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Stock Selection: Research and Results April 2017

Passive Aggressive Behavior Part II: The ETF Scorecard

Smart Beta, The New Dumb Money?

- Indexing has all the momentum right now. Like a March Madness bracket-buster, Team Passive is riding a hot hand and with each passing round the field of active stock pickers is ruthlessly culled. Surely it's only a matter of time before the upstart Indexers cut down the net under a shower of confetti? Maybe, but we've still got a timeout to burn before the final whistle.
- Passive investing's big advantage is that it gets to call itself the benchmark, meaning by definition it can't underperform. That's true for the cap-weighted index of course, but not for the $480 billion invested in smart beta ETFs, that now account for almost 30% of U.S. equity ETF assets. In that space the building blocks may be passive, but picking which of the 300-plus shrink-wrapped strategies to bet on is a very active decision. A fairer measure of the success of smart beta is to use a similar scorecard to the one often used to evaluate active managers: the share of products that actually outperformed the S&P 500 in a given quarter.
- On that basis smart beta looks a bit ho-hum. Since the first quarter of 2008 exactly half of U.S. equity smart beta ETFs beat the market each quarter on average. Over the past five years the win rate fell to 46% and in the last three it was 42%. In the first two months of 2017 only a third of smart beta ETFs have bested the market.

The Perils of a Good Price Chart

- The basic problem facing smart beta is chart-chasing behavior by end-users, and the ETF manufacturers for that matter. The previously red-hot low volatility trade makes an excellent case study. Since 2011 the major low volatility ETFs have marginally outperformed the market on an asset-weighted basis. But the average *investor* in the products has underperformed by (150) basis points per year. That's because the bulk of the flows into the ETFs came when the price chart looked fantastic, like in Q1 and Q2 of last year for example. In investing as in life, if something looks too good to be true it usually is.
- Unfortunately, low volatility isn't an isolated example. In the post-Crisis era stocks from the REITs and utilities sectors have been the most-heavily owned by passive products, because their dividend yields screen well for the plethora of yield-orientated smart beta ETFs that were all the rage during the bond bull market. But since the middle of last year those sectors have seen the largest outflows. On the flipside, the biggest inflows in the past eight months have been directed towards the cyclicals, led by financials, capital goods, and the commodities complex. The problem is always the same: the average ETF user is late to just about every party.

Learn to Spot Passive Aggressive Behavior

- For fundamental stock pickers the poor style-timing ability of ETF users is an opportunity. Stocks owned by ETFs with big *inflows* in the prior quarter tend to *underperform* over the following year. Conversely, stocks held by ETFs with outflows outperform on average. In other words, there's empirical evidence that the new dumb money is investors who overtrade ETFs, often of the sector or smart beta variety, in pursuit of whatever the trending #tradeoftheday is, be it low volatility, cyber security, robotics, or some other pre-packaged story. There's always something out there with a killer price chart and an exciting plotline.
- In past five years stocks that screened in the most expensive quintile of our valuation framework *and* were heavily owned by hot ETFs underperformed the market by almost (8) percentage points over the next 12 months. Appendix 1 on page 13 presents the current list, which includes the likes of SVB Financial, Atmos Energy, FactSet Research Systems, Brown & Brown, Westar Energy, and PTC.

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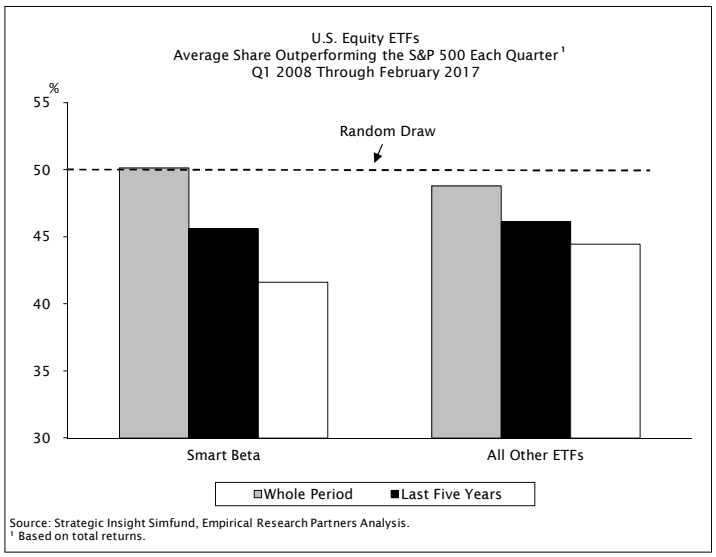
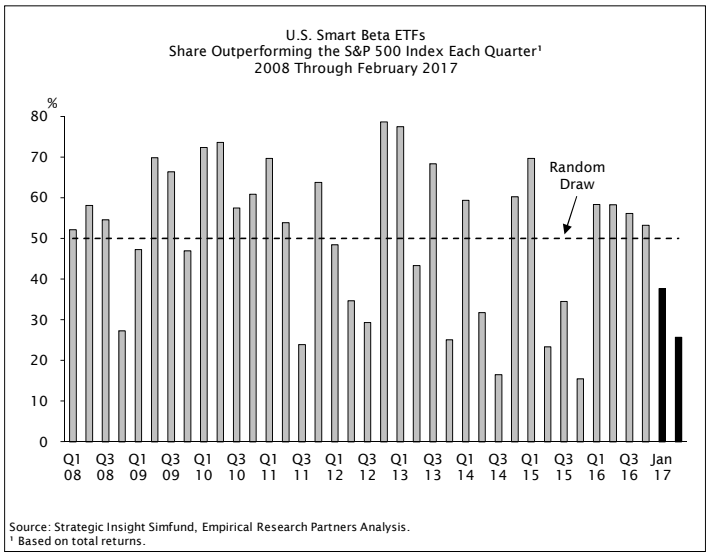
Conclusions in Brief

- Smart beta's scorecard isn't much better than that for active managers…



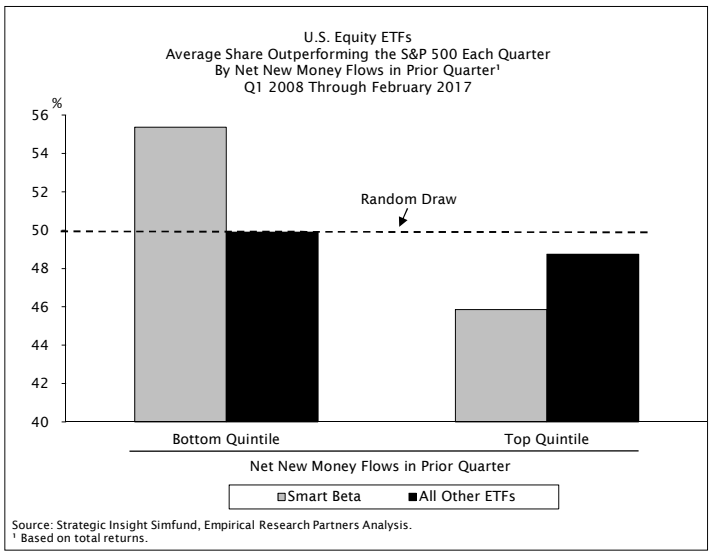
Source: Strategic Insight Simfund, Empirical Research Partners Analysis.
¹ Based on total returns.

- ...Particularly this year:



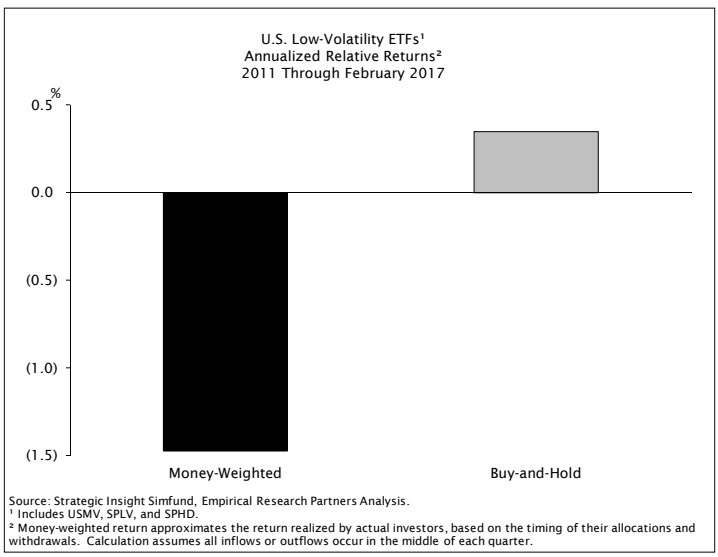
Source: Strategic Insight Simfund, Empirical Research Partners Analysis.
¹ Based on total returns.

- Smart beta ETFs with big inflows tend to reverse in the next quarter…



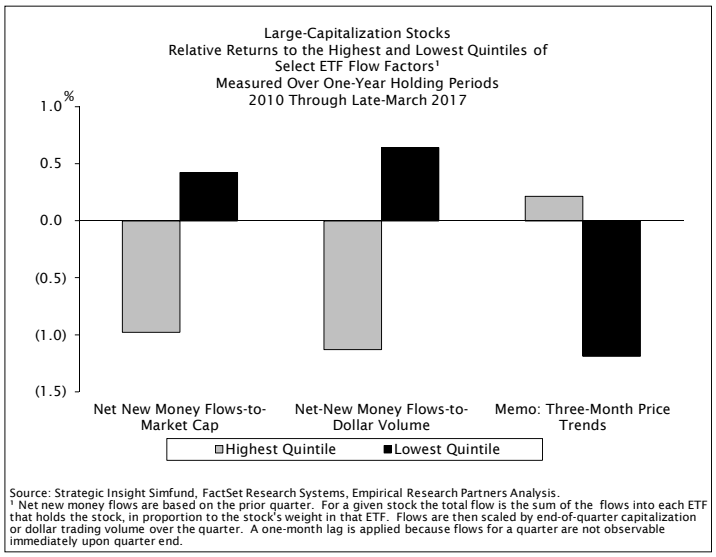
Source: Strategic Insight Simfund, Empirical Research Partners Analysis.
¹ Based on total returns.

- …Because ETF inventors are dismal style-timers:



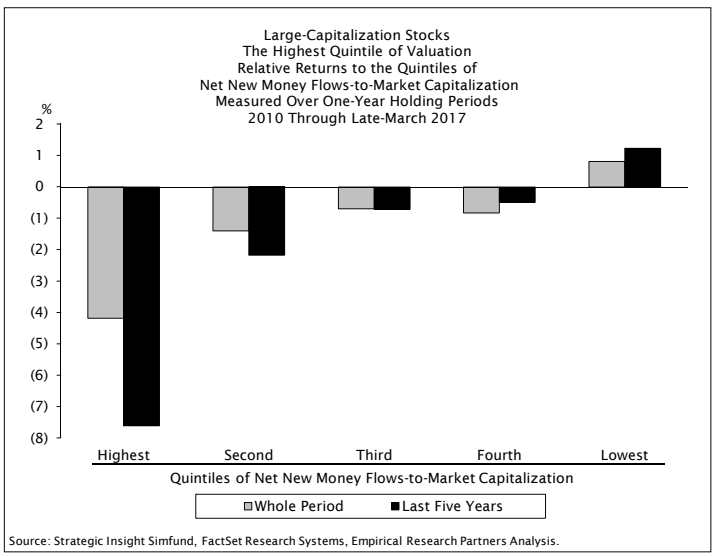
Source: Strategic Insight Simfund, Empirical Research Partners Analysis.
¹ Includes USMV, SPLV, and SPHD.
² Money-weighted return approximates the return realized by actual investors, based on the timing of their allocations and withdrawals. Calculation assumes all inflows or outflows occur in the middle of each quarter.

- Stocks held by ETFs with large inflows tend to underperform…



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.
¹ Net new money flows are based on the prior quarter. For a given stock the total flow is the sum of the flows into each ETF that holds the stock, in proportion to the stock's weight in that ETF. Flows are then scaled by end-of-quarter capitalization or dollar trading volume over the quarter. A one-month lag is applied because flows for a quarter are not observable immediately upon quarter end.

- …Especially if they also screen as overvalued:



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

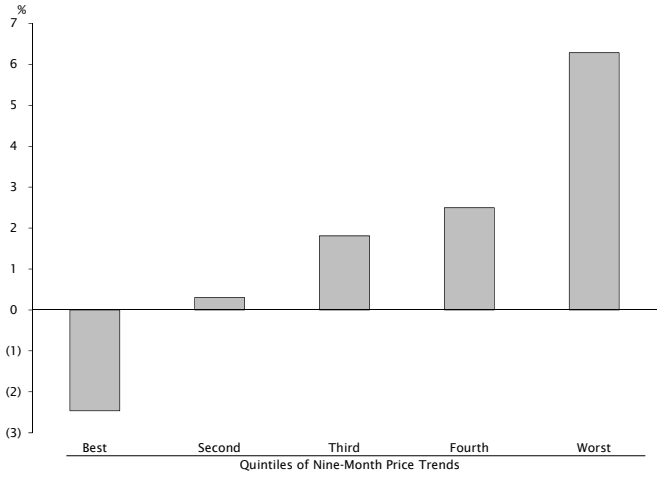
Passive Aggressive Behavior Part II: The ETF Scorecard

Smart Beta, The New Dumb Money?

Over the past decade active equity managers have been trapped in a cruel, twisted version of a March Madness bracket, fighting to be among the last stock pickers standing as the unrelenting rise of passive investing culls the field with each passing round. The indexers, it seems, have all the momentum in their court; they're on a 10-0 run and the crowd, sensing a rout, is baying for the coup de grâce. Luckily we've still got a timeout in our pocket.

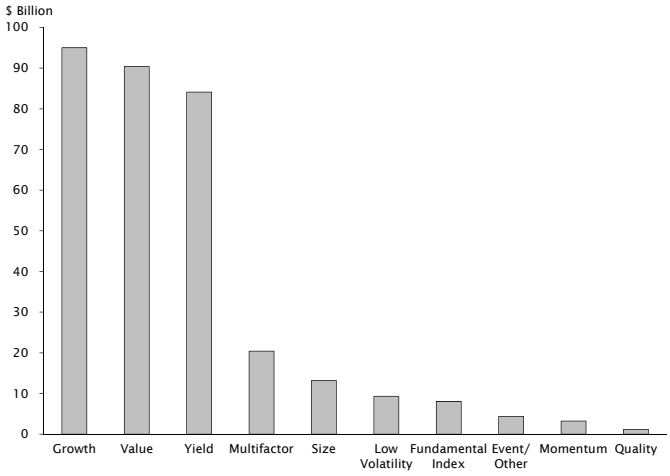
We wrote last year on the impact that passive products are having on fundamentally-focused stock pickers.[1] What stood out in that work was that stocks with high passive ownership and a good price chart actually tend to *underperform* over the following year (see Exhibit 1). In part that's because a lot of what is called passive investing isn't passive at all, rather it's an active allocation to any number of the shrink-wrapped "passive" strategies now on offer (see Exhibit 2). The growth of the smart beta space has been rapid and it now accounts for something close to 30% of all U.S. equity ETF assets, in total about $480 billion spread across more than 300 products (see Exhibit 3). By comparison actively-managed U.S. equity mutual funds still control ten times that amount.

Exhibit 1: Large-Capitalization Stocks
The Highest Quintile of Passive Ownership
Relative Returns to Nine-Month Price Trends
Measured Over One-Year Holding Periods
2002 Through Late-March 2017



Source: FactSet Research Systems, Empirical Research Partners Analysis.

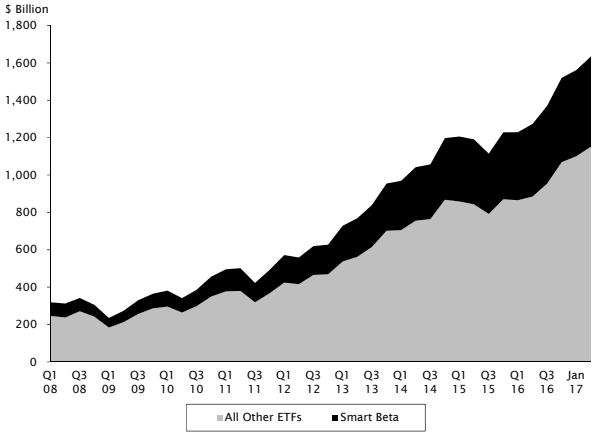
Exhibit 2: U.S. Smart Beta ETFs[1]
Total Assets
As of February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Excluding levered ETFs, inverse ETFs, and target date ETFs.

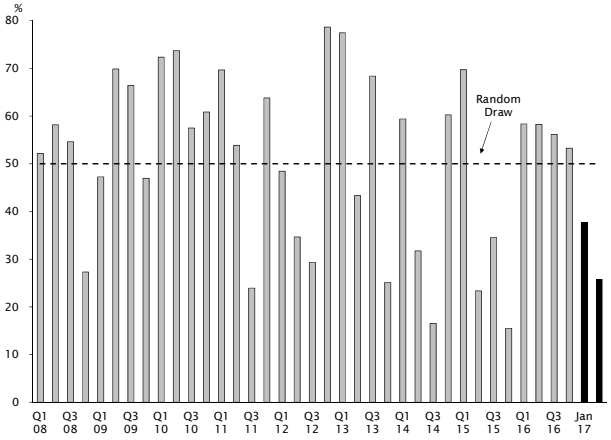
Exhibit 3: U.S. Equity ETFs[1]
Total Assets
Q1 2008 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Excluding levered ETFs, inverse ETFs, and target date ETFs.

Exhibit 4: U.S. Smart Beta ETFs
Share Outperforming the S&P 500 Index Each Quarter[1]
2008 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Based on total returns.

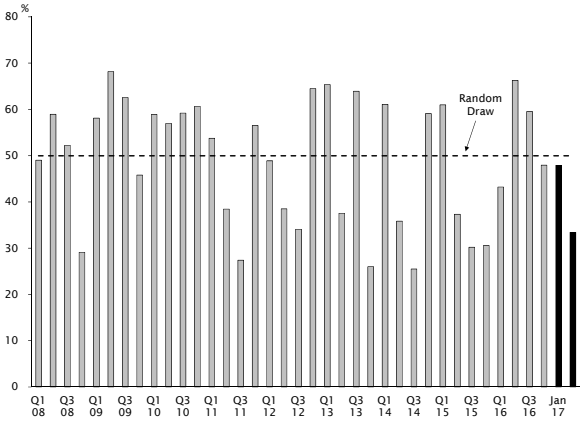
[1] *Stock Selection: Research and Results* December 2016. "Passive Aggressive Behavior: The Impact of Passive Investors on Stock Selection."

With so many sugary treats to pick from ETF investors in aggregate have shown the same cravings as most other investors: they chase recent performance, ultimately to their detriment.[2] It turns out their behavior is also detrimental on average for the stocks that get caught up in whatever the trending #tradeoftheday happens to be. In this report we build on our previous research by digging deeper into the behavioral biases of ETF investors and the implications for the stocks enmeshed in their trades.

There's been a lot of discussion in recent years about the so-called active manager scorecard, the percent of managers ahead of their benchmarks. In the post-Crisis era it's mostly been tough slog for stock pickers. But passive shouldn't get a free pass simply by calling itself the benchmark. Apart from the cap-weighted index, the rest of what is often called passive investing still involves an active allocation decision at some point, for example in choosing the right mix of smart beta exposures.

Given that, it's only fair to construct a scorecard for passive products too, which we've done for U.S. equity ETFs, splitting the universe into those we judge to be smart beta and the rest (see Exhibits 4, overleaf, and 5). So far 2017 has proved difficult for the majority of the ETFs in both buckets, and over time there's been a general deterioration in the share of products beating the S&P 500 (see Exhibit 6). The numbers are still better than active, but the fact the hit rate has slipped below 50% is symptomatic of the biggest challenge for ETFs: chart-chasing behavior by users.

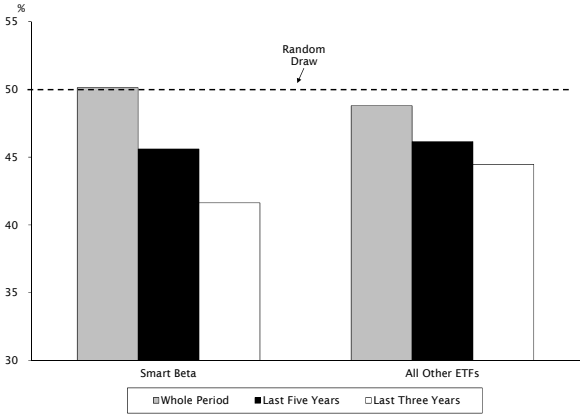
Exhibit 5: U.S. Non-Smart Beta ETFs
Share Outperforming the S&P 500 Index Each Quarter[1]
2008 Through February 2017



Source: Empirical Research Partners Analysis.

[1] Based on total returns.

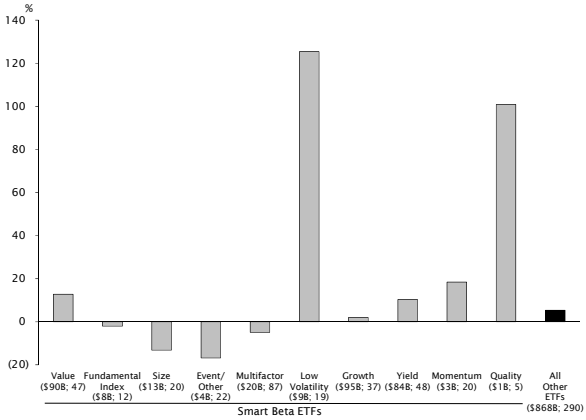
Exhibit 6: U.S. Equity ETFs
Average Share Outperforming the S&P 500 Each Quarter[1]
Q1 2008 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Based on total returns.

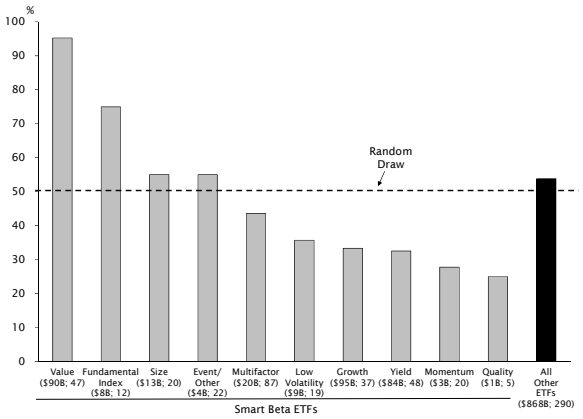
Exhibit 7: U.S. Smart Beta ETFs
Net New Money Flows as Percent of Starting Assets[1]
Four Quarters Ending Q2 2016



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Net new money flows from Q3 2015 through Q2 2016 scaled by total assets at end of Q2 2015. Numbers in parentheses denote total assets under management and number of ETFs in each category.

Exhibit 8: U.S. Smart Beta ETFs
Average Share Outperforming the S&P 500 Index Each Quarter by Category[1]
Q3 2016 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

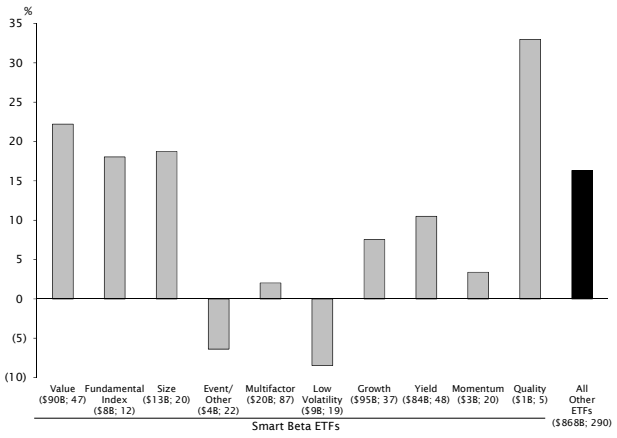
[1] Based on total returns. Numbers in parentheses denote total assets under management and number of ETFs in each category.

[2] *Portfolio Strategy* June 2015. "Smart Beta, Dumb Money?"

For example, consider the net new money flows into various flavors of smart beta in the four quarters ending in Q2 of last year (see Exhibit 7 overleaf). Over that period low volatility ETFs were hotter than Hamilton tickets, more than doubling their asset base in the space of a year. But Exhibit 8 (overleaf) shows the share of ETFs in each category that outperformed from that point onwards, i.e., from the start of Q3 last year through to the end of February this year. Most of what had a good price chart and good flows in the middle of last year reversed thereafter. Now ETFs flows have started to swing around to reflect a different leadership (see Exhibit 9).

Of course, this particular example has everything to do with the breakdown in the bond-proxy trade after rates bottomed midway through last year. That rotation wrong-footed plenty of non-ETF investors too, and such dramatic turning points don't come along every day. The real question is whether ETF investors are *consistently* behind the curve as they chase the latest-and-greatest, or whether this is just an isolated incident. Unfortunately the empirical evidence points mostly to the former.

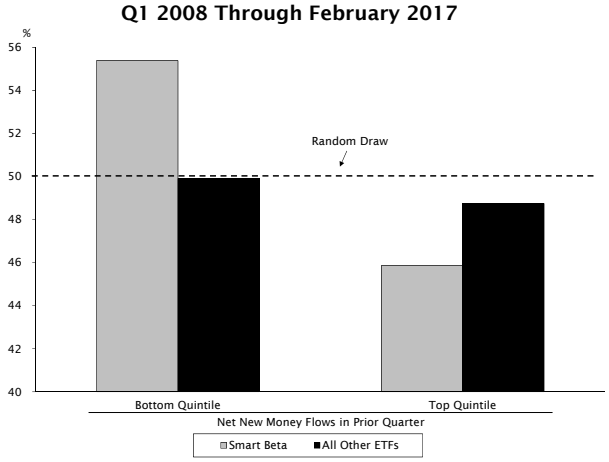
Exhibit 9: U.S. Smart Beta ETFs
Net New Money Flows as Percent of Starting Assets[1]
Q3 2016 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Net new money flows from Q3 2016 through February 2017 scaled by total assets at end of Q2 2016. Numbers in parentheses denote total assets under management and number of ETFs in each category.

Exhibit 10: U.S. Equity ETFs
Average Share Outperforming the S&P 500 Each Quarter By Net New Money Flows in Prior Quarter[1]
Q1 2008 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Based on total returns.

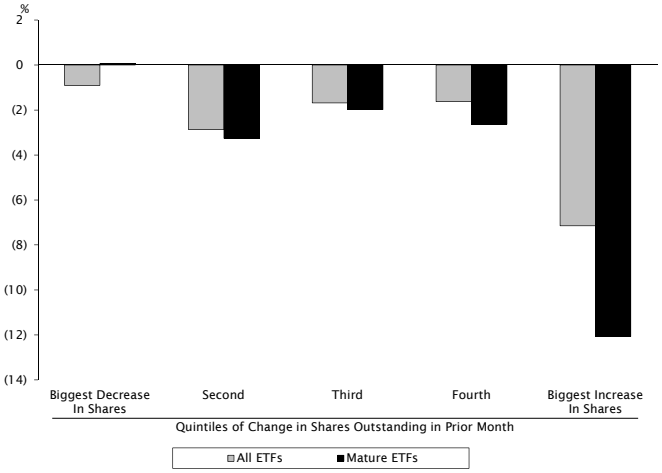
Exhibit 10 shows the share of ETFs outperforming the S&P 500 each quarter, depending on whether the ETF had big inflows or outflows in the prior quarter. For the smart beta products, shown in the grey bars, there's evidence of performance-chasing: the ETFs with top-quintile flows in the last quarter were less likely to beat the index in the following quarter, whereas those with bottom-quintile flows (i.e., outflows) were more likely to subsequently outperform. That's consistent with a recent academic paper that looked at things on a monthly frequency and found that the ETFs with the most new shares created each month (i.e., biggest inflows) tended to underperform the most in the next month (see Exhibit 11).

These results shouldn't come as any surprise whatsoever. After all, there's plenty of empirical evidence that *mutual fund* investors have always had performance-chasing tendencies (see Exhibits 12 and 13). There's almost always a performance gap between the buy-and-hold returns of mutual funds and the returns realized by actual investors, the difference being their (lack of) timing ability: inevitably they buy in when the price chart is too good to be true and sell out at the point of maximum pain. Now the same ideas have been packaged up in products with a real-time price chart and the instant gratification of a single buy/sell button. If anything we'd expect chart-chasing to be even more pronounced in ETFs than mutual funds. Liquidity isn't an unalloyed good.

How Many Factors Does it Take to Make Sausage?

Even if we can convince ourselves that smart beta investors will somehow resist the temptation to buy whatever has a good price chart, there's a further problem that exacerbates trend-chasing: it's almost impossible to launch an ETF that doesn't have a good backtest. We took a look at the performance of ETFs conditioned by how long they'd been listed at each point in time (see Exhibit 14). As the right-hand bars show, more recently-listed ETFs have generally been a poor bet, for example if one had consistently bought only the ETFs that had been listed for less than a year at the time of purchase only 42% of them would have outperformed the S&P 500 on average.

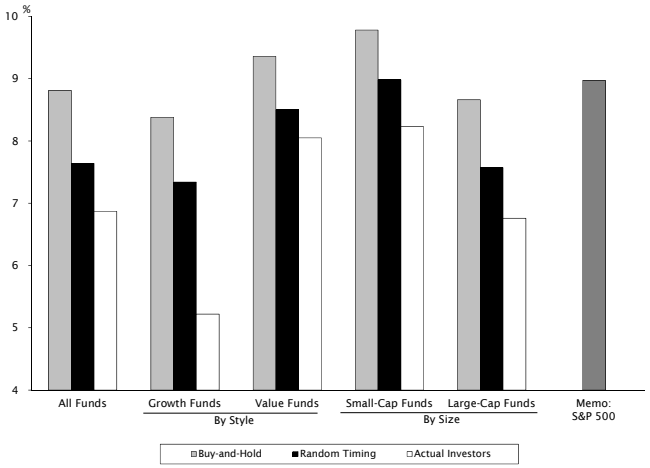
Exhibit 11: U.S. Equity ETFs[1]
Annualized Alpha by Quintile of Change in Shares Outstanding in Prior Month[2]
Monthly Data Compounded to Annual Periods
2007 Through 2015



Source: Brown, D., Davies, S., and Matthew Ringgenberg, 2016. "ETF Arbitrage and Return Predictability." Working Paper.

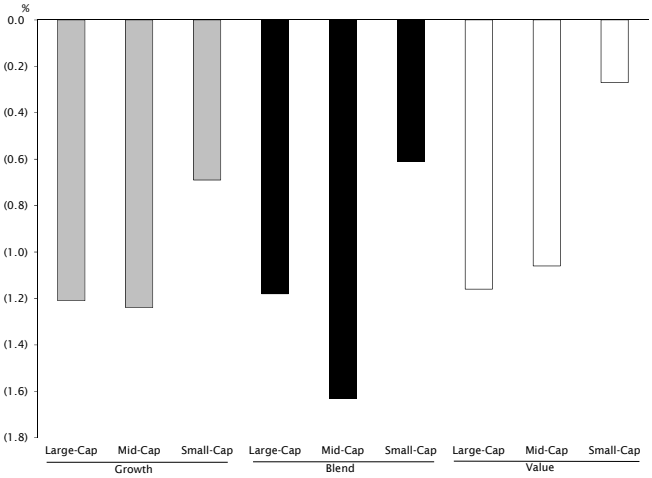
[1] Limited to ETFs with greater than $50 million in assets. Mature ETFs are those where creation/redemption activity occurs on at least half the trading days in a month.
[2] Alpha is the equally-weighted return of each quintile portfolio after controlling for the market, size, price-to-book, and momentum.

Exhibit 12: U.S. Equity Mutual Funds
Pre-Fee Returns Realized by Type of Manager and Allocation Strategy[1]
Monthly Data Compounded to Annual Periods
1991 Through 2013



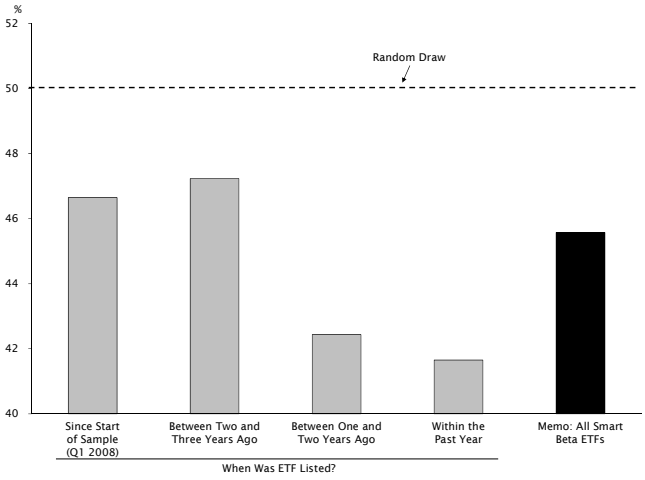
Source: Hsu, J., Myers, B., and Ryan Whitby, 2014. "Timing Poorly: A Guide to Generating Poor Returns While Investing in Successful Strategies." Working Paper.
[1] Asset-weighted average return of all mutual funds in each category, gross of fees.

Exhibit 13: Active U.S. Equity Mutual Funds
Annualized Return Gap Between Asset-Weighted Investor Returns and Buy-and-Hold Returns
Monthly Data Compounded to Annual Periods
Ten Years Ending December 2015



Source: Morningstar.

Exhibit 14: U.S. Smart Beta ETFs
Average Share Outperforming the S&P 500 Index Each Quarter by Vintage at the Time[1]
Q3 2011 Through February 2017

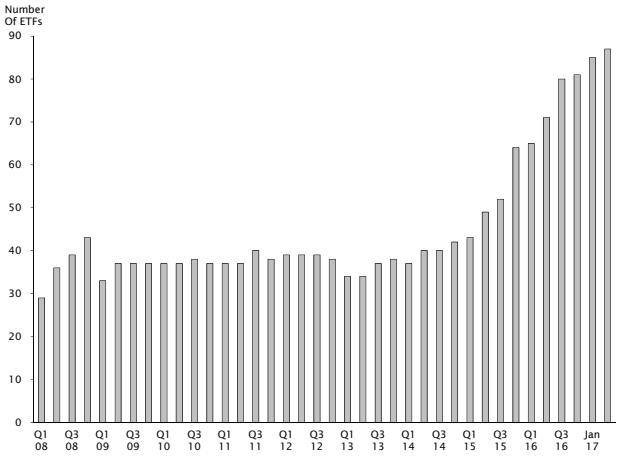


Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Based on total returns. Listing date proxied by date ETF first appears with non-zero assets in the database. Vintage is that at the start of each quarter to avoid lookahead bias. Analysis begins in 2011 because a trailing three-year period is required for the vintage calculation.

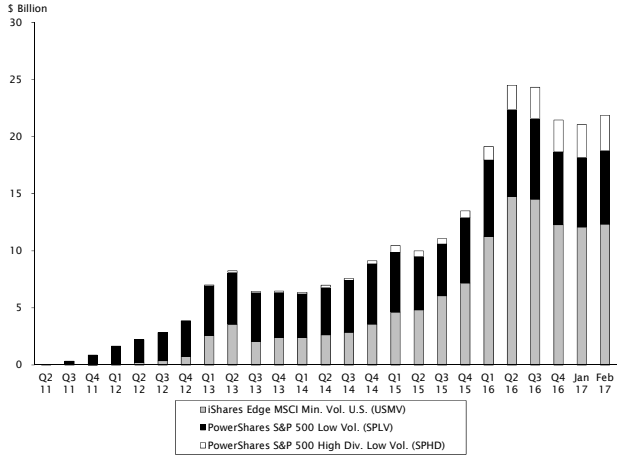
That hit rate is only likely to get worse for one simple reason: much like the Manhattan dating scene all the good single-factor ETFs are already taken. The first mover advantage in launching an ETF is so big that it's really hard to be the fourth or fifth, say, dividend yield ETF to the party. As a result ETF manufacturers have started adding factors to differentiate their offerings (see Exhibit 15). For example, in the previously red-hot low volatility space the two incumbents (USMV and SPLV) dominate, so it's hard to find room for a new offering unless you add a twist. In this case the next ETF to come along, SPHD, added high dividend yield to the mix (see Exhibit 16). The only thing better than one good price chart is two! All joking aside, the point is that every new factor that's added is one additional degree of freedom that can be used to smooth out the backtested chart until it rises majestically from the lower-left to upper-right of a glossy PowerPoint slide.

Exhibit 15: U.S. Smart Beta ETFs
Number Using a Multifactor Approach
Q1 2008 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

Exhibit 16: Major U.S. Low Volatility ETFs
Assets Under Management
Q2 2011 Through February 2017

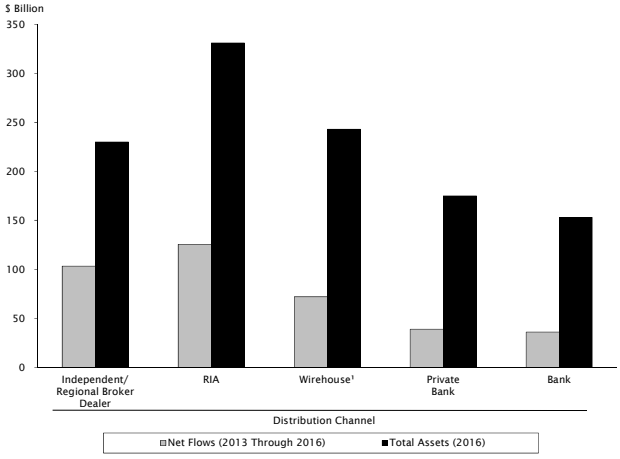


Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

Don't Blame the Tools

Who uses these ETFs? On the retail side RIAs have become the largest channel (see Exhibit 17). As we've discussed in our *Future of the Money Management Industry* research series, RIAs now tend to see themselves more as asset- or style-allocators rather than stock pickers, and ETFs are often their tool of choice in that new role (see Exhibit 18).[3] The risk is that RIAs, with a plethora of shiny new tools to choose from, end up reaching for the hottest charts.

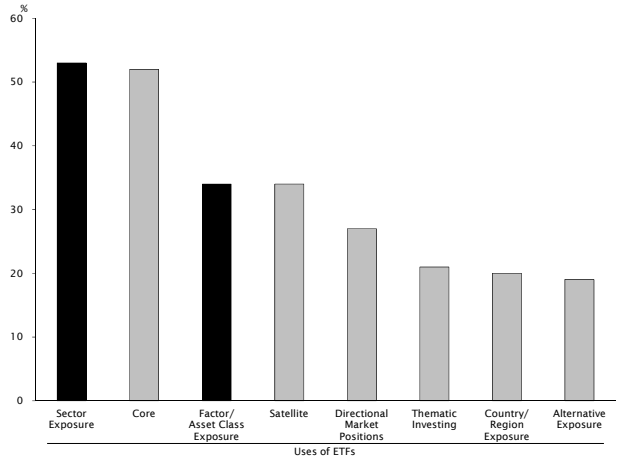
Exhibit 17: Intermediary-Sold U.S. Equity ETFs
Net Flows and Current Total Assets by Distribution Channel
2013 Through 2016



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] 2013 and 2014 excludes Merrill Lynch.

Exhibit 18: RIAs' Use of ETFs
Share of Respondents
2016



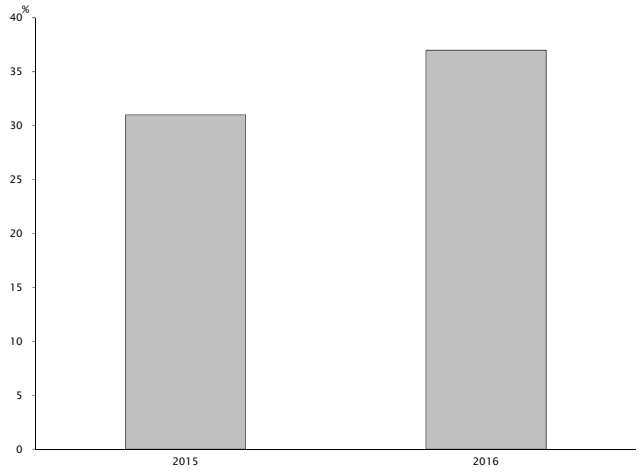
Source: WealthManagement.com Advisor Benchmarking.

Institutional investors have also embraced ETFs and in a recent survey conducted at the start of the year almost 40% said they use ETFs (see Exhibit 19). Among the institutions that do use ETFs, low volatility products were the most popular, followed closely by dividend funds (see Exhibit 20). So whether these players are completely immune from performance-chasing behavior is also debatable.

In fact, in aggregate the buyers of low volatility ETFs have been rather poor style-timers (see Exhibit 21). Since 2011 when the first major low volatility ETF was launched, the money-weighted relative return for low volatility ETFs is negative even though the products themselves have marginally outperformed over that period. That's because the bulk of the money piled in during Q1 and Q2 of last year, right when the chart looked fantastic but also right before rates bottomed. It's also when the stocks represented in the ETFs were trading at their highest relative P/E ratios (see Exhibit 22).

[3] *The Future of the Money Management Industry* November 2016. "The Retail Business: Hard Rain."

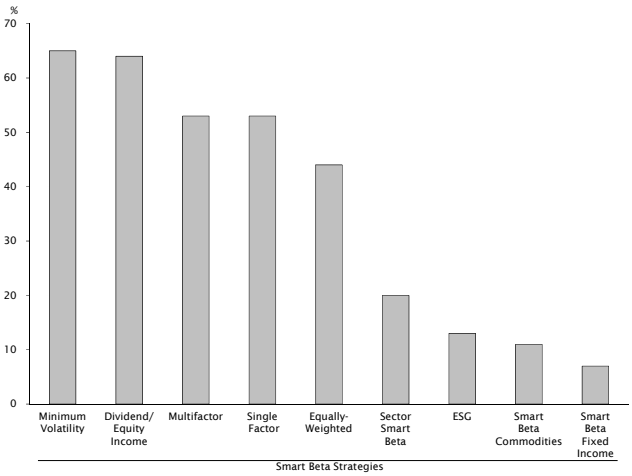
Exhibit 19: Institutional Investors[1] Share Investing in Smart Beta ETFs 2015 and 2016



Source: Greenwich Associates 2016 U.S. Exchange-Traded Funds Study

[1] Based on 118 respondents in 2015 and 148 in 2016.

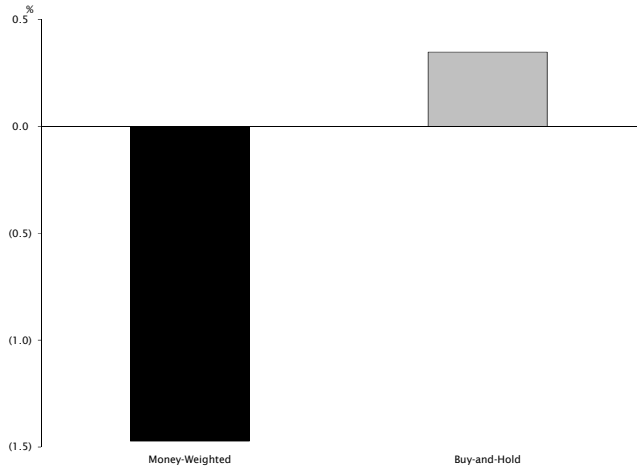
Exhibit 20: Institutional Investors[1] Most Widely Used Smart Beta ETFs 2016



Source: Greenwich Associates 2016 U.S. Exchange-Traded Funds Study.

[1] Based on 55 respondents surveyed between October 2016 and January 2017.

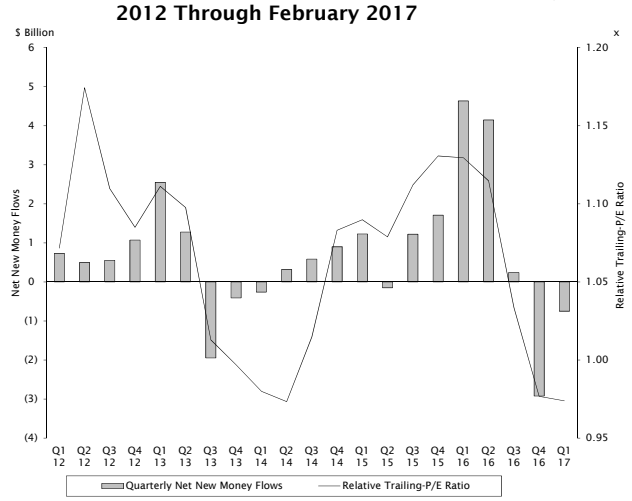
Exhibit 21: U.S. Low-Volatility ETFs[1] Annualized Relative Returns[2] 2011 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Includes USMV, SPLV, and SPHD.
[2] Money-weighted return approximates the return realized by actual investors, based on the timing of their allocations and withdrawals. Calculation assumes all inflows or outflows occur in the middle of each quarter.

Exhibit 22: U.S. Low Volatility ETFs Net New Money Flows and Relative Trailing-P/E Ratio[1] 2012 Through February 2017



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

[1] Trailing-P/E is based on aggregate holdings of USMV and SPLV and is relative to the cap-weighted large-cap market.

Buy high and sell low is rarely the secret to investing success but it's surprisingly easy to do when trading an abstraction like an ETF. Most retail investors don't have the means to aggregate the cash flows of all the real-world businesses they're buying a claim over, and thus have little to go on other than the price chart of the ETF itself. Unfortunately, low volatility products aren't an isolated example. Investors tend to be their own worst enemy even in boring, cap-weighted ETFs like the ubiquitous SPY. A recent academic paper found that the gap between the buy-and-hold return for the SPY and the actual S&P 500 return has averaged close to a quarter of a percent per annum (see Exhibit 23). In other words, actual investors in aggregate suffered a (25) basis point drag each year because of their poor market-timing. That doesn't sound that big, but it's still three times the management fee. In the quest for ever-lower fees the low-hanging fruit might be for investors to examine how they actually use the tools on offer.

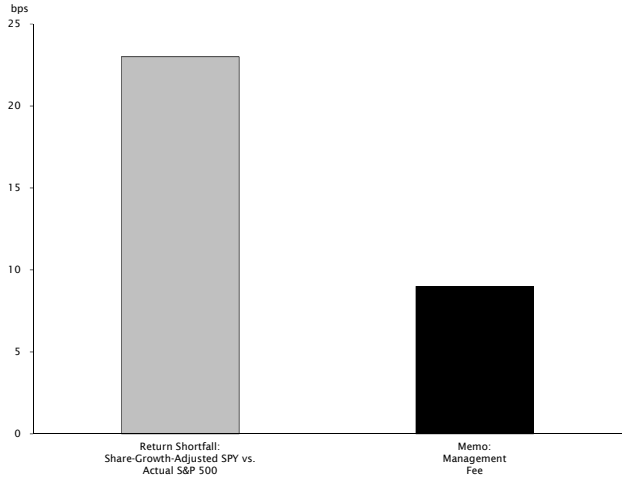
Implications for Stock Pickers

Passions run hot on both sides of the indexing aisle, but the reality is that passive investing is here to stay whether one likes it or not. What we really care about is the impact the shifting landscape has on long-term, fundamentally-driven investing. We've already seen that price trends can be unreliable when there's heavy passive ownership in a stock (recall Exhibit 1). But why? Do the flows into and out of the ETFs that hold a stock somehow play a role?

To answer that question we married data on quarterly ETF flows from the Strategic Insight Simfund database with ETF holdings data collected by FactSet. That allowed us allocate the net new money flows into (or out of) an ETF to the individual stocks held by the ETF, in proportion to each stock's weight in the fund. For a given stock at the end of each quarter we added up the flows generated by all the ETFs holding that stock and scaled by either market capitalization or dollar trading volume over the quarter. In essence, these metrics measure the magnitude of ETF-induced buying or selling in the stock over the prior quarter. Because ETF flows in our database are reported around a week after the quarter-end we apply a one month lag on our factors in all backtesting analysis to eliminate the risk of a look-ahead bias.

Exhibit 24 shows the relative returns to stocks in the highest and lowest quintile of each ETF flow metric, from 2010 to the present. On average stocks with high ETF flows in the prior quarter underperformed by about a point over the following year, see the first two grey bars. Meanwhile, stocks held by ETFs with big outflows outperformed, see the first two black bars.

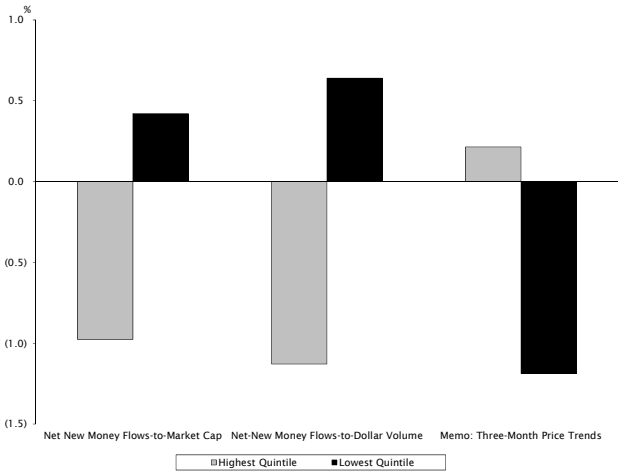
Exhibit 23: SPDR S&P 500 ETF (SPY)
Annual Return Shortfall Between Share-Growth-Adjusted ETF Performance and Actual S&P 500[1]
2007 Through 2015



Source: Brown, D., Davies, S., and Matthew Ringgenberg, 2016. "ETF Arbitrage and Return Predictability." Working Paper.

[1] Share-growth-adjusted return is a proxy for the money-weighted return that actual investors would realize, based on the timing of their allocations and withdrawals.

Exhibit 24: Large-Capitalization Stocks
Relative Returns to the Highest and Lowest Quintiles of Select ETF Flow Factors[1]
Measured Over One-Year Holding Periods
2010 Through Late-March 2017



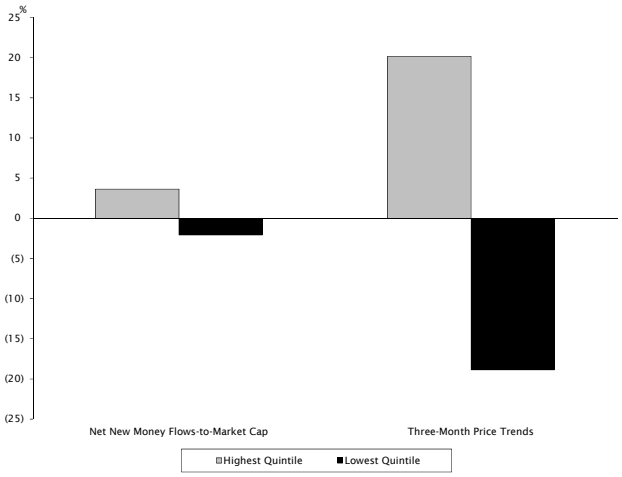
Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

[1] Net new money flows are based on the prior quarter. For a given stock the total flow is the sum of the flows into each ETF that holds the stock, in proportion to the stock's weight in that ETF. Flows are then scaled by end-of-quarter capitalization or dollar trading volume over the quarter. A one-month lag is applied because flows for a quarter are not observable immediately upon quarter end.

It's interesting to note that the results are quite different from simply sorting the stocks based on their price momentum over the prior quarter, as shown in the third set of bars. Stocks with a good price trend in the prior three months on average continued to outperform, the opposite of what happened to stocks with large ETF inflows. So it's not the case that ETF flows are simply another proxy for past stock performance. In fact, stocks in the highest quintile of net new money flows-to-market capitalization outperformed on average by +3.6% in the *prior* year, which is moderate compared to stocks with high price momentum (see Exhibit 25).

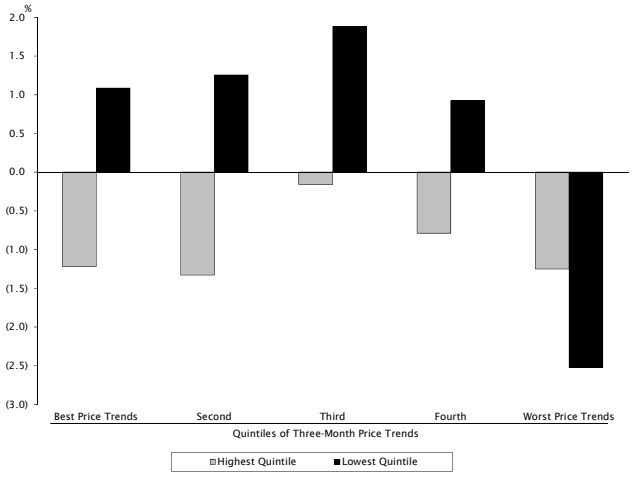
It turns out ETF flows are more deterministic of future performance than price momentum. The grey bars in Exhibit 26 show the year-ahead relative returns for stocks in the highest quintile of ETF flows, contingent on the stock's price momentum. All the grey bars are negative, meaning that on average it didn't matter what the stock's past performance looked like, if it had big ETF inflows it unperformed over the next year regardless. On the hand, stocks with low ETF flows (i.e., outflows) outperformed on average, except when the price trend was in the worst quintile. So by and large it was last quarter's ETF action that influenced the stock's future performance, not the past performance of the stock itself.

Exhibit 25: Large-Capitalization Stocks
Prior-Year Relative Returns to the Highest and Lowest Quintiles of Select Factors
Measured Over One-Year Holding Periods
2010 Through Late-March 2017



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 26: Large-Capitalization Stocks
Relative Returns to the Highest and Lowest Quintiles of Net New Money Flows-to-Market Capitalization Contingent on Three-Month Price Trends
Measured Over One-Year Holding Periods
2010 Through Late-March 2017

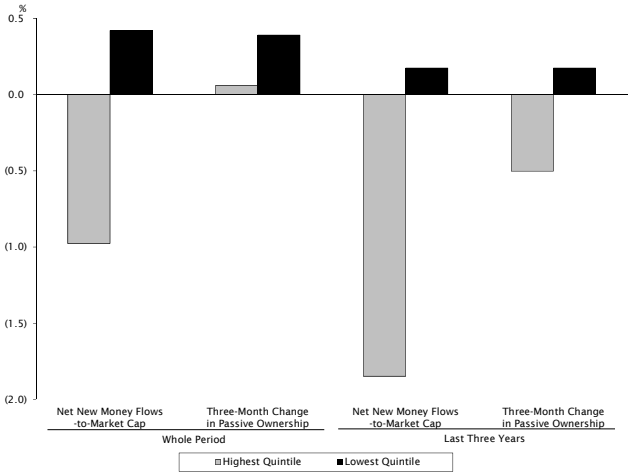


Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

We also noticed that ETF flows are different from simply looking at changes in the level of passive ownership in a stock (see Exhibit 27). The direction is mostly the same, meaning rising passive ownership is bad for future returns and declining passive ownership is good, but the magnitude of the alpha is much reduced. That's probably because the level of passive ownership can change for many reasons, for example it could rise if an ETF that doesn't hold the stock rebalances and adds the stock. In other words, the change in passive ownership isn't a pure measure of investor demand. That suggests it really is the trend-chasing behavior of passive investors that holds the key.

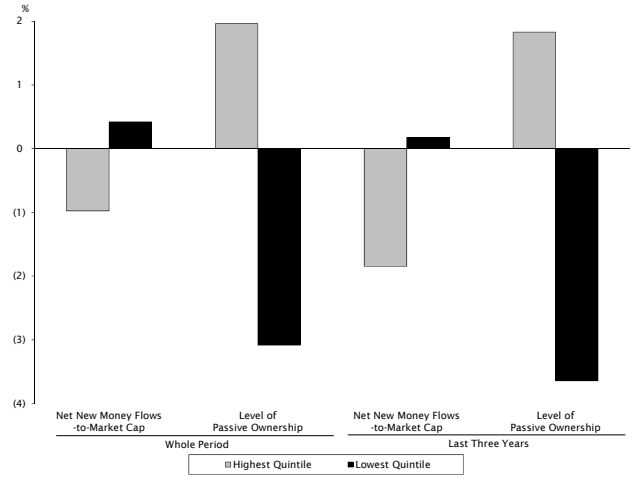
However, the *level* of passive ownership has itself been a *positive* signal over the period we studied, and a fairly powerful one at that (see Exhibit 28). On face value that's vexing. How can a high level of passive ownership *and* outflows both precede future outperformance? Part of the answer lies in the sector biases embedded in stocks with high passive ownership.

Exhibit 27: Large-Capitalization Stocks
Relative Returns to the Highest and Lowest Quintile of Select Passive Ownership Factors
Measured Over One-Year Holding Periods
2010 Through Late-March 2017



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 28: Large-Capitalization Stocks
Relative Returns to the Highest and Lowest Quintile of Select Passive Ownership Factors
Measured Over One-Year Holding Periods
2010 Through Late-March 2017



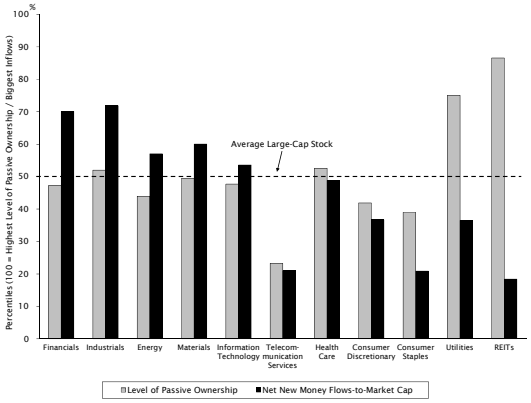
Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

We showed in our previous research that utilities and REITs are disproportionately represented in the highest quintile of passive ownership (see Exhibit 29). Currently the average REIT scores close to the 90th percentile of passive ownership across all stocks, see the right-most grey bar in the chart, and the average utilities stock isn't far behind in

the 75th percentile. Meanwhile the stocks from those two sectors have recently seen big outflows from the ETFs that hold them, see the black bars. That's no surprise given the post-election rotation towards financials and cyclicals, shown on the right-hand side of the chart.

Despite that rotation, the average level of passive ownership in REITs and utilities has been remarkably steady over time (see Exhibits 30 and 31). So tracking the performance of stocks with high passive ownership is a little misleading because it's consistently skewed towards those two sectors. Nonetheless, repeating the analysis on a sector-neutral basis reveals a similar result; even after controlling sector biases the stocks with high passive ownership outperformed (see Exhibit 32). That suggest that there are two different forces at work here. The first is the steady drip of money into passive products, the proverbial tide that lifts all boats, or in this case all boats with already-high passive ownership. The second force is higher-turnover, hot money ETF investors who belatedly chase whatever strategy has a good price chart and act as a contrarian signal because they're usually late to the party.

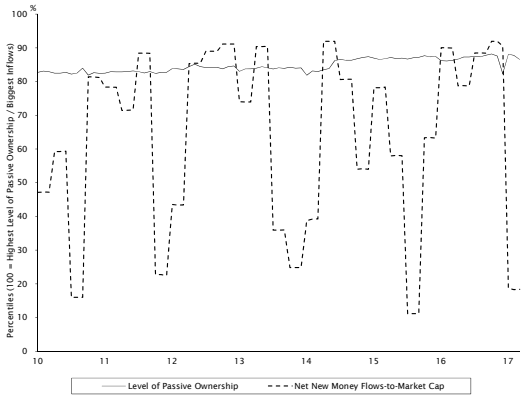
Exhibit 29: Large-Capitalization Stocks
Average Percentile Ranks by Sector[1]
As of Late-March 2017



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

[1] Equally-weighted data.

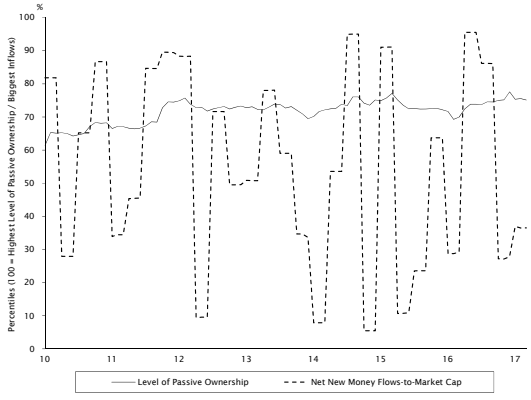
Exhibit 30: Large-Capitalization REITs
Average Percentile Ranks[1]
2010 Through Late-March 2017



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

[1] Equally-weighted data.

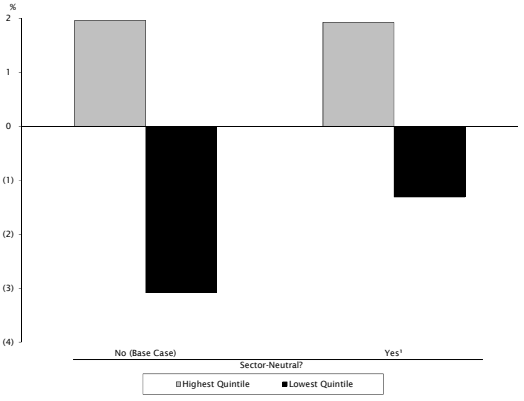
Exhibit 31: Large-Capitalization Utilities Stocks
Average Percentile Ranks[1]
2010 Through Late-March 2017



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

[1] Equally-weighted data.

Exhibit 32: Large-Capitalization Stocks
Relative Returns to the Highest and Lowest Quintile of Passive Ownership
Measured Over One-Year Holding Periods
2010 Through Late-March 2017



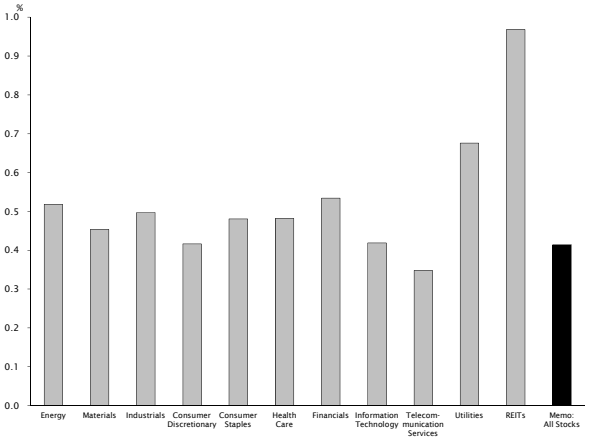
Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

Conclusion: Learn to Spot Passive Aggressive Behavior

For active managers the second story has a nice ring to it: the new dumb money overtrades ETFs and chases the latest buzzworthy story to the point of excess, thereby driving up the valuations of the stocks held by hot ETFs and ultimately setting the stage for a reversal. There's only one problem with that plotline: the aggregate flows in ETFs are tiny in the grand scheme of things. Exhibit 33 shows the average net new money flows-to-market cap for each sector. For REITs, the sector most heavily owned by passive investors, the ETF flows over an entire year amount to less than one percent of the average stock's market capitalization.

Even for stocks in the highest quintile of flows, annual ETF creation and redemption only amounts to about 1.3% of capitalization on average (see Exhibit 34). So even for top-quintile stocks the ETF flows don't seem to be big enough to really matter.

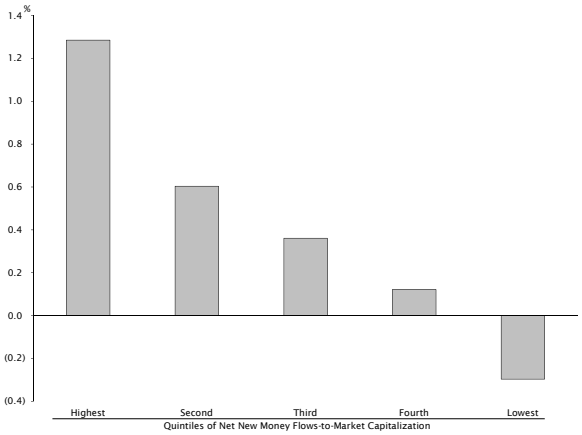
Exhibit 33: Large-Capitalization Stocks
Average *Annualized* Net New Money Flows-to-Market Capitalization by Sector[1]
2010 Through Late-March 2017



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

[1] Net new money flow is measured quarterly and is annualized by multiplying by four.

Exhibit 34: Large-Capitalization Stocks
Average *Annualized* Net New Money Flows-to-Market Capitalization by Quintile[1]
2010 Through Late-March 2017



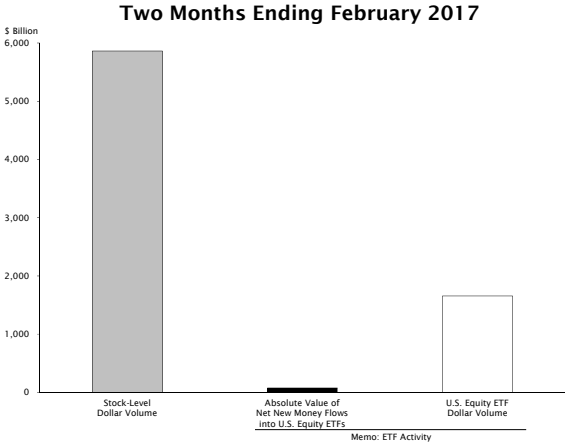
Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

[1] Net new money flow is measured quarterly and is annualized by multiplying by four.

To put things in context, we computed the total dollar turnover of large-capitalization stocks in the first two months of this year (see Exhibit 35). Already about $6 trillion has changed hands, or about 24% of the market's capitalization. The almost-invisible black bar in the chart shows the absolute value of all flows in U.S. equity ETFs over the same period, which adds up to a negligible $75 billion. However, direct flows are only part of the story. The trading of the ETF units themselves on the secondary market, shown in the white bar, is nearly a third as large as the stock-level volume, big enough to matter.

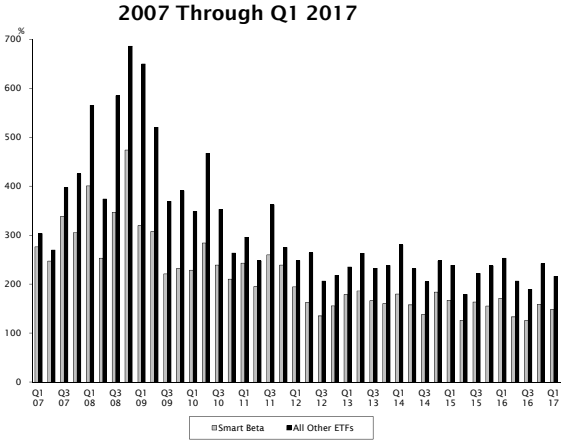
That's because ETF turnover in the secondary market is quite high, which is inconsistent with the notion that ETFs mainly used for long-term allocations. In recent years the median smart beta ETF has turned over its capitalization about one-and-a-half times per year while non-smart beta turnover has been over two times (see Exhibit 36). In fact, tactical trading of sector and smart beta ETFs has become so prevalent that collectively their dollar impact now in the same ballpark as the turnover of traditional long managers or hedge funds (see Exhibit 37). These are tectonic forces we're dealing with so knowing which ETFs are involved in the stocks you care about isn't just a nice-to-know, it's basic risk management.

Exhibit 35: Large-Capitalization Stocks
Total Dollar Volume
Two Months Ending February 2017



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 36: U.S. Equity ETFs
Median Annualized Turnover[1]
2007 Through Q1 2017

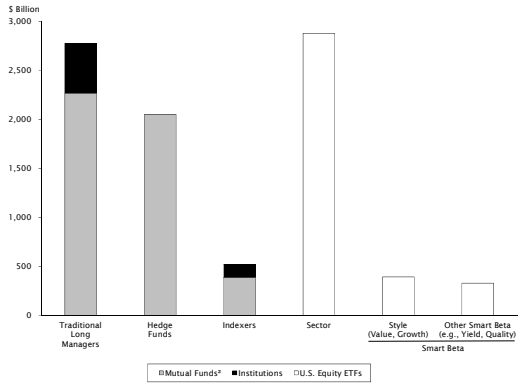


Source: Empirical Research Partners Analysis.

[1] Share of capitalization turned over each year.

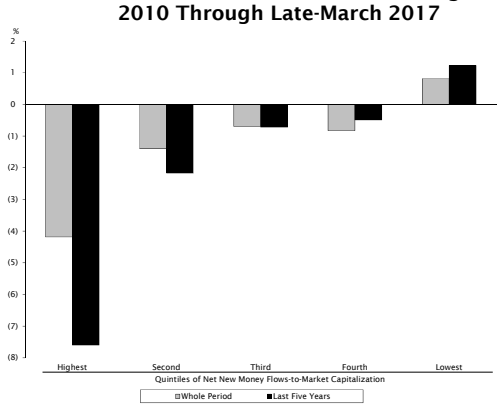
Here's once example: in recent years stocks in the most-expensive quintile of our valuation framework have under-performed by almost (8) percentage points over the next 12 months, when they also had big ETF inflows in the prior quarter (see Exhibit 38). It seems ETFs are a convenient way to spot areas of the market that might have become overvalued, and even if ETF flows don't *cause* that overvaluation per se, they help us sniff it out. The bottom line is we think there's enough evidence to suggest that passive investors are worth keeping an eye on; they can act as a signpost pointing to parts of the market where things are too good to be true.

Exhibit 37: Traditional Long Mangers (Institutions and Mutual Funds), Hedge Funds and ETFs
Dollar Value of U.S. Equity Turnover[1]
2016



Source: Federal Reserve Board, Greenwich Associates, Securities and Exchange Commission, Investment Company Institute, Empirical Research Partners Analysis.

Exhibit 38: Large-Capitalization Stocks
The Highest Quintile of Valuation
Relative Returns to the Quintiles of Net New Money Flows-to-Market Capitalization
Measured Over One-Year Holding Periods
2010 Through Late-March 2017



Source: Strategic Insight Simfund, FactSet Research Systems, Empirical Research Partners Analysis.

[1] Measured one-way.
[2] Including the equity portion of target date and balanced funds.

Appendix 1 below sorts stocks in the highest quintile of valuation by their ETF flows. Stocks at the top are those deemed overvalued by our model that have also seen big inflows into the ETFs that hold them. We'd exercise some caution when dabbling in these issues.

Appendix1: Large-Capitalization Stocks
The Highest Quintile of Valuation and Highest Two Quintiles of Net New ETF Money Flows-to-Capitalization
Sorted by Net New ETF Money Flows-to-Capitalization
As of Early-April 2017

			Quintiles (1=Best; 5=Worst)											
			Ownership Factors			Super Factors								
Symbol	Company	Price	Net New ETF Money Flows-to-Capitalization	**Net New ETF Money Flows-to-Capitalization (5=Big Inflows)**	Level of Passive Ownership (5=Highest)	**Valuation**	Capital Deployment	Earnings Quality and Trend	Market Reaction	Core Model Rank	Forward P/E-Ratio	YTD Returns	Market Capitalization ($ Billion)
SIVB	SVB FINANCIAL GROUP	$182.93	0.46 %	5	5	5	4	na	1	3	21.1 x	6.6 %	$9.6
ATO	ATMOS ENERGY CORP	79.65	0.39	5	5	5	4	3	2	5	22.2	8.0	8.4
FDS	FACTSET RESEARCH SYSTEMS INC	162.35	0.35	5	4	5	2	na	3	4	21.8	(0.4)	6.4
BRO	BROWN & BROWN INC	41.62	0.35	5	4	5	2	na	4	5	22.0	(6.9)	5.8
WR	WESTAR ENERGY INC	54.60	0.32	5	5	5	4	5	5	5	21.6	(2.4)	7.8
PTC	PTC INC	51.86	0.31	5	4	5	5	5	1	4	39.6	12.1	6.0
ACC	AMERICAN CAMPUS COMMUNITIES	48.03	0.30	5	5	5	5	5	5	5	54.9	(2.7)	6.4
TRMB	TRIMBLE INC	31.27	0.27	5	4	5	3	2	3	3	23.2	3.7	7.9
TFX	TELEFLEX INC	192.93	0.27	5	4	5	4	2	2	4	23.8	19.9	8.7
MSCI	MSCI INC	96.59	0.27	5	4	5	1	na	2	3	27.1	23.0	8.8
DRE	DUKE REALTY CORP	26.68	0.26	5	5	5	4	2	2	4	86.1	1.2	9.5
SEIC	SEI INVESTMENTS CO	50.01	0.26	5	4	5	2	na	3	5	22.6	1.3	8.0
RMD	RESMED INC	70.55	0.25	5	4	5	2	5	3	4	23.9	14.2	10.0
CBOE	CBOE HOLDINGS INC	80.89	0.24	5	4	5	3	na	2	5	25.6	9.8	9.0
CGNX	COGNEX CORP	83.87	0.21	5	4	5	4	3	1	4	44.1	32.0	7.3
WOOF	VCA INC	91.57	0.21	5	4	5	5	5	1	4	28.2	33.4	7.4
CPRT	COPART INC	59.96	0.21	5	3	5	5	2	2	3	22.9	8.2	6.9
WST	WEST PHARMACEUTICAL SVSC INC	80.82	0.20	5	5	5	5	3	3	5	32.3	(4.6)	5.9
WWAV	WHITEWAVE FOODS CO	56.19	0.19	5	4	5	5	5	3	5	36.1	1.1	10.0
MKTX	MARKETAXESS HOLDINGS INC	185.87	0.18	5	4	5	2	na	4	5	46.7	26.7	7.0
DPZ	DOMINO'S PIZZA INC	186.36	0.18	5	4	5	3	2	1	2	35.8	17.3	9.0
LII	LENNOX INTERNATIONAL INC	165.87	0.18	5	4	5	4	2	3	4	21.0	8.6	7.1
ALGN	ALIGN TECHNOLOGY INC	115.61	0.17	5	3	5	5	1	1	3	38.8	20.3	9.3
REG	REGENCY CENTERS CORP	66.35	0.16	5	5	5	4	5	5	5	38.7	(3.1)	11.3
AMD	ADVANCED MICRO DEVICES	14.16	0.14	4	4	5	5	1	1	5	188.8	24.9	13.3
MRVL	MARVELL TECHNOLOGY GROUP LTD	14.96	0.14	4	1	5	1	2	1	3	13.1	8.3	7.6
PXD	PIONEER NATURAL RESOURCES CO	187.81	0.12	4	3	5	5	4	3	5	108.8	4.3	31.9
ADI	ANALOG DEVICES	81.24	0.11	4	3	5	1	1	1	1	19.7	12.5	29.7
CHK	CHESAPEAKE ENERGY CORP	6.32	0.10	4	5	5	5	1	1	3	8.4	(10.0)	5.7
WY	WEYERHAEUSER CO	33.96	0.10	4	3	5	5	4	2	5	35.0	13.9	25.4
SYMC	SYMANTEC CORP	30.38	0.10	4	4	5	1	2	1	1	17.7	27.5	18.8
COG	CABOT OIL & GAS CORP	24.58	0.09	4	4	5	4	3	4	4	39.0	5.3	11.4
OXY	OCCIDENTAL PETROLEUM CORP	64.01	0.09	4	3	5	2	1	5	3	64.0	(9.0)	48.9
NFX	NEWFIELD EXPLORATION CO	37.14	0.08	4	4	5	5	1	5	5	19.0	(8.3)	7.4
MON	MONSANTO CO	114.75	0.08	4	3	5	4	4	4	5	23.2	9.6	50.3
EOG	EOG RESOURCES INC	98.25	0.08	4	3	5	3	1	3	3	78.3	(2.7)	56.7
A	AGILENT TECHNOLOGIES INC	52.62	0.08	4	3	5	2	2	1	2	24.4	15.8	17.0

Source: Empirical Research Partners Analysis.