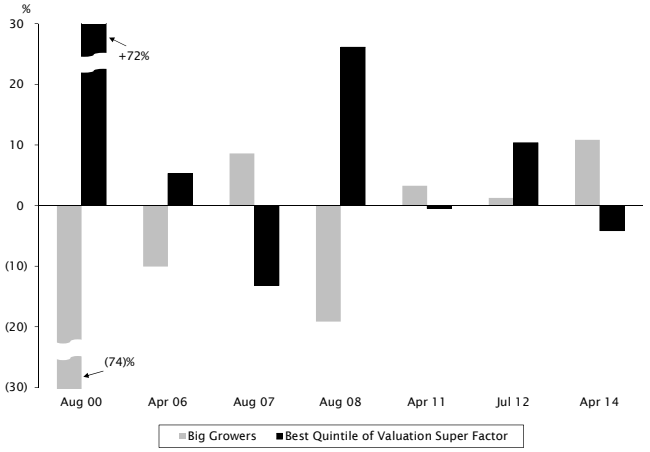


Source: FactSet Research Systems, Empirical Research Partners Analysis.

We went back and looked at whether there's any useful information in hedge funds' collective style rotations. Exhibit 15 shows how value and growth stocks performed in the year after hedge funds capitulated on the growth trade. That's happened seven times in our data, and the results are a mixed bag. In four out of the seven episodes reducing their growth exposure was the right call because value subsequently outperformed. In the other three episodes it wasn't, because the old growth leadership reasserted itself.

So watching changes in the collective hedge fund growth/value tilt isn't a particularly fruitful guide to the future: they haven't been much better than a coin toss. It turns out the valuation spread is much more deterministic to the fate of growth and value after a hedge fund style rotation (see Exhibit 16). In the three instances where growth stocks rebounded after a sell-off, the average starting valuation spread was (0.8) standard deviations below the mean; in the episodes where value won the spread averaged +0.2. Rather than breathlessly watching what hedge funds are doing we're much better off leaning on our old friend the valuation spread for style guidance.

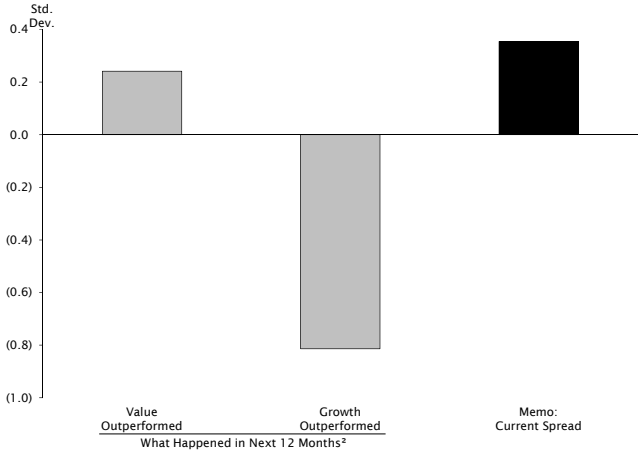
Exhibit 15: Large-Capitalization Stocks
Relative Returns to Growth and Value Following Hedge Fund Capitulation on the Growth Trade[1]
Monthly Data Compounded to Annual Periods
2000 Through Late-October 2015



Source: Empirical Research Partners Analysis.

[1] Equally-weighted data; capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period.

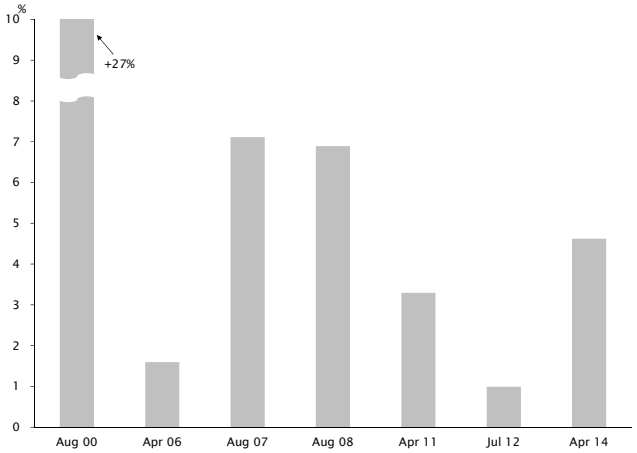
Exhibit 16: Large-Capitalization Stocks
Average Valuation Spread Reading When Hedge Funds Capitulated on the Growth Trade[1]
2000 Through Late-October 2015



Source: Empirical Research Partners Analysis.

[1] Capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period; includes seven episodes since 2000.
[2] Equally-weighted returns; value is the best quintile of the valuation super factor and growth is the Big Growers.

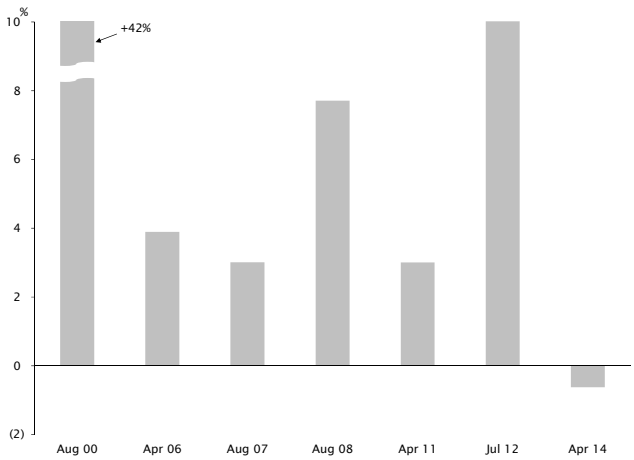
Exhibit 17: Large-Capitalization Stocks
Relative Return to the Best Quintile of Earnings Quality Following Hedge Fund Capitulation on the Growth Trade[1]
Monthly Data Compounded to Annual Periods
2000 Through Late-October 2015



Source: Empirical Research Partners Analysis.

[1] Equally-weighted data; capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period.

Exhibit 18: Large-Capitalization Stocks
Relative Return to the Best Quintile of Capital Deployment Following Hedge Fund Capitulation on the Growth Trade[1]
Monthly Data Compounded to Annual Periods
2000 Through Late-October 2015



Source: Empirical Research Partners Analysis.

[1] Equally-weighted data; capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period.

However, we did spot one alpha opportunity that's triggered by hedge fund growth capitulations: it's historically created an opportunity to focus on stocks with sound fundamentals that might have been unfairly caught up in the panic. Both our earnings quality and capital deployment frameworks have a consistent track record of generating outperformance in the aftermath of a hedge fund rotation away from growth, irrespective of whether growth or value outperformed thereafter (see Exhibits 17 and 18 overleaf).

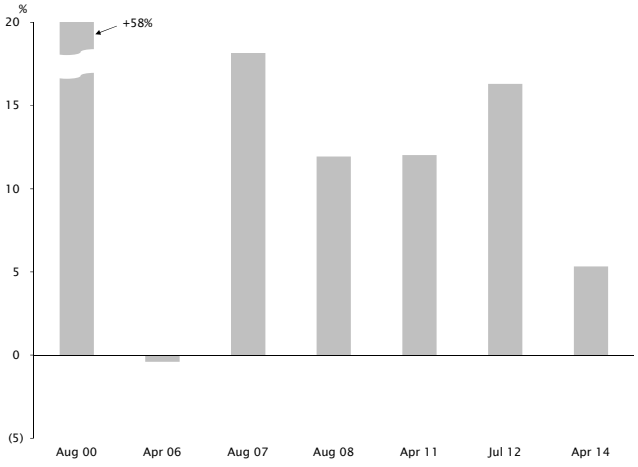
Conclusion: Macro Rotations Create Micro Opportunities

Taking that a step further, we looked at how our growth model has performed in sifting through the wreckage of a hedge fund growth capitulation (see Exhibit 19). It turns out it's done a good job of picking out erstwhile hedge fund favorites that were oversold in the moment but rebounded strongly as things settled down. What's nice about its track record is it didn't really matter whether (with the benefit of hindsight) growth regained the leadership thereafter or value carried the day (see Exhibit 20). The growth stocks picked by the model were generally sold down so much that even if value outperformed over the next 12 months they still managed to beat the market.

For example, in July 2012 hedge funds pulled back from the growth trade sharply. That turned out to be a wise move because value outperformed by +10 percentage points in the following 12 months. But even against that stiff headwind the stocks with the highest hedge fund ownership *and* the best growth model scores outperformed by more than +15 points. On the other hand, at the end of the first quarter of last year, growth stocks rebounded strongly after suffering a sharp sell-off and reclaimed their lost leadership. In that episode stocks with high hedge fund ownership and good growth model scores also outperformed, by about +5 points in the following year. The moral of the story is that hedge funds collectively aren't much better at predicting growth versus value than anyone else, but their style rotations can help create stock-level opportunities that are consistently exploitable. All of this is consistent with recent academic research which showed that hedge fund managers who had the conviction to "double down" on their losing positions ended up producing twice the alpha on those trades compared to the rest of their portfolios.[4] Giving up too easily, under the guise of risk management, is endemic in the loss-averse post-Crisis world.

Appendix 2 on page 10 lists stocks that were in the highest quintile of hedge fund ownership back in August and today are in the best two quintiles of the growth model. We've sorted by the stocks' relative returns since mid-August, to highlight those that have been sold down a lot but still rank well fundamentally.

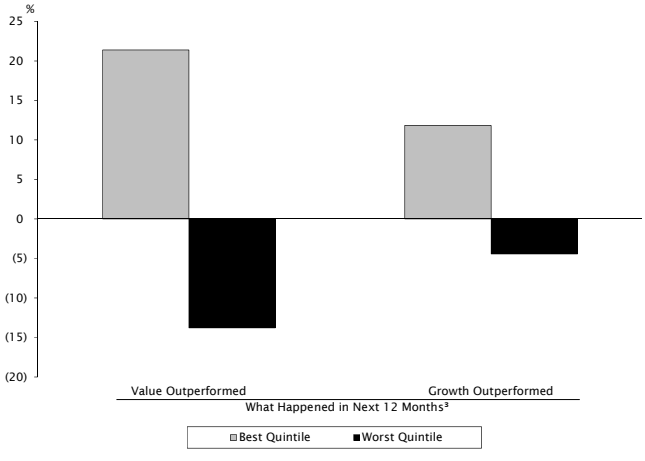
Exhibit 19: Large-Capitalization Hedge Fund Favorites[1] Relative Return to the Best Quintile of the Growth Model Following Hedge Fund Capitulation on the Growth Trade[2] Monthly Data Compounded to Annual Periods 2000 Through Late-October 2015



Source: Empirical Research Partners Analysis.

[1] Hedge fund favorites are drawn from the highest quintile of hedge fund ownership.
[2] Equally-weighted data, returns relative to entire large-capitalization universe; capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period.

Exhibit 20: Large-Capitalization Hedge Fund Favorites[1] Relative Returns to the Best and Worst Quintile of the Growth Model Contingent of Subsequent Performance of Growth and Value[2] Monthly Data Compounded to Annual Periods 2000 Through Late-October 2015



Source: Empirical Research Partners Analysis.

[1] Drawn from the highest quintile of hedge fund ownership.
[2] Equally-weighted data; capitulation is when hedge fund aggregate growth exposure declines by more than (5)% relative to value exposure over a three-month period.
[3] Value is the best quintile of the valuation super factor and growth is the Big Growers.

[4] Jonathan Rhinesmith, 2014. "Doubling Down." Harvard University Working Paper.

Appendix 1: Large-Capitalization Stocks
Highest Quintile of Aggressive Ownership and Arbitrage Risk
Sorted by Market Capitalization
As of Late-October 2015

				Catalysts				Quintile Ranks (1=Best; 5=Worst)						
						Mergers &		Super Factors						
			Aggressive Ownership (1=Highest;	New	Targeted by	Acquisitions Analysis	Arbitrage Risk			Earnings Quality		Core	Core Failure	Market
Symbol	Company	Price	5=Lowest)	CEO (1=Yes)	Activist (1=Yes)	(1=Best; 5=Worst)	(1=Lowest; 5=Highest)	Valuation	Capital Deployment	and Trend	Market Reaction	Model Rank	Candidate (1=Yes)	Capitalization ($ Billion)
AGN	ALLERGAN PLC	$268.55	1	-	-	-	5	5	5	5	5	5	-	$105.7
NFLX	NETFLIX INC	100.04	1	-	1	-	5	5	4	5	2	5	-	42.8
VRX	VALEANT PHARMACEUTICALS INTL	116.16	1	-	-	-	5	4	4	2	4	4	-	39.8
YHOO	YAHOO INC	33.17	1	-	-	-	5	5	2	5	5	5	1	31.2
WMB	WILLIAMS COMPANIES INC	39.20	1	-	1	5	5	5	5	1	4	4	-	29.4
BHI	BAKER HUGHES INC	53.93	1	-	1	-	5	3	2	3	4	3	-	23.5
NXPI	NXP SEMICONDUCTORS NV	96.09	1	-	-	-	5	5	4	2	2	4	-	22.3
UAL	UNITED CONTINENTAL HLDGS INC	59.68	1	-	-	-	5	1	2	4	4	2	-	22.3
ILMN	ILLUMINA INC	147.43	1	-	-	-	5	5	5	3	5	5	1	21.3
PXD	PIONEER NATURAL RESOURCES CO	137.39	1	-	1	-	5	5	5	2	3	5	1	20.5
MYL	MYLAN NV	40.96	1	-	-	-	5	2	5	5	5	5	1	20.1
MU	MICRON TECHNOLOGY INC	17.24	1	-	-	-	5	1	2	5	5	2	-	18.7
TAP	MOLSON COORS BREWING CO	88.48	1	1	-	-	5	4	3	3	3	4	-	16.4
EXPE	EXPEDIA INC	125.41	1	-	-	3	5	2	3	4	1	1	-	16.2
IBKR	INTERACTIVE BROKERS GROUP	39.31	1	-	-	-	5	5	5	na	1	5	-	16.1
DLTR	DOLLAR TREE INC	62.53	1	-	-	-	5	4	5	5	4	5	-	14.7
ENDP	ENDO PHARMACEUTICALS HOLDINGS	56.60	1	-	-	-	5	3	4	3	5	5	-	12.8
TSO	TESORO CORP	103.63	1	-	-	-	5	1	2	2	1	1	-	12.8
TRIP	TRIPADVISOR INC	82.90	1	-	-	-	5	5	5	4	2	5	-	11.9
LNG	CHENIERE ENERGY INC	46.43	1	-	1	-	5	5	5	5	5	5	1	11.0
COTY	COTY INC	28.59	1	-	-	5	5	5	5	3	1	4	-	10.3
ALK	ALASKA AIR GROUP INC	79.09	1	-	-	-	5	3	2	3	1	2	-	10.1
CVC	CABLEVISION SYSTEMS CORP -CL A	32.71	1	-	-	-	5	3	2	5	1	2	-	9.1
HTZ	HERTZ GLOBAL HOLDINGS INC	19.22	1	-	-	-	5	2	5	5	4	5	-	8.8
FIT	FITBIT INC	38.47	1	-	-	-	5	5	5	5	1	5	-	8.0
CIT	CIT GROUP INC	45.76	1	-	-	-	5	1	1	na	3	1	-	7.9
JBLU	JETBLUE AIRWAYS CORP	24.97	1	1	-	-	5	2	5	2	1	2	-	7.9
MNK	MALLINCKRODT PLC	65.75	1	-	-	-	5	2	5	5	5	5	-	7.7
KORS	MICHAEL KORS HOLDINGS LTD	38.53	1	-	-	-	5	1	4	5	5	4	-	7.5
MDVN	MEDIVATION INC	45.19	1	-	-	-	5	5	4	3	3	3	1	7.4
URI	UNITED RENTALS INC	73.96	1	-	-	-	5	1	3	1	4	1	-	7.1
LULU	LULULEMON ATHLETICA INC	48.49	1	-	-	-	5	5	4	5	5	5	1	6.8
NFX	NEWFIELD EXPLORATION CO	39.39	1	-	-	-	5	4	5	4	1	4	-	6.4
ATHN	ATHENAHEALTH INC	163.37	1	-	-	-	5	5	5	5	4	5	1	6.3
FTR	FRONTIER COMMUNICATIONS CORP	5.40	1	1	-	3	5	1	1	4	4	2	-	6.3
DATA	TABLEAU SOFTWARE INC	83.70	1	-	-	-	5	5	5	4	3	5	1	6.0
ZG	ZILLOW GROUP INC	32.90	1	-	-	-	5	5	5	5	3	5	1	5.8
UTHR	UNITED THERAPEUTICS CORP	126.04	1	1	-	-	5	1	1	1	5	1	-	5.8
RIG	TRANSOCEAN LTD	15.75	1	-	-	-	5	1	1	1	2	1	-	5.7
SGEN	SEATTLE GENETICS INC	40.42	1	-	-	-	5	5	3	5	1	3	-	5.5
ALGN	ALIGN TECHNOLOGY INC	67.97	1	-	-	-	5	5	5	4	1	4	1	5.4
RRC	RANGE RESOURCES CORP	31.32	1	-	1	-	5	2	4	2	5	3	-	5.3
CHK	CHESAPEAKE ENERGY CORP	7.83	1	-	-	-	5	1	1	4	5	1	-	5.2
EVHC	ENVISION HEALTHCARE HLDGS	27.57	1	-	-	-	5	4	5	4	5	5	-	5.1
PPC	PILGRIM'S PRIDE CORP	19.71	1	-	-	-	5	1	3	1	5	2	-	5.1
NRG	NRG ENERGY INC	14.02	1	-	-	-	5	1	1	4	4	1	-	4.6
SWN	SOUTHWESTERN ENERGY CO	11.18	1	-	1	-	5	1	5	2	5	1	-	4.3
PWR	QUANTA SERVICES INC	19.48	1	-	-	-	5	1	4	5	5	4	-	4.0
BKD	BROOKDALE SENIOR LIVING INC	21.29	1	-	1	-	5	4	5	5	5	5	1	4.0
BBRY	BLACKBERRY LTD	7.32	1	-	-	4	5	2	1	3	5	2	-	3.8
SCTY	SOLARCITY CORP	39.24	1	-	1	-	5	5	5	5	5	5	1	3.8
WLL	WHITING PETROLEUM CORP	18.15	1	-	-	-	5	1	5	5	5	3	-	3.7
RAX	RACKSPACE HOSTING INC	25.01	1	-	-	-	5	1	3	4	5	3	-	3.6
SFM	SPROUTS FARMERS MARKET	22.39	1	-	-	-	5	4	5	5	5	5	1	3.4
CYH	COMMUNITY HEALTH SYSTEMS INC	28.71	1	-	1	-	5	1	2	3	5	2	-	3.4
THC	TENET HEALTHCARE CORP	29.99	1	-	-	-	5	1	2	2	5	2	-	3.0
SAVE	SPIRIT AIRLINES INC	39.79	1	-	-	-	5	2	5	4	5	5	-	3.0
HUN	HUNTSMAN CORP	11.58	1	-	-	-	5	1	3	3	5	3	-	2.8
PBYI	PUMA BIOTECHNOLOGY INC	87.87	1	-	-	-	5	5	5	5	5	5	1	2.8
SUNE	SUNEDISON INC	7.77	1	-	-	5	5	5	5	5	5	5	1	2.4
CNX	CONSOL ENERGY INC	9.50	1	-	1	-	5	1	4	3	5	3	-	2.2
WIN	WINDSTREAM HOLDINGS INC	7.18	1	1	-	-	5	1	5	5	5	4	-	0.7

Source: Empirical Research Partners Analysis.

Appendix 2: Large-Capitalization Erstwhile Hedge Fund Favorites[1]
Best Two Quintiles of the Growth Model
Sorted by Growth Model Rank and Relative Return Since Mid-August
As of Late-October 2015

					Quintile Ranks (1=Best; 5=Worst)					
					Super Factors					
Symbol	Company	Price	Relative Return Since Mid-August	Hedge Fund Ownership in Mid-August (1=Highest)	Capital Deployment	Earnings Quality and Trend	Market Reaction	Valuation	**Growth Model Rank**	Market Capitalization ($ Billion)
UTHR	UNITED THERAPEUTICS CORP	$143.55	(22.0) %	1	1	1	2	2	**1**	$6.6
AER	AERCAP HOLDINGS NV	40.98	(13.4)	1	1	4	2	2	**1**	8.1
VOYA	VOYA FINANCIAL INC	40.57	(9.9)	1	2	na	4	1	**1**	9.2
HOT	STARWOOD HOTELS & RESORTS WORLDWIDE INC	78.88	(9.2)	1	1	2	3	3	**1**	13.4
HII	HUNTINGTON INGALLS IND INC	113.82	(8.8)	1	1	1	3	2	**1**	5.5
ALLY	ALLY FINANCIAL INC	19.85	(8.7)	1	4	na	2	1	**1**	9.6
HOLX	HOLOGIC INC	38.67	(7.6)	1	2	1	1	5	**1**	10.9
NUAN	NUANCE COMMUNICATIONS INC	16.96	(7.1)	1	4	1	2	3	**1**	5.3
SPR	SPIRIT AEROSYSTEMS HOLDINGS	53.08	(7.0)	1	3	1	1	3	**1**	7.5
DRI	DARDEN RESTAURANTS INC	62.43	(6.7)	1	1	1	2	2	**1**	8.0
SCI	SERVICE CORP INTERNATIONAL	28.17	(6.2)	1	1	1	1	3	**1**	5.6
DISH	DISH NETWORK CORP	63.44	(5.8)	1	1	1	4	3	**1**	29.4
SC	SANTANDER CONSUMER USA HLDGS	18.86	(4.7)	1	5	na	2	1	**1**	6.7
CIT	CIT GROUP INC	44.01	(2.4)	1	1	na	3	1	**1**	7.6
ALSN	ALLISON TRANSMISSION HLDGS	28.32	(1.9)	1	1	1	4	3	**1**	4.8
TSO	TESORO CORP	108.99	(1.6)	1	3	2	1	1	**1**	13.4
CCE	COCA-COLA ENTERPRISES INC	51.12	(0.5)	1	2	2	1	2	**1**	11.7
EBAY	EBAY INC	28.18	(0.1)	1	1	1	1	1	**1**	33.9
CDNS	CADENCE DESIGN SYSTEMS INC	22.04	1.4	1	3	1	1	3	**1**	6.6
ALK	ALASKA AIR GROUP INC	75.77	2.5	1	2	2	1	2	**1**	9.6
FLEX	FLEXTRONICS INTERNATIONAL	11.42	2.5	1	1	4	2	1	**1**	6.4
CSC	COMPUTER SCIENCES CORP	66.18	3.5	1	1	3	3	1	**1**	9.2
GT	GOODYEAR TIRE & RUBBER CO	31.79	5.6	1	1	1	1	1	**1**	8.5
EXPE	EXPEDIA INC	127.06	7.5	1	5	2	1	2	**1**	16.5
UAL	UNITED CONTINENTAL HLDGS INC	60.25	8.3	1	2	2	3	1	**1**	22.5
IPG	INTERPUBLIC GROUP OF COS	22.76	9.1	1	1	2	2	3	**1**	9.2
URI	UNITED RENTALS INC	74.26	12.3	1	3	1	2	1	**1**	6.9
DAL	DELTA AIR LINES INC	50.50	12.4	1	1	3	1	1	**1**	39.7
LEA	LEAR CORP	123.64	13.3	1	1	1	1	1	**1**	9.3
NVR	NVR INC	1,634.32	13.4	1	2	1	1	3	**1**	6.5
JBLU	JETBLUE AIRWAYS CORP	24.93	14.2	1	5	3	1	2	**1**	7.9
VRSN	VERISIGN INC	80.74	14.3	1	1	2	1	3	**1**	9.0
CAR	AVIS BUDGET GROUP INC	49.87	14.6	1	2	1	3	1	**1**	5.2
GPN	GLOBAL PAYMENTS INC	136.43	17.5	1	2	1	1	2	**1**	8.9
MRVL	MARVELL TECHNOLOGY GROUP LTD	8.22	(23.2)	1	1	5	5	1	**2**	4.3
FOSL	FOSSIL GROUP INC	53.01	(17.3)	1	1	2	5	1	**2**	2.6
CHK	CHESAPEAKE ENERGY CORP	6.94	(15.8)	1	1	5	5	1	**2**	4.6
DG	DOLLAR GENERAL CORP	67.29	(14.4)	1	2	3	3	2	**2**	19.8
CFG	CITIZENS FINANCIAL GROUP INC	24.11	(11.6)	1	1	na	4	2	**2**	12.7
CPN	CALPINE CORP	14.94	(11.0)	1	1	1	5	2	**2**	5.4
IACI	IAC/INTERACTIVECORP	67.12	(8.5)	1	2	3	4	2	**2**	5.6
NXPI	NXP SEMICONDUCTORS NV	73.00	(6.4)	1	4	1	3	4	**2**	17.0
SEE	SEALED AIR CORP	49.11	(5.6)	1	4	1	1	3	**2**	10.3
ETFC	E TRADE FINANCIAL CORP	28.59	(3.9)	1	4	na	1	2	**2**	8.3
MHK	MOHAWK INDUSTRIES INC	192.39	(2.6)	1	5	1	2	3	**2**	14.2
BRCD	BROCADE COMMUNICATIONS SYS	10.32	(0.5)	1	1	4	3	1	**2**	4.3
PRE	PARTNERRE LTD	139.49	2.4	1	2	na	1	2	**2**	6.8
ALLE	ALLEGION PLC	64.51	2.8	1	2	1	2	4	**2**	6.2
NWSA	NEWS CORP	15.12	4.9	1	1	4	3	2	**2**	8.8
TSN	TYSON FOODS INC -CL A	43.85	7.1	1	5	5	2	1	**2**	16.4
OI	OWENS-ILLINOIS INC	21.44	8.8	1	2	5	4	1	**2**	3.4
JNPR	JUNIPER NETWORKS INC	31.19	10.8	1	1	5	1	4	**2**	12.0
AAP	ADVANCE AUTO PARTS INC	197.48	12.4	1	4	3	1	3	**2**	14.5
CAM	CAMERON INTERNATIONAL CORP	68.10	32.3	1	1	4	1	2	**2**	13.0

Source: Empirical Research Partners Analysis.

[1] Drawn from the highest quintile of hedge fund ownership as of mid-August 2015.