

Stock Selection: Research and Results December 2016

Passive Aggressive Behavior: The Impact of Passive Ownership on Stock Selection

Active Versus Passive: By the Numbers

- On the short-list of topics *not* to mention at a dinner party, the active versus passive debate probably weighs in just below the recent election and just above asking your host whether she's recently had Botox. Unfortunately, given the passions inflamed on both sides of the index-or-not debate, there's been a tendency to veer towards click-bait headlines instead of real, substantive work. In this research we try to answer questions that have empirical answers. Passive investing is a fact of life and it's here to stay; what we care about is how that impacts what we do every day: long-term, fundamentally-based stock selection.
- Currently passive investors own 14% of the share register for the average large-cap stock. That's more than double the ownership of hedge funds, which currently control around 6% of the shares outstanding. It also marks a big change from the pre-Crisis era when passive ownership and hedge fund ownership were neck-and-neck. These days a stock needs to be more than 17% passively-owned to qualify for the top quintile of passive ownership, up from less than 4% back in 2001.

The Bond Proxies, in Flimsy Disguise

- One of the most important findings is that stocks with high passive ownership tend to be higher dividend yield stocks with stable, predictable fundamentals and a high correlation with Treasury bond returns. In other words, passive ownership has become yet another manifestation of the bond-proxy trade. Almost 80% of REITs and 60% of utilities stocks currently rank in the highest quintile of passive ownership.
- Membership in the Vanguard REIT Index Fund, the iShares Select Dividend ETF, and/or the SPDR S&P Dividend ETF can be the swing factor that propels a stock into the highest quintile of passive ownership. Smart beta products like the iShares Minimum Volatility ETF and Guggenheim's Equally-Weighted S&P 500 ETF also account for some of the difference in passive ownership between a top-quintile stock and the rest.
- Since the end of June when the yield trade started to unwind stocks with high passive ownership have underperformed the market. Worse, the left tail of their return distribution since then has been much fatter than history would suggest. Once an idea is given a ticker and a price chart you can throw the backtested return distribution out the window, the future won't look anything like the past. The rise of indexing has made it critically important to understand what big picture bets are being articulated by passive investors and which stocks are disproportionately exposed to those investors.

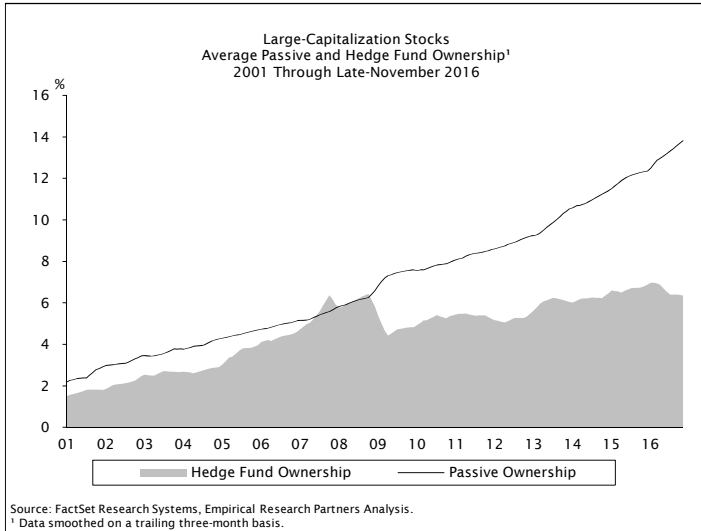
Tall Tales from the Tape

- We noticed that stocks with high passive ownership and favorable price momentum have tended to *underperform* in the future, whereas positive momentum has been a good sign for stocks with high hedge fund ownership. Our take is that momentum is useful at the margin when the players in the game might have some edge in understanding what's going on with company fundamentals. Hedge funds fit that bill, but index funds don't. Chasing the tape in passive-dominated stocks risks putting you into whatever the hot, top-down trade of the day is, almost certainly at the wrong time since investors are terrible style-timers in aggregate.
- Appendix 1 on page 14 lists large-cap stocks with high passive ownership that have also seen a big increase in that ownership over the past three years. People's United Financial, Host Hotels & Resorts, Avalon Bay Communities, and Pitney Bowes feature, among others. Some of these stocks may have been bid up beyond their fundamentals by passive owners. Appendix 2 on page 15 has the same for small-caps.

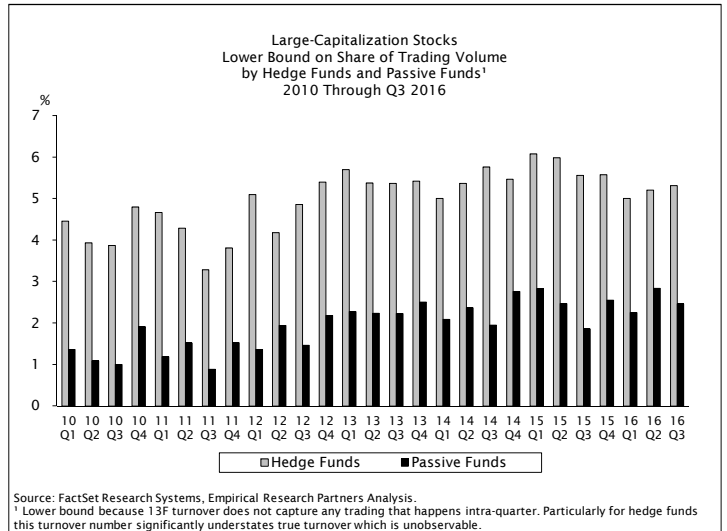
Sungsoo Yang (212) 803-7925 Nicole Price (212) 803-7935 Yi Liu (212) 803-7942 Iwona Scanzillo (212) 803-7915

Conclusions in Brief

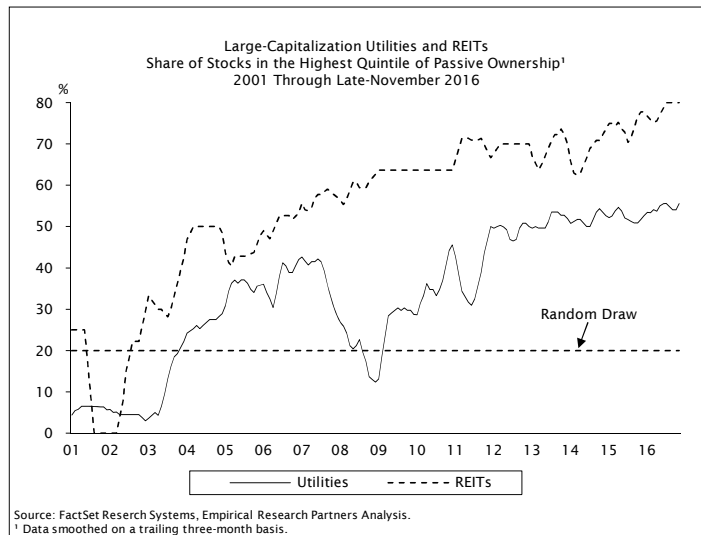
- Passive owners now control double the shares that hedge funds do...



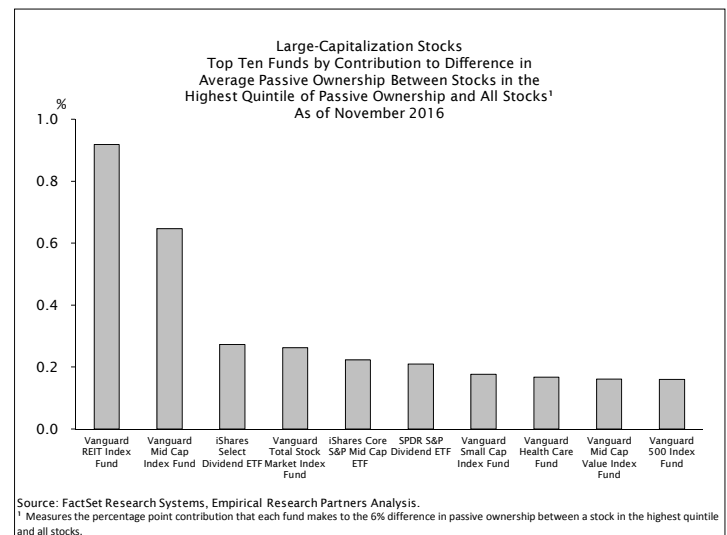
- ...But their turnover is less than half that of hedge funds:



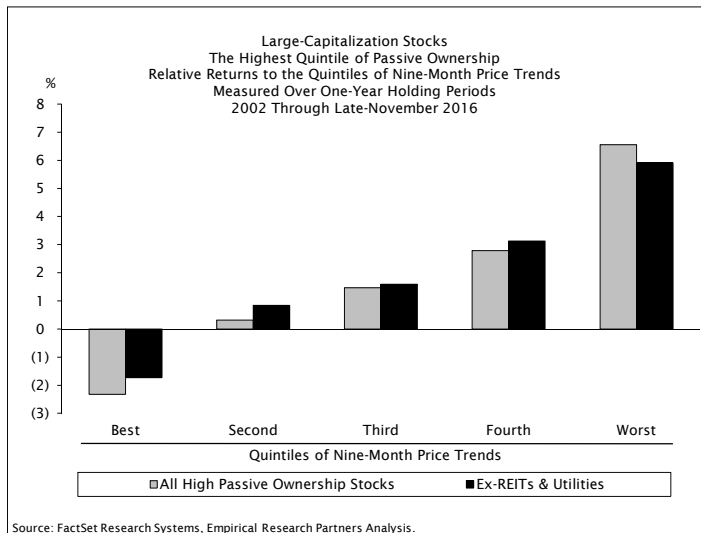
- High passive ownership stocks are disproportionately high yield stocks...



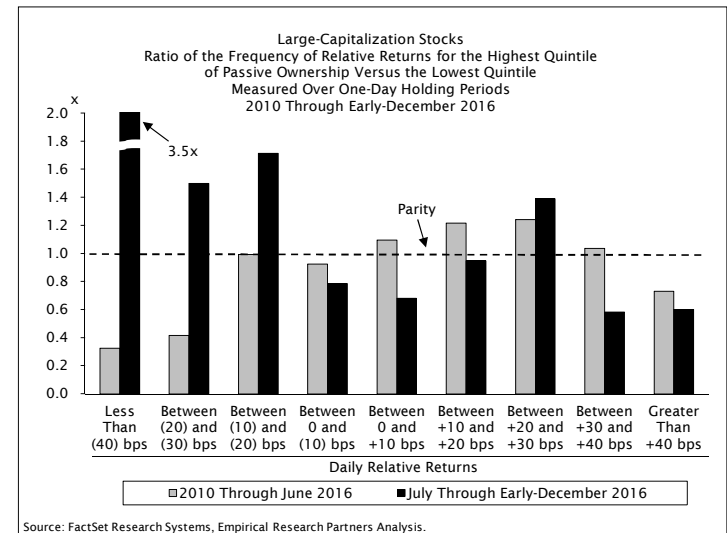
- ...Driven by the rise of yield-oriented smart beta products:



- Following the trend is a bad idea when passive owners are present:



- Passive investors have altered the future return distribution for the stocks they hold:



Passive Aggressive Behavior: The Impact of Passive Ownership on Stock Selection

Active Versus Passive: By the Numbers

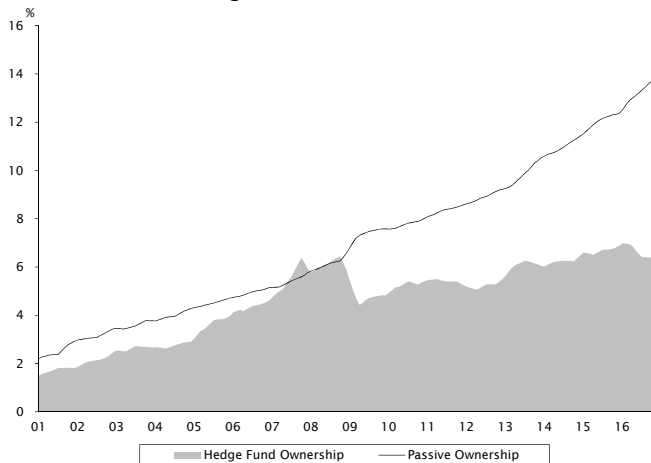
Following an election that raised a lot more questions than answers, about the only thing we know for certain is that the old adage still holds true: Don't talk politics at the dinner table. That's good advice to be sure, so long as one doesn't let the conversation drift to the merits of active versus passive investing instead, a topic that's liable to leave you with just as many broken wine glasses. As passions on both sides of the active share aisle have heated up, much of the debate has degenerated into click-bait headlines. It seems unlikely that indexing is the new Marxism, about to sprout a beard and rush in to fill the gaping void left by Fidel Castro's passing. But it's equally farfetched to think that active managers will ride triumphantly to the rescue en masse, saving asset owners from a lifetime of mediocre returns with their unerring stock picks. Most likely the truth lies, boringly, somewhere in the middle, right between the tater tots and the green beans.

In this research we focus on the numbers and try to answer questions that have empirical answers. How much of the market do passive investors own? What's their share of day-to-day turnover? Do stocks with high passive ownership behave differently from other stocks? What kinds of stocks have high passive ownership? The rise of passive investing is a fact of life; what we care about is its impact on what we do every day: long-term, fundamentally-based stock selection.

Our starting point is a database of fund holdings, both active and passive, collected by FactSet, a data vendor. The database begins in the early-2000s and draws on regulatory 13F filings as well as voluntary disclosures of holdings made more frequently, for example by ETFs. First, we classified all funds, living and dead, into active or passive. For the passive bucket we included both index mutual funds as well as ETFs. Next, as is usually our wont, we added everything up from the stock-level to see what things look like in aggregate.

It turns out passive investors now hold 14% of the shares outstanding for the average large-cap U.S. stock (see Exhibit 1). That's up seven-fold in a decade-and-a-half. For comparison, the grey series in the chart shows hedge fund ownership. It was neck-and-neck with passive ownership until the Crisis, but has been left behind since and now hedge fund ownership is a little less than half that of passive investors. Among small-cap stocks the average passive ownership is very similar to large-caps, at about 13%, but hedge fund ownership is much higher than for large-caps and is still on par with passive ownership (see Exhibit 2).

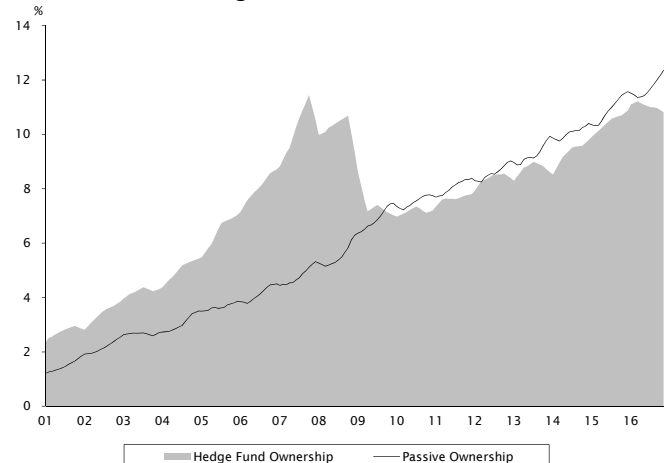
Exhibit 1: Large-Capitalization Stocks
Average Passive and Hedge Fund Ownership'
2001 Through Late-November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Data smoothed on a trailing three-month basis.

Exhibit 2: Small-Capitalization Stocks
Average Passive and Hedge Fund Ownership'
2001 Through Late-November 2016



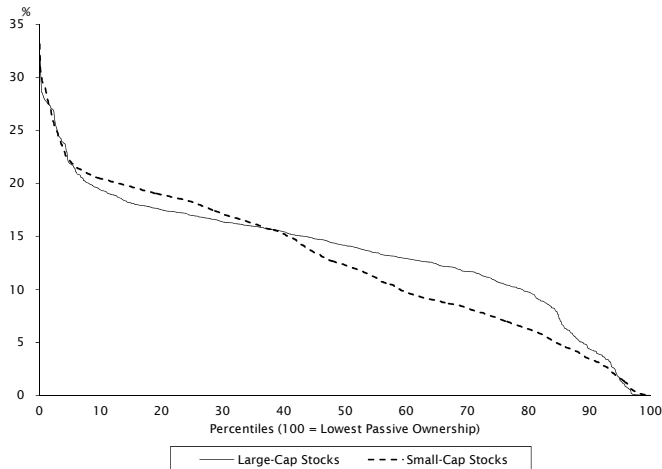
Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Data smoothed on a trailing three-month basis.

Exhibit 3 shows the distribution of passive ownership across our large- and small-cap universes. For stocks in the highest quintile of passive fund ownership, i.e., to the left of the 20th percentile in the chart, small-caps tend to have higher passive ownership than large-caps. But for the bottom half of the distribution small-caps have lower passive ownership. Currently the cut-off for a large-cap stock to score in the top quintile of passive ownership is 17.4%,

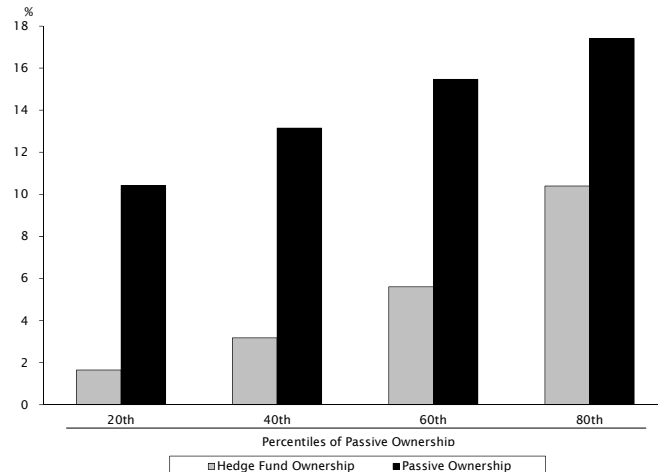
whereas to be in the top quintile of hedge fund ownership takes a reading above 10.4% (see Exhibit 4). Those numbers are up from 3.6% and 2.9% back in 2001, a testament to just how much the players in the game have changed (see Exhibit 5). For small-cap stocks, the cutoffs to make the highest quintile of passive ownership and hedge fund ownership are 18% and 19% respectively (see Exhibit 6).

**Exhibit 3: Large- and Small-Capitalization Stocks
Distribution of Passive Ownership
As of Late-November 2016**



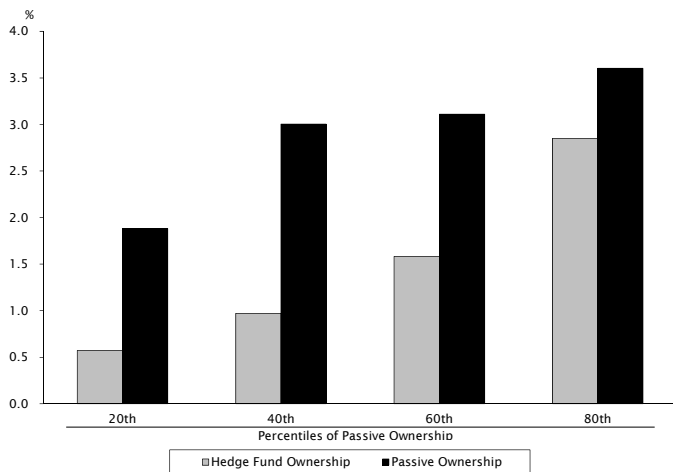
Source: FactSet Research Systems, Empirical Research Partners Analysis.

**Exhibit 4: Large-Capitalization Stocks
Percentiles of Passive Ownership
As of November 2016**



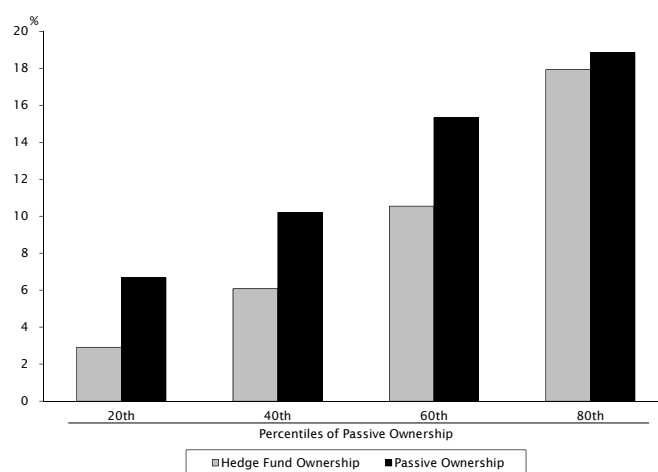
Source: FactSet Research Systems, Empirical Research Partners Analysis.

**Exhibit 5: Large-Capitalization Stocks
Percentiles of Passive Ownership
As of December 2001**



Source: FactSet Research Systems, Empirical Research Partners Analysis.

**Exhibit 6: Small-Capitalization Stocks
Percentiles of Passive Ownership
As of November 2016**

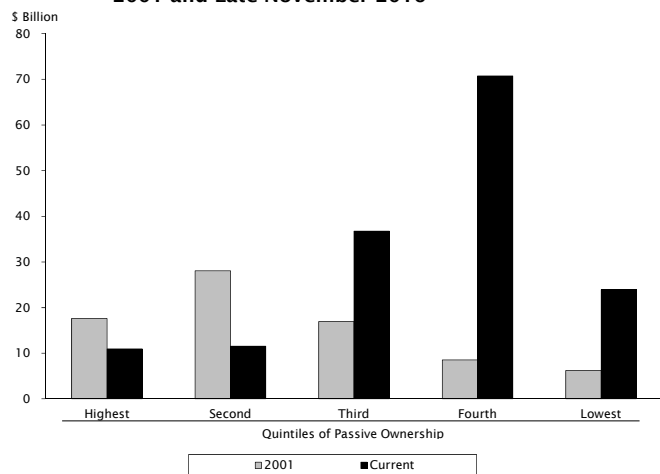


Source: FactSet Research Systems, Empirical Research Partners Analysis.

It's noteworthy that the capitalization of companies with high passive ownership has changed dramatically over time. Back in 2001 the largest companies tended to fall into the highest two quintiles of passive ownership (see Exhibit 7). But today the largest companies usually feature in the second-lowest quintile of passive ownership, see the black bars in the chart.

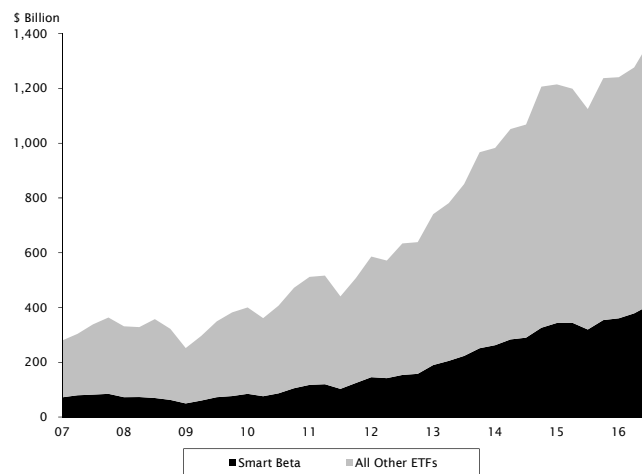
The rise of so-called smart beta strategies explain some of that size migration (see Exhibit 8). In the early days of passive investing almost everything was a bog-standard, cap-weighted index. That meant that the largest stocks, which of course featured in the most cap-weighted indexes, tended to have high passive ownership. But since the Crisis there's been a proliferation of new smart beta products that deviate from simple cap-weighted schemes; there are now a lot more specialized ETFs that focus on certain segments of the market or particular sectors (see Exhibit 9). It's now much easier for smaller stocks to be held heavily by ETFs, beyond what they'd justify in a strictly cap-weighted world.

Exhibit 7: Large-Capitalization Stocks
Average Market Capitalization
by Quintile of Passive Ownership
2001 and Late-November 2016



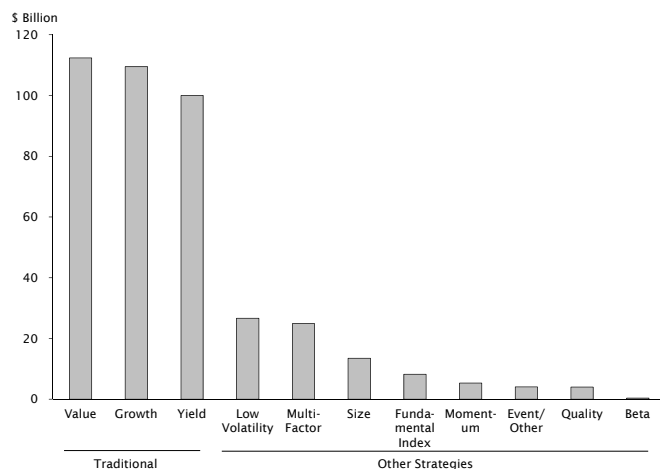
Source: FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 8: U.S. ETFs: Smart Beta and All Others
Assets Under Management
2007 Through Q3 2016



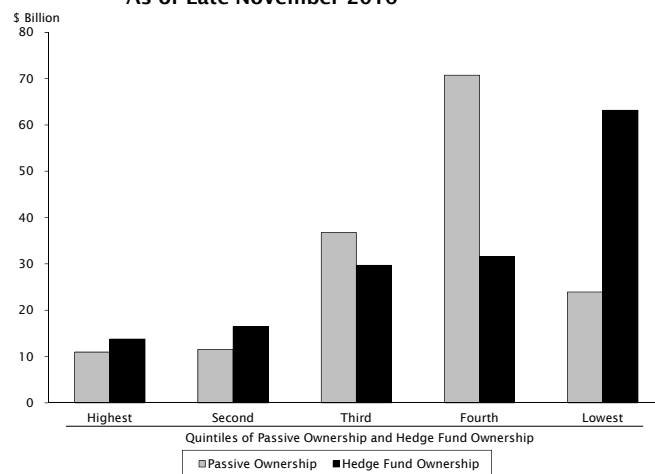
Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

Exhibit 9: U.S. Smart-Beta ETFs
Assets Under Management By Strategy
As of Q3 2016



Source: Strategic Insight Simfund, Empirical Research Partners Analysis.

Exhibit 10: Large-Capitalization Stocks
Average Market Capitalization by Quintile of
Passive Ownership and Hedge Fund Ownership
As of Late-November 2016



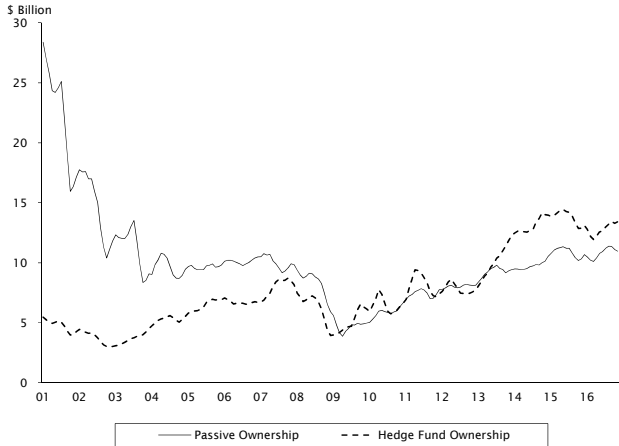
Source: FactSet Research Systems, Empirical Research Partners Analysis.

In fact, the size profile for passive ownership now looks a lot like that for hedge fund ownership (see Exhibit 10). Most of the mega-caps in the market tend to have low passive ownership and low hedge fund ownership. Such stocks are so big there aren't enough dollars of hedge fund assets or passive assets to build up stakes that are much beyond their cap-weights. Exhibit 11 shows that the average capitalization of a stock in the highest quintile of hedge fund ownership and the highest quintile of passive ownership has now converged. That means there's a subset of stocks in the market, typically with caps ranging from about \$5 to \$15 billion, that are heavily owned by passive investors and hedge funds. For small-caps it's a bit of a different picture: stocks with high passive ownership are typically the larger-cap stocks in that universe (see Exhibit 12).

The Bond Proxy Trade All Over Again

Despite the similar cap sizes of stocks with high passive ownership and hedge fund ownership their other characteristics are quite different. The most noticeable difference is a big sector bias among stocks with high passive ownership (see Exhibit 13). Currently a staggering 80% of REITs fall into the highest quintile of passive ownership market-wide, and utilities aren't far behind. At the other end of the spectrum consumer discretionary, industrial, and financial stocks tend to have disproportionately low passive ownership (see Exhibit 14). But it hasn't always been that way. REITs and utilities have seen massive increases in their passive ownership over the years, whereas technology and health care stocks have seen steadily declining passive ownership (see Exhibits 15 and 16).

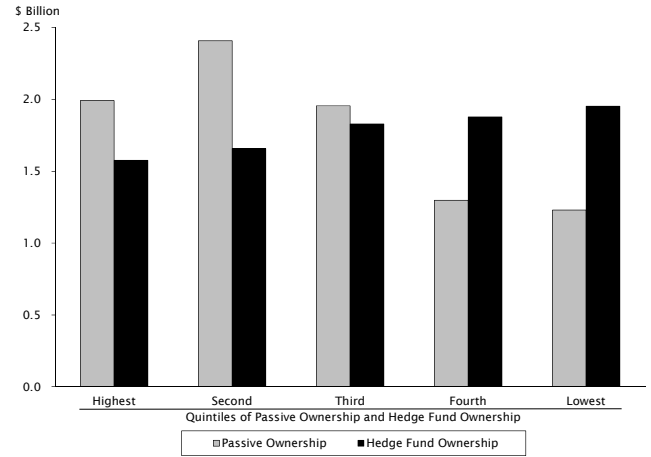
Exhibit 11: Large-Capitalization Stocks
The Highest Quintiles of Passive Ownership and Hedge Fund Ownership¹
Average Market Capitalization
2001 Through Late-November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

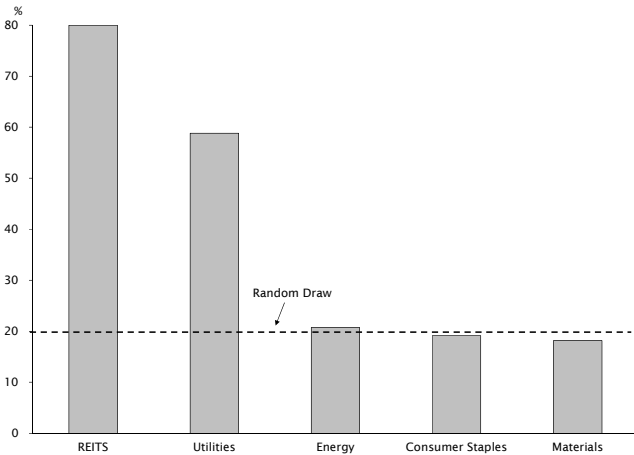
¹ Equally-weighted data smoothed on a trailing three-month basis.

Exhibit 12: Small-Capitalization Stocks
Average Market Capitalization by Quintile of
Passive Ownership and Hedge Fund Ownership
As of Late-November 2016



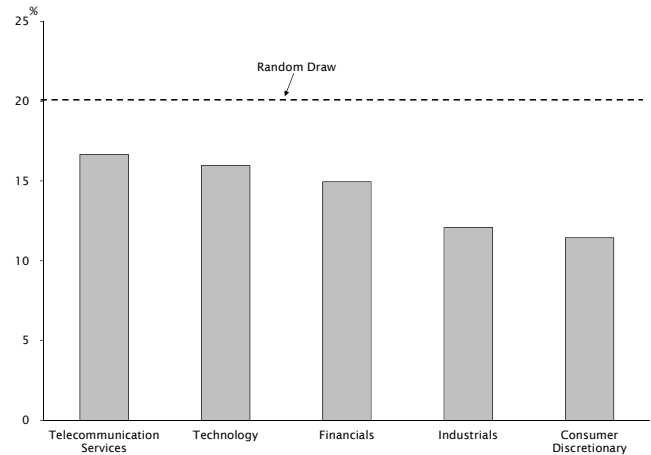
Source: FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 13: Large-Capitalization Stocks
Top Five Sectors by Share of Stocks in the
Highest Quintile of Passive Ownership
As of Late-November 2016



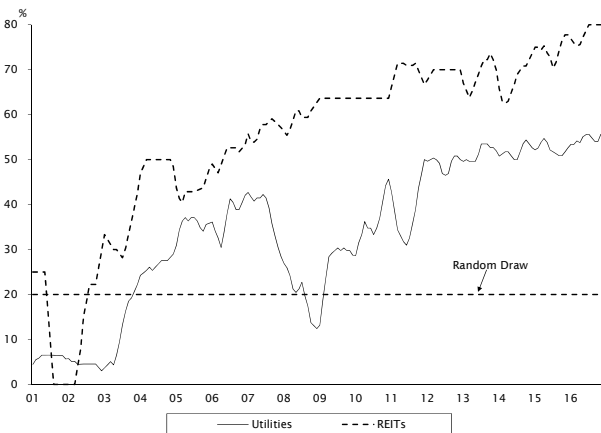
Source: FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 14: Large-Capitalization Stocks
Bottom Five Sectors by Share of Stocks in the
Highest Quintile of Passive Ownership
As of Late-November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

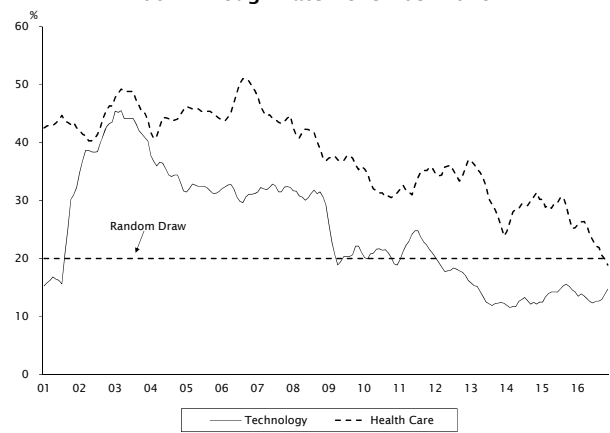
Exhibit 15: Large-Capitalization Utilities and REITs
Share of Stocks in the Highest Quintile of Passive Ownership¹
2001 Through Late-November 2016



Source: FactSet Reserch Systems, Empirical Research Partners Analysis.

¹ Data smoothed on a trailing three-month basis.

Exhibit 16: Large-Cap Technology and Health Care Stocks
Share of Stocks in the Highest Quintile of
Passive Ownership¹
2001 Through Late-November 2016



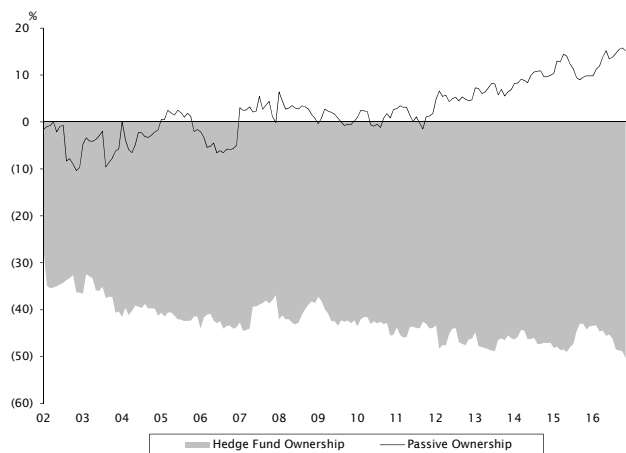
Source: FactSet Reserch Systems, Empirical Research Partners Analysis.

¹ Data smoothed on a trailing three-month basis.

Of course, this is just the yield-seeking bond proxy trade all over again, in rather flimsy disguise. Exhibit 17 shows the tilt that passive owners and hedge funds have taken towards dividend yield over time. Stocks with high hedge fund ownership have consistently had a large, negative correlation with dividend yield, see the grey series in the chart, whereas passive ownership has become more and more positively correlated over the past five years.

It's the same story if we plot both owners' exposure towards fundamental stability, a framework we use to assess the consistency and predictability of earnings (see Exhibit 18). Passive owners have also been positively exposed to stocks with a high correlation with Treasury bond returns and again hedge funds have taken the opposite stance (see Exhibit 19).

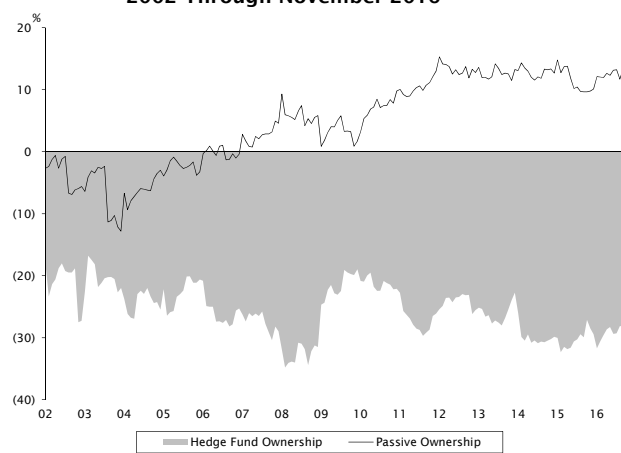
Exhibit 17: Large-Capitalization Stocks
Exposure of Ownership Factors to Dividend Yield'
2002 Through November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Exposure computed as cross-sectional correlation of factor scores at each point in time.

Exhibit 18: Large-Capitalization Stocks
Exposure of Ownership Factors to Fundamental Stability Score'
2002 Through November 2016

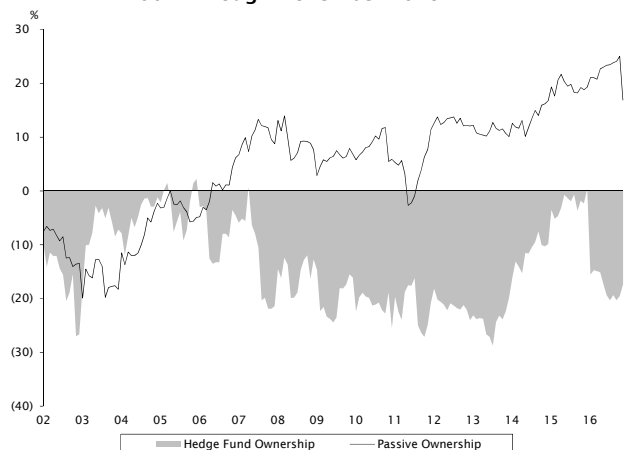


Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Exposure computed as cross-sectional correlation of factor scores at each point in time.

On the other hand, hedge funds usually lean towards growth stocks whereas passive owners have largely been short growth (see Exhibit 20). Their respective exposures to price momentum sum up what's gone on in recent years: high passive ownership stocks had all the momentum and hedge fund stocks didn't (see Exhibit 21). Up until now that is. The arbitrage risk exposure of high passive ownership stocks is now moving positive, a reflection of the rising controversy surrounding the erstwhile safety trade (see Exhibit 22). For most of history hedge funds and passive investors preferred at least somewhat similar stocks, but that went out the window once indexers hitched their products to the yield wagon (see Exhibit 23).

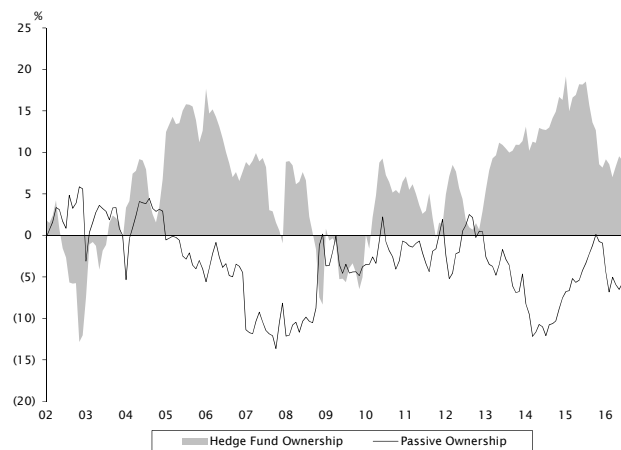
Exhibit 19: Large-Capitalization Stocks
Exposure of Ownership Factors to Correlation with Ten-Year Treasury Bond Returns'
2002 Through November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Exposure computed as cross-sectional correlation of factor scores at each point in time.

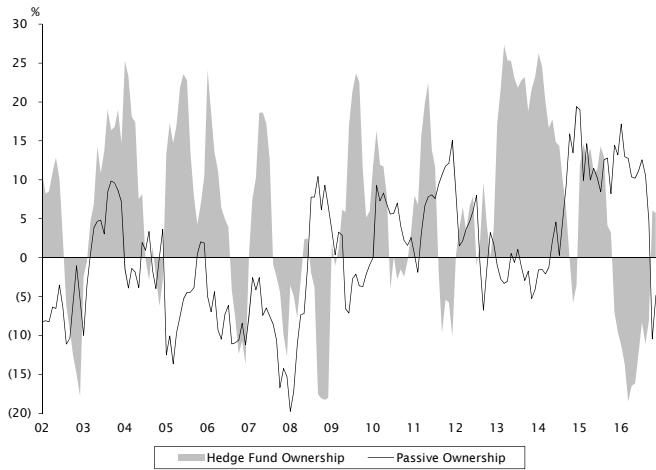
Exhibit 20: Large-Capitalization Stocks
Exposure of Ownership Factors to Growth Score'
2002 Through November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Exposure computed as cross-sectional correlation of factor scores at each point in time.

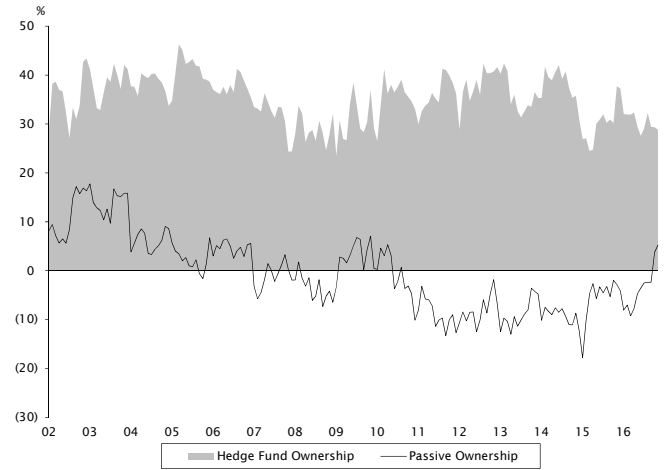
Exhibit 21: Large-Capitalization Stocks
 Exposure of Ownership Factors to Nine-Month Price Trends'
 2002 Through November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Exposure computed as cross-sectional correlation of factor scores at each point in time.

Exhibit 22: Large-Capitalization Stocks
 Exposure of Ownership Factors to Arbitrage Risk'
 2002 Through November 2016



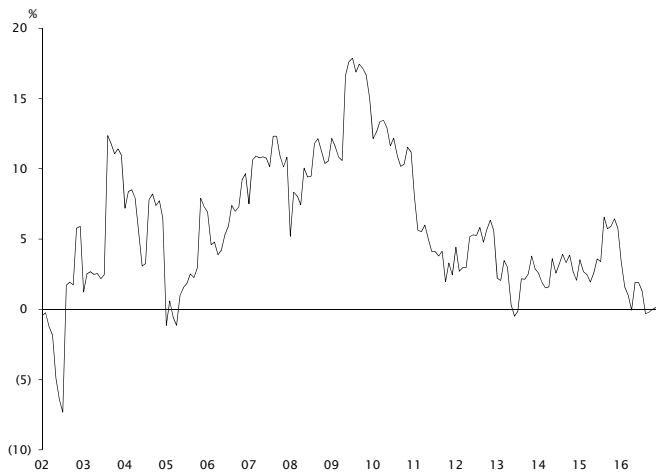
Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Exposure computed as cross-sectional correlation of factor scores at each point in time.

Smart Beta to Blame?

How did passive ownership become synonymous with yield? One way to answer that is to look at the individual funds that are driving the big yield tilt. First, we looked at the funds that contribute most to the passive ownership of the overall market (see Exhibit 24). Recall the average passive ownership of the large-cap market is 14%, so the way to interpret the chart is the percentage points of that total that each fund contributes. Most of the biggest contributors are massive, cap-weighted market indexes.

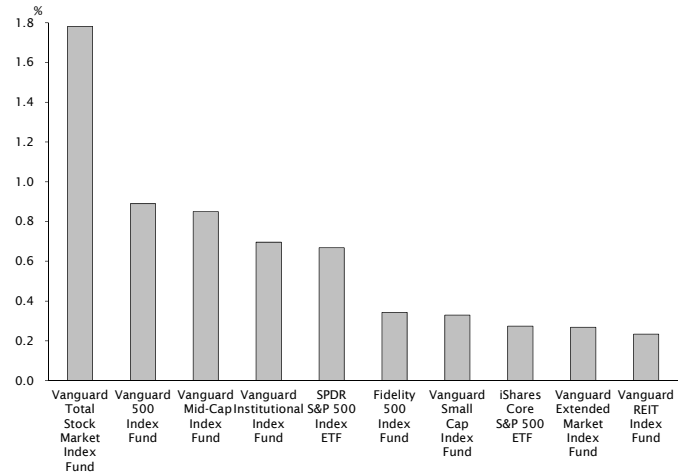
Exhibit 23: Exposure of Passive Ownership Factor to Hedge Fund Ownership'
 2002 Through November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Exposure computed as cross-sectional correlation of factor scores at each point.

Exhibit 24: Large-Capitalization Stocks
 Top Ten Funds by Contribution to Average Passive Ownership'
 As of November 2016



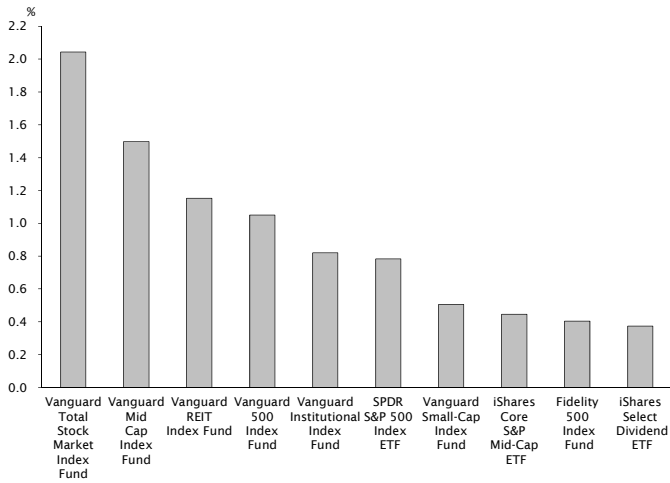
Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Measures the percentage point contribution that each fund makes to the 14% average passive ownership of the market.

Next, we did the same thing for stocks in the highest quintile of passive ownership (see Exhibit 25). For stocks in the highest quintile the average passive ownership is 20%. Notice the big move up in ranking by the Vanguard REIT Index Fund and the appearance of the iShares Select Dividend ETF in the top 10. That hints at the importance of yield products in pushing a stock into the highest quintile of passive ownership.

To confirm that explicitly we looked at the 20 funds that contribute most to the 6% difference (i.e., 20% - 14%) in passive ownership between a stock in the highest quintile and the average stock in the market (see Exhibits 26 and 27). Here it's abundantly clear that yield products are often the swing factor that pushes a stock into the highest quintile of passive ownership, with the Vanguard REIT Index Fund the most important, contributing almost a percentage point to the 6% difference. It's also worth noting that the iShares Minimum Volatility ETF and the Guggenheim Equally-Weighted S&P 500 ETF contribute too, albeit to a lesser degree. Collectively the 20 funds depicted in these two charts account for about two-thirds of the difference in passive ownership between a top-quintile stock and the average stock.

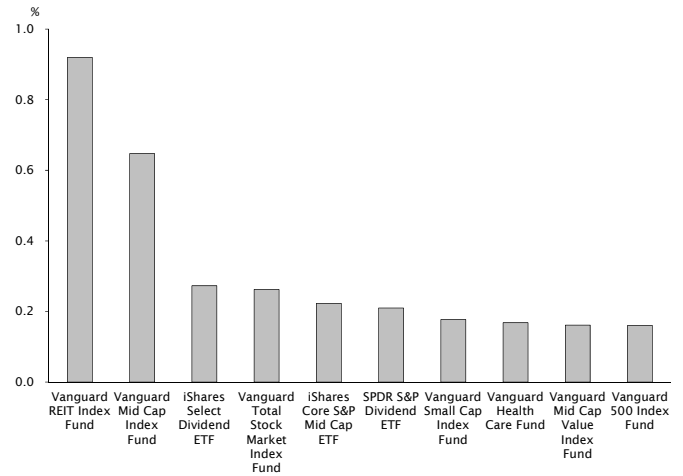
Exhibit 25: Large-Capitalization Stocks
Top Ten Funds by Contribution to Average Passive Ownership of the Highest Quintile of Passive Ownership¹
 As of November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Measures the percentage point contribution that each fund makes to the 20% average passive ownership of the highest quintile.

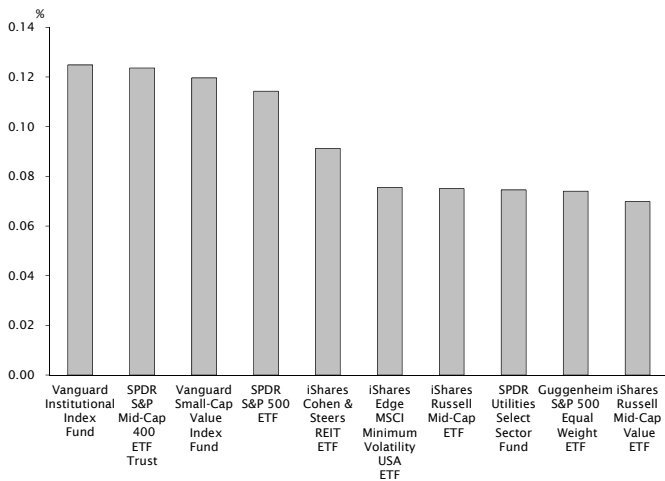
Exhibit 26: Large-Capitalization Stocks
Top Ten Funds by Contribution to Difference in Average Passive Ownership Between Stocks in the Highest Quintile of Passive Ownership and All Stocks¹
 As of November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Measures the percentage point contribution that each fund makes to the 6% difference in passive ownership between a stock in the highest quintile and all stocks.

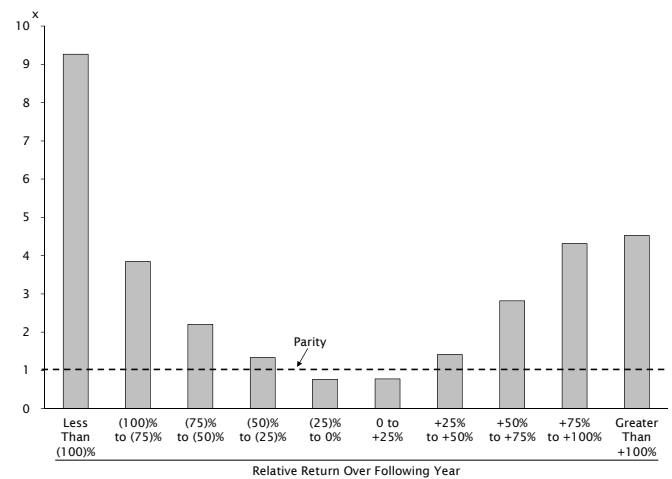
Exhibit 27: Large-Capitalization Stocks
Next Ten Funds by Contribution to Difference in Average Passive Ownership Between Stocks in the Highest Quintile of Passive Ownership and All Stocks¹
 As of November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Measures the percentage point contribution that each fund makes to the 6% difference in passive ownership between a stock in the highest quintile and all stocks.

Exhibit 28: Large-Capitalization Stocks
Ratio of the Frequency of Relative Returns for the Highest Quintile of Hedge Fund Ownership Versus the Lowest Quintile Measured Over One-Year Holding Periods 2000 Through Late-November 2016



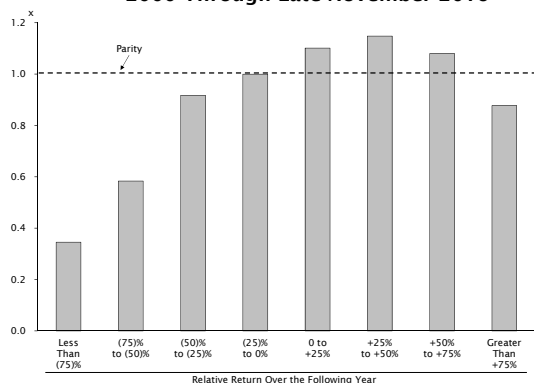
Source: FactSet Research Systems, Empirical Research Partners Analysis.

Does it Matter?

How significant is this yield exposure in explaining day-to-day movements in high passive ownership stocks? As we've pointed out before, *hedge funds* can act as catalysts in stocks they own, magnifying extreme outcomes (see Exhibit 28 Overleaf). Can passive ownership have a similar impact? On face value the answer appears to be no. Exhibit 29 shows the return distribution for high passive ownership stocks relative to stocks with low passive ownership. It turns out it's exactly opposite the hedge fund chart, meaning that stocks with high passive ownership have historically been unlikely to have extreme returns in either direction.

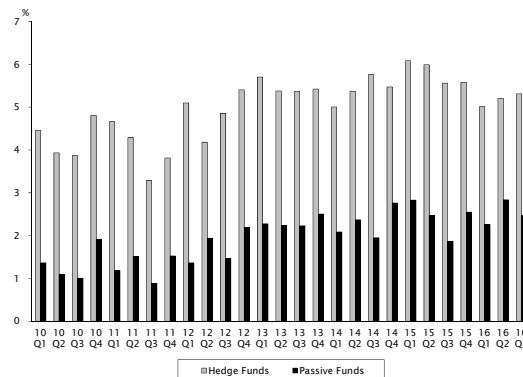
One reason for that is that passive turnover is much lower than that for hedge funds (see Exhibit 30). Even though passive owners control more than double the number of shares compared to hedge funds, their contribution to turnover is at best only half as large. In fact it's probably even less than that because the turnover we're plotting here is 13F turnover, which only captures changes in holdings from one quarter to the next. Since most hedge funds will trade quite a bit *within* the quarter too, the hedge fund turnover figure is only a lower bound on their true turnover. Index funds mostly rebalance annually or semi-annual so the turnover depicted here for passive investors is probably close to accurate.

Exhibit 29: Large-Capitalization Stocks
Ratio of the Frequency of Relative Returns for the
Highest Quintile of Passive Ownership
Versus the Lowest Quintile
Measured Over One-Year Holding Periods
2000 Through Late-November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 30: Large-Capitalization Stocks
Lower Bound on Share of Trading Volume
by Hedge Funds and Passive Funds¹
2010 Through Q3 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

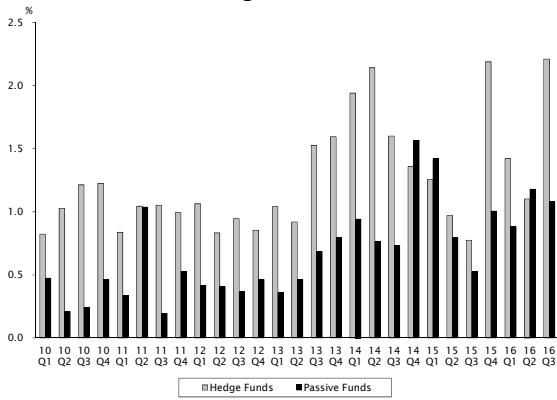
¹ Lower bound because 13F turnover does not capture any trading that happens intra-quarter. Particularly for hedge funds this turnover number significantly understates true turnover which is unobservable.

Anyway, the point is that a dollar of hedge fund ownership is, at the very least, four times as impactful on day-to-day trading as a dollar of passive ownership. The numbers do vary by stock though, for example hedge funds generate about twice the trading volume in Apple compared to passive funds, although both are a fairly negligible 1-2% of volume given the stock's huge capitalization (see Exhibit 31). In contrast, a hedge fund favorite like Charter Communications is a different beast altogether (see Exhibit 32). Until the stock was added to the S&P 500 during the third quarter, almost all the turnover was driven by hedge funds.

As we've discussed in previous research, stocks with high hedge fund ownership have outperformed for most of history (see Exhibit 33). It turns out stocks with high passive ownership have generally outperformed too (see Exhibit 34). And having rising hedge fund or passive ownership, on both a three- or 12-month basis, has also been good (see Exhibits 35 and 36). So again, it's certainly not a given that having high passive ownership is a bad thing, at least as far as history is concerned.

The problem with looking backwards is that most of the post-Crisis era has been one big bull market for bonds, providing a powerful tailwind for high passive ownership stocks. But since the end of the second quarter, when the yield trade began to unwind, it's been a very different story. Exhibit 37 shows the cumulative performance of stocks with high passive ownership and high hedge fund ownership. Since the end of June, stocks in the highest quintile of passive ownership have underperformed by (3) percentage points. That's about a third of the magnitude of the sell-off in high hedge fund ownership stocks from the start of September last year through to early-February this year.

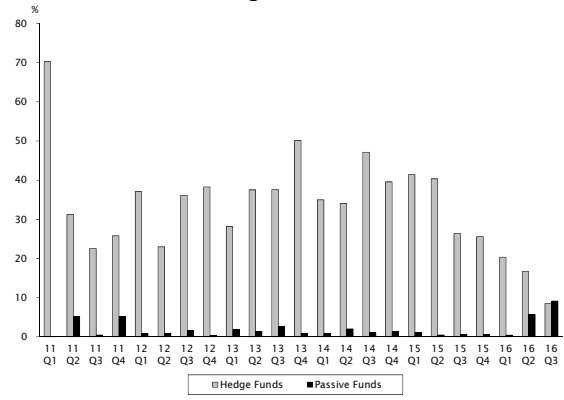
Exhibit 31: Apple (AAPL)
Lower Bound Share on Share of Trading Volume
by Hedge Funds and Passive Funds¹
2010 Through Q3 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Lower bound because 13F turnover does not capture any trading that happens intra-quarter. Particularly for hedge funds this turnover number significantly understates true turnover which is unobservable.

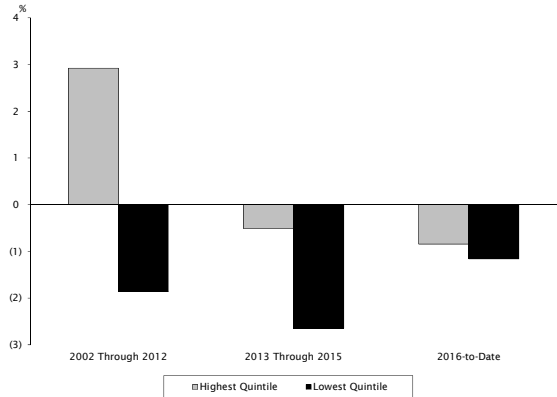
Exhibit 32: Charter Communications (CHTR)
Lower Bound on Share of Trading Volume
by Hedge Funds and Passive Funds¹
2011 Through Q3 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Lower bound because 13F turnover does not capture any trading that happens intra-quarter. Particularly for hedge funds this turnover number significantly understates true turnover which is unobservable.

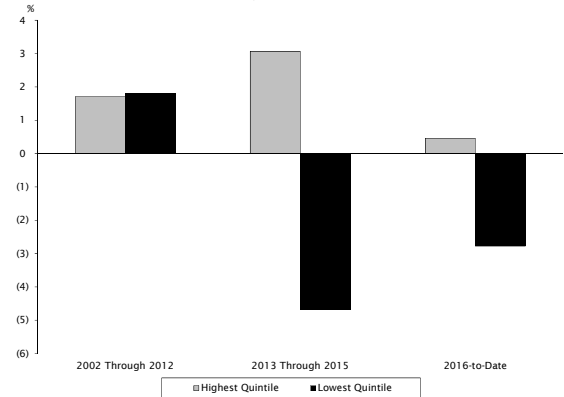
Exhibit 33: Large-Capitalization Stocks
Relative Returns to the Highest and Lowest Quintiles
of Hedge Fund Ownership¹
Measured Over One-Year Holding Periods
2002 Through Late-November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Equally-weighted data; 2016-to-date is based on monthly data compounded and is unannualized.

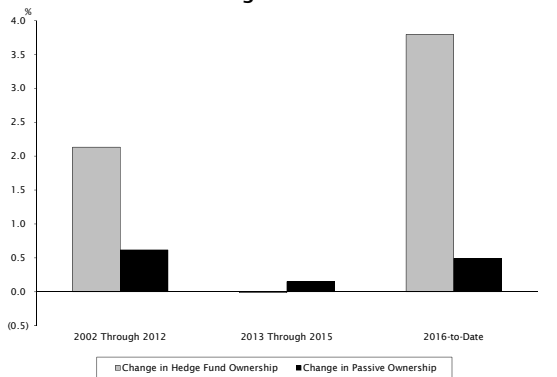
Exhibit 34: Large-Capitalization Stocks
Relative Returns to the Highest and Lowest Quintiles
of Passive Ownership¹
Measured Over One-Year Holding Periods
2002 Through Late-November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Equally-weighted data; 2016-to-date is based on monthly data compounded and is unannualized.

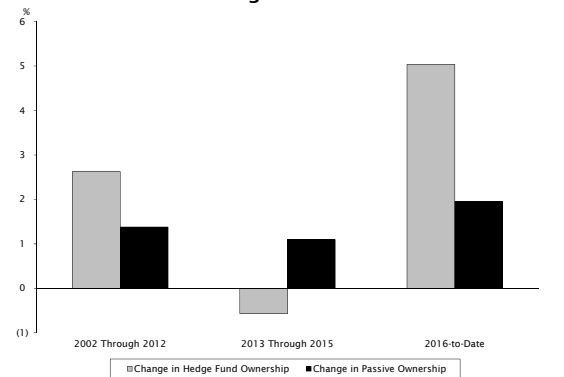
Exhibit 35: Large-Capitalization Stocks
Relative Returns to the Highest Quintiles of
Three-Month Change in Hedge Fund Ownership
and Passive Ownership¹
Measured Over One-Year Holding Periods
2002 Through Late-November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Equally-weighted data; 2016-to-date is based on monthly data compounded and is unannualized.

Exhibit 36: Large-Capitalization Stocks
Relative Returns to the Highest Quintiles of
Twelve-Month Change in Hedge Fund Ownership
and Passive Ownership¹
Measured Over One-Year Holding Periods
2002 Through Late-November 2016

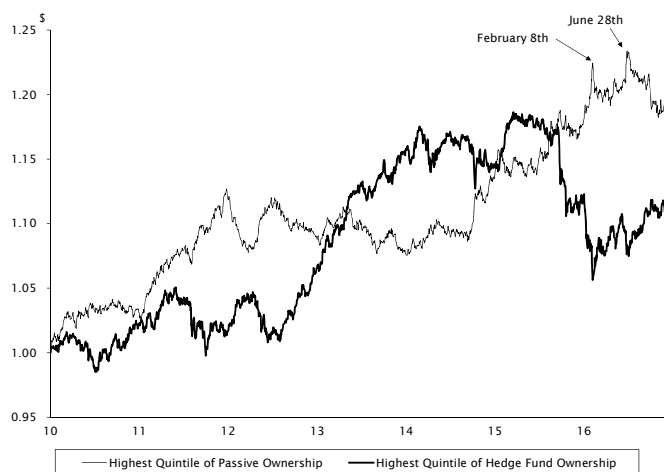


Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Equally-weighted data; 2016-to-date is based on monthly data compounded and is unannualized.

Losing by (3) points doesn't sound like a lot, but in the context of the historical return distribution for high passive ownership stocks it's quite large. From the end of June the distribution of daily returns for stocks with high passive ownership compared to those with low ownership has inverted (see Exhibit 38). Before June, the shape was an inverted-U, just like the annual data we showed back in Exhibit 29. But as shown in the black bars, the post-June distribution looks more like that of hedge fund ownership from Exhibit 28, particularly the left tail.

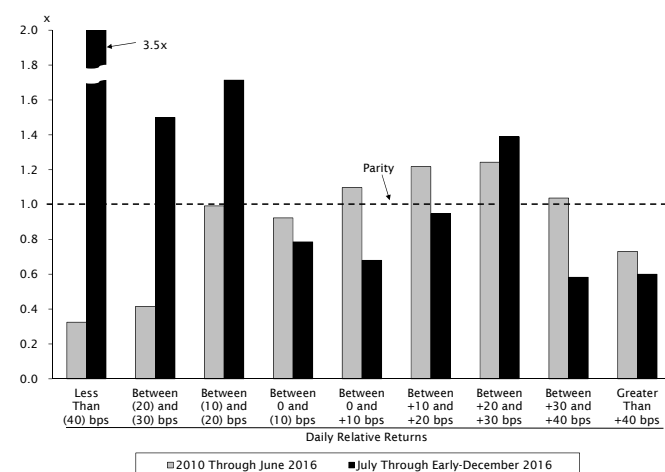
Exhibit 37: Large-Capitalization Stocks
Cumulative Relative Growth of a Dollar Invested in the Highest Quintiles of Passive Ownership and Hedge Fund Ownership¹
Daily Data Compounded 2010 Through Early-December 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Equally-weighted data.

Exhibit 38: Large-Capitalization Stocks
Ratio of the Frequency of Relative Returns for the Highest Quintile of Passive Ownership Versus the Lowest Quintile Measured Over One-Day Holding Periods 2010 Through Early-December 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

Our take on all of this is that the historical return distribution of high passive ownership stocks tells us very little about the future return distribution. As soon as something is packaged up and given a ticker and a price chart, as has been the case with yield, the prospective behavior of that thing is altered. The rise of indexing makes it critically important to understand what big picture bets are being articulated by passive investors and how those bets might unwind.

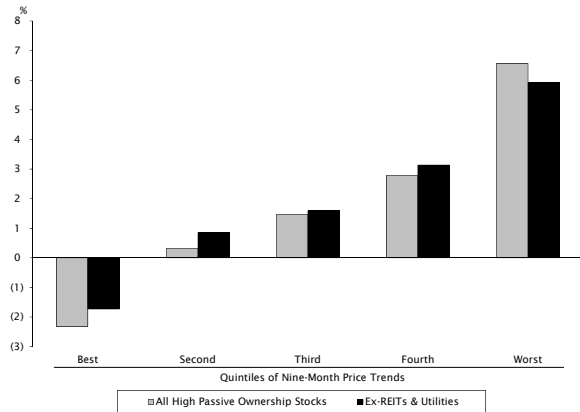
Tall Tales from the Tape

On that note, it's been our view for a while now that the tape no longer tells us anything useful, and we found further evidence of that in the interaction of price momentum and passive ownership. We noticed that momentum has been perverse among stocks with high passive ownership, meaning positive nine-month momentum was actually a bad thing for heavily passive-owned stocks (see Exhibit 39). That's even true if we exclude REITs and utilities, two sectors where reversal has traditionally dominated momentum, see the black bars in the chart. In contrast, high momentum has generally outperformed among stocks with *low* passive ownership (see Exhibit 40).

Our take is that for high passive ownership stocks, momentum is really just telling us that whatever big picture theme the stock is caught up in is hot. But that's usually a pretty poor time to jump on board, after all investors have a history of being abysmal style-timers because they usually clamor in at the point of maximum exuberance and bail out at the point of maximum pain.

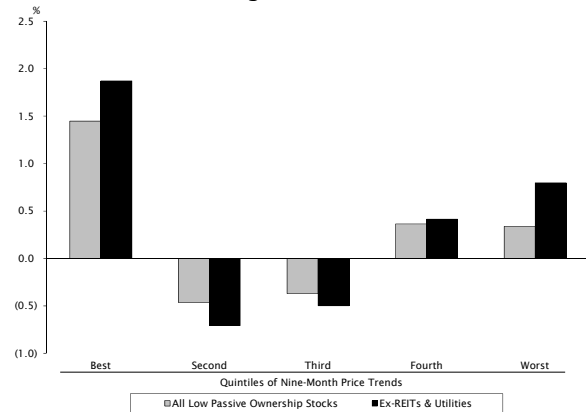
By way of comparison we looked at the performance of momentum among high hedge fund ownership stocks (see Exhibit 41). Over the whole sample period, starting in 2002, momentum didn't matter much in high hedge fund ownership stocks, see the black bars in the chart. Flipping back to Exhibit 23 that's because high hedge fund ownership stocks were already high momentum stocks to begin with, so sorting again on momentum didn't add much. But in the post-Crisis era stocks with high hedge fund ownership *and* high momentum have done a bit better than those with high hedge fund ownership but low momentum (see Exhibit 42). For stocks with high passive ownership having a good price trend has continued to be a warning sign even in the post-Crisis years, see the grey bars.

Exhibit 39: Large-Capitalization Stocks
The Highest Quintile of Passive Ownership
Relative Returns to the Quintiles of Nine-Month Price Trends
Measured Over One-Year Holding Periods
2002 Through Late-November 2016



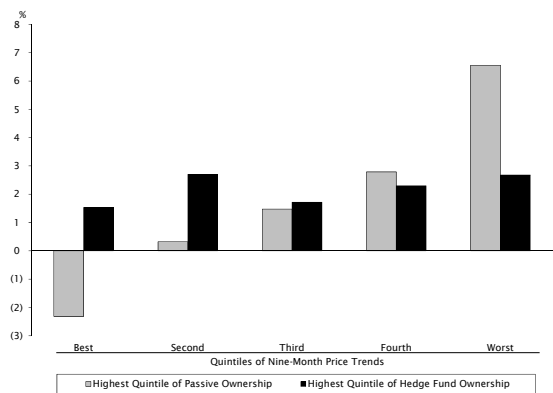
Source: FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 40: Large-Capitalization Stocks
The Lowest Quintile of Passive Ownership
Relative Returns to the Quintiles of
Nine-Month Price Trends
Measured Over One-Year Holding Periods
2002 Through Late-November 2016



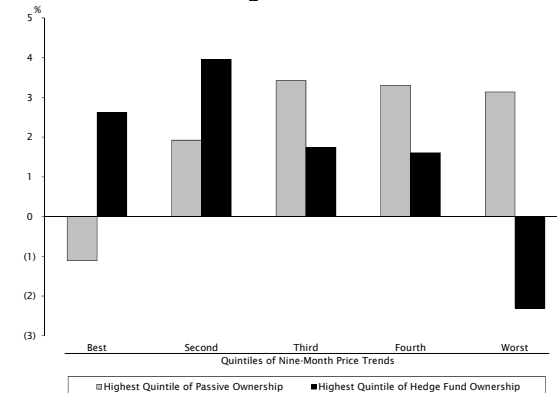
Source: FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 41: Large-Capitalization Stocks
The Highest Quintiles of Passive Ownership
and Hedge Fund Ownership
Relative Returns to the Quintiles of Nine-Month Price Trends
Measured Over One-Year Holding Periods
2002 Through Late-November 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

Exhibit 42: Large-Capitalization Stocks
The Highest Quintiles of Passive Ownership
and Hedge Fund Ownership
Relative Returns to the Quintiles of
Nine-Month Price Trends
Measured Over One-Year Holding Periods
2010 Through Late-November 2016



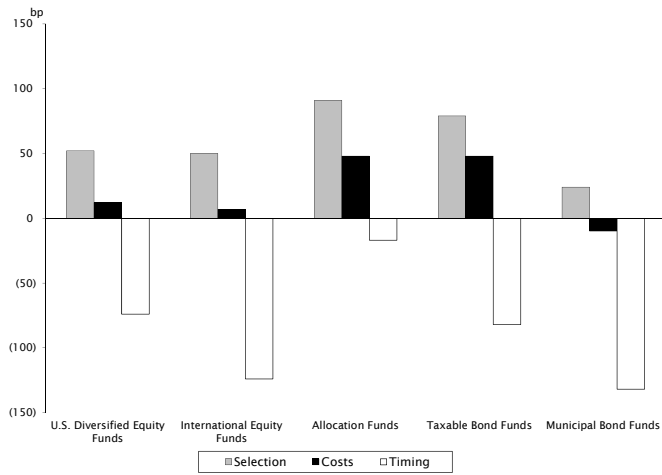
Source: FactSet Research Systems, Empirical Research Partners Analysis.

Our read of these results is that momentum is useful at the margin when the players in the game might have some edge in understanding what's going on with company fundamentals. Hedge funds probably fit that bill but index funds almost certainly don't. That means following the tape in hedge fund-infested waters can be moderately helpful, but jumping on the trend in stocks where ETFs are dominant risks putting you in whatever the hot, top-down theme of the day is, be it high yield, biotech, internet security or any number of easy-to-sell headlines. The massive unwind of the bond proxy trade that began in the third quarter and accelerated post-election is as good an illustration as any of the dangers of that approach.

Conclusion: Smart Beta Exacerbates Passive Aggressive Behavior

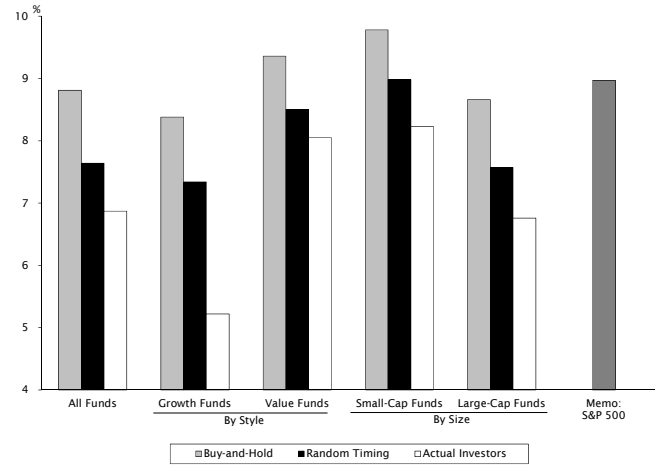
Putting everything together, our view is that understanding who else owns your stocks isn't just a nice to know, it's basic risk management. The players in the game have changed, and collectively hedge funds and passive investors own about a fifth of the shares outstanding. The biggest risk when holding stocks with high passive ownership is getting caught up in whatever the trending #tradeoftheday is. The proliferation of smart beta strategies mean there's always going to be a handful of ETFs that have a great price chart, like the yield products have enjoyed in recent years. Unfortunately, investors are terrible style-timers in aggregate (see Exhibits 43 and 44). That's why following momentum is dangerous among stocks that have heavy passive ownership; the tape isn't telling you anything about the underlying fundamentals of the company so jumping on board just exposes you to the poor aggregate timing ability of smart beta users.

Exhibit 43: Investors' Alpha in Traditional Mutual Funds
From Fund Selection, Lower Costs and Timing Decisions
Ten Years Ending 2015



Source: Morningstar.

Exhibit 44: U.S. Equity Mutual Funds
Pre-Fee Returns Realized by Type of Manager and Style-Timing Strategy¹
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.

The backwards-looking distribution of returns for stocks with high passive ownership looks benign, but that's because passive ownership has been tilted towards bond-like, higher-yielding, lower-volatility stocks for most of the post-Crisis era. Once an idea is given a ticker and a price chart you can throw the backtested return distribution out the window, the future won't look anything like the past. That's already evident in the fat-tailed daily return distribution for high passive ownership stocks since the end of June, when the yield trade began to unwind.

Appendix 1 below screens for stocks with high passive ownership that have seen a big increase in that ownership over the past three years. There's a risk some of these stocks have been bid up mainly by passive investors without much reference to their underlying fundamentals. Caution is warranted when evaluating these stocks. Appendix 2 on page 15 has the small-caps.

Appendix 1: Large-Capitalization Stocks
The Highest Quintiles of Passive Ownership and Three-Year Change in Passive Ownership
Sorted by Current Passive Ownership
As of Early-December 2016

Symbol	Company	Price	Passive Ownership:				Quintile Ranks			Memo:			Market Capitalization (\$ Billion)	
			Current	Three Years Ago	Change	Change (1=Biggest Increase)	Nine-Month Price Trend (1=Most Positive)	Valuation (5=Most Expensive)	Fundamental Stability (1=Most Stable)	Core Model Rank (1=Best)	Forward P/E Ratio	YTD Returns		
PBCT	PEOPLES UNITED FINL INC	\$19.18	32.2 %	16.2 %	+15.9 %	1	1	2	3	2	3	20.3 x	24.1 %	\$6.0
HST	HOST HOTELS & RESORTS INC	18.48	27.9	20.2	7.7	1	1	3	1	4	1	26.1	25.1	13.7
AVB	AVALONBAY COMMUNITIES INC	164.20	26.6	20.9	5.7	1	1	5	4	3	4	33.0	(8.8)	22.5
PBI	PITNEY BOWES INC	15.32	24.9	19.5	5.4	1	1	5	1	3	1	7.9	(22.5)	2.8
HP	HELMERICH & PAYNE	79.92	24.6	13.4	11.2	1	1	1	3	4	1	NM	56.7	8.6
OKE	ONEOK INC	56.12	24.2	14.9	9.3	1	1	1	4	3	2	31.7	143.8	11.8
EQIX	EQUINIX INC	329.49	24.1	14.2	9.9	1	1	3	4	5	5	72.4	11.3	23.5
IRM	IRON MOUNTAIN INC	33.80	23.8	11.4	12.4	1	1	3	4	4	4	27.3	30.5	8.9
PNW	PINNACLE WEST CAPITAL CORP	74.56	22.9	16.7	6.2	1	1	4	3	1	3	17.9	19.7	8.3
PKG	PACKAGING CORP OF AMERICA	86.94	22.1	13.6	8.5	1	1	1	2	5	1	15.5	41.5	8.2
RNR	RENAISSANCE HOLDINGS LTD	131.26	21.8	8.8	13.0	1	1	3	1	2	1	14.7	16.9	5.4
TSO	TESORO CORP	88.73	21.7	14.1	7.6	1	1	4	1	5	1	15.1	(13.5)	10.4
LNT	ALLIANT ENERGY CORP	36.08	21.6	15.3	6.3	1	1	4	4	1	4	18.2	19.4	8.2
KSS	KOHL'S CORP	55.00	21.1	9.6	11.5	1	1	3	1	3	1	13.4	20.7	9.7
SCG	SCANA CORP	71.61	21.0	15.8	5.3	1	1	4	4	1	4	17.0	21.3	10.2
HFC	HOLLYFRONTIER CORP	31.13	20.9	12.9	8.0	1	1	5	1	5	2	18.5	(18.3)	5.5
NRG	NRG ENERGY INC	11.82	20.8	12.6	8.2	1	1	4	1	5	2	18.4	2.6	3.7
FTI	FMC TECHNOLOGIES INC	36.25	20.7	11.1	9.6	1	1	1	3	3	2	36.3	25.0	8.2
BBBY	BED BATH & BEYOND INC	46.02	20.6	11.7	9.0	1	1	5	1	1	1	9.4	(4.1)	7.0
M	MACY'S INC	42.40	20.4	11.9	8.6	1	1	4	1	3	1	11.9	25.0	13.0
CNP	CENTERPOINT ENERGY INC	23.78	20.4	14.0	6.4	1	1	2	2	5	1	19.2	36.0	10.2
FTR	FRONTIER COMMUNICATIONS CORP	3.53	20.3	13.4	6.9	1	1	5	1	5	3	NM	(19.4)	4.1
ETR	ENTERGY CORP	69.26	20.3	13.2	7.0	1	1	5	1	2	2	14.0	6.1	12.4
DRI	DARDEN RESTAURANTS INC	77.25	20.2	14.4	5.8	1	1	3	2	1	2	17.7	25.5	9.5
EXPD	EXPEDITORS INTERNATIONAL WASH	54.08	20.1	13.9	6.2	1	1	3	4	1	3	22.2	21.8	9.8
NI	NISOURCE INC	21.47	20.1	14.5	5.6	1	1	5	4	2	5	18.9	13.2	6.9
CERN	CERNER CORP	47.55	20.1	14.6	5.5	1	1	5	3	1	5	18.8	(21.0)	16.1
PWR	QUANTA SERVICES INC	33.96	20.0	12.1	7.9	1	1	1	2	1	1	17.3	67.7	5.1
PII	POLARIS INDUSTRIES INC	88.58	19.9	12.7	7.2	1	1	5	3	3	5	18.7	5.7	5.7
OGE	OGE ENERGY CORP	32.04	19.7	14.4	5.4	1	1	2	3	2	3	17.2	26.7	6.4
RIG	TRANSOCEAN LTD	14.25	19.7	9.8	9.9	1	1	1	1	5	1	NM	15.1	5.2
WEC	WEC ENERGY GROUP INC	55.42	19.7	13.7	5.9	1	1	5	3	1	4	18.0	11.7	17.5

Source: FactSet Research Systems, Empirical Research Partners Analysis.

Appendix 1 (Cont.): Large-Capitalization Stocks

The Highest Quintiles of Passive Ownership and Three-Year Change in Passive Ownership
Sorted by Current Passive Ownership
As of Early-December 2016

Symbol	Company	Price	Passive Ownership:					Quintile Ranks				Memo:		Market Capitalization (\$ Billion)
			Current	Three Years Ago	Change	Current (1=Highest)	Change (1=Biggest Increase)	Nine-Month Price Trend (1=Most Positive)	Valuation (5=Most Expensive)	Fundamental Stability (1=Most Stable)	Core Model Rank (1=Best)	Forward P/E Ratio	YTD Returns	
HOLX	HOLOGIC INC	38.89	19.7	13.6	+ 6.1	1	1	3	4	5	2	16.6 x	0.5 %	10.8
NOV	NATIONAL OILWELL VARCO INC	39.37	19.5	10.2	9.3	1	1	2	2	5	2	NM	19.8	14.9
MOS	MOSAIC CO	29.38	19.5	12.5	6.9	1	1	4	1	4	2	34.6	10.9	10.3
MUR	MURPHY OIL CORP	33.29	19.2	12.7	6.6	1	1	1	2	5	1	NM	56.0	5.7
RE	EVEREST REINSURANCE GROUP LTD	210.83	19.2	12.0	7.2	1	1	3	1	2	1	11.8	18.0	8.6
FFIV	F5 NETWORKS INC	140.86	19.1	13.6	5.5	1	1	1	4	1	2	15.5	45.3	9.2
WU	WESTERN UNION CO	21.63	19.1	12.7	6.4	1	1	3	1	2	1	12.6	23.8	10.5
NTAP	NETAPP INC	35.97	19.1	11.3	7.8	1	1	1	2	3	1	12.4	39.3	9.9
SNPS	SYNOPSYS INC	58.00	19.1	12.8	6.3	1	1	2	2	1	1	16.7	27.2	8.8
DOV	DOVER CORP	74.72	19.0	11.3	7.7	1	1	2	3	3	4	21.2	25.0	11.6
HSIC	SCHEIN (HENRY) INC	149.89	19.0	13.9	5.1	1	1	5	4	1	4	21.0	(5.2)	12.1
AWK	AMERICAN WATER WORKS CO INC	72.22	18.9	8.9	10.0	1	1	4	5	1	5	23.9	23.4	13.1
SPLS	STAPLES INC	9.89	18.8	13.7	5.1	1	1	3	1	5	1	10.8	8.6	6.4
AEE	AMEREN CORP	49.34	18.8	13.5	5.3	1	1	4	2	2	2	18.0	18.2	12.0
AES	AES CORP	11.33	18.8	10.4	8.4	1	1	3	1	5	1	10.4	23.2	7.5
HRB	BLOCK H & R INC	22.69	18.7	12.6	6.0	1	1	5	1	1	2	11.7	(29.4)	5.0
CTL	CENTURYLINK INC	24.01	18.6	11.0	7.6	1	1	5	1	3	1	10.4	3.2	13.1
VAR	VARIAN MEDICAL SYSTEMS INC	89.78	18.6	12.3	6.3	1	1	3	4	1	3	16.8	11.1	8.4
CHD	CHURCH & DWIGHT INC	44.75	18.6	13.2	5.4	1	1	5	4	1	2	23.9	7.1	11.6
WFM	WHOLE FOODS MARKET INC	30.50	18.3	11.4	6.9	1	1	5	1	1	1	20.4	(7.3)	9.7
RHI	ROBERT HALF INTERNATIONAL INC	47.42	18.3	12.9	5.4	1	1	3	2	1	2	16.9	2.8	6.1
XLNX	XILINX INC	54.54	18.3	13.0	5.2	1	1	2	4	2	2	22.4	19.3	13.8
RF	REGIONS FINANCIAL CORP	14.24	18.2	12.8	5.4	1	1	1	1	4	1	15.2	51.4	17.6
COG	CABOT OIL & GAS CORP	23.57	18.2	12.7	5.6	1	1	3	5	5	4	82.7	33.7	11.0
CTXS	CITRIX SYSTEMS INC	87.62	18.1	11.3	6.8	1	1	3	2	2	1	15.9	15.8	13.7
SWN	SOUTHWESTERN ENERGY CO	12.45	18.1	10.4	7.7	1	1	1	3	5	2	18.4	75.1	6.2
CHK	CHESAPEAKE ENERGY CORP	7.58	17.9	8.4	9.5	1	1	1	4	5	2	11.7	68.4	6.7
JEC	JACOBS ENGINEERING GROUP INC	60.49	17.7	11.4	6.2	1	1	1	1	3	1	17.5	44.2	7.3
IT	GARTNER INC	101.56	17.7	12.1	5.6	1	1	2	4	2	3	31.0	12.0	8.4
DGX	QUEST DIAGNOSTICS INC	88.67	17.7	12.5	5.1	1	1	2	3	2	1	16.4	27.3	12.3
JNPR	JUNIPER NETWORKS INC	26.93	17.6	11.2	6.4	1	1	3	3	4	2	12.2	(0.8)	10.2
TDC	TERADATA CORP	27.41	17.6	11.6	6.0	1	1	4	1	4	1	15.4	3.7	3.6

Source: FactSet Research Systems, Empirical Research Partners Analysis.

Appendix 2: Small-Capitalization Stocks

The Highest Quintiles of Passive Ownership and Three-Year Change in Passive Ownership¹
Sorted by Current Passive Ownership
As of Early-December 2016

Symbol	Company	Price	Passive Ownership:					Quintile Ranks				Memo:		Market Capitalization (\$ Million)
			Current	Three Years Ago	Change	Current (1=Highest)	Change (1=Biggest Increase)	Nine-Month Price Trend (1=Most Positive)	Valuation (5=Most Expensive)	Fundamental Stability (1=Most Stable)	Core Model Rank (1=Best)	Forward P/E Ratio	YTD Returns	
SKT	TANGER FACTORY OUTLET CTRS	\$35.27	32.9	22.1	+ 10.8	1	1	4	3	2	3	29.3 x	11.7 %	\$3,388
BKH	BLACK HILLS CORP	59.02	31.1	23.3	7.9	1	1	4	4	3	5	16.9	30.9	3,137
DRH	DIAMONDROCK HOSPITALITY CO	11.21	30.1	23.7	6.4	1	1	3	1	3	1	22.0	21.0	2,251
FSP	FRANKLIN STREET PROPERTIES	12.53	30.1	21.7	8.4	1	1	3	3	4	3	94.6	29.7	1,344
GEO	GEO GROUP INC	33.96	30.1	22.5	7.6	1	1	2	2	3	2	17.9	28.6	2,547
NJR	NEW JERSEY RESOURCES CORP	34.30	29.8	23.3	6.5	1	1	5	5	1	5	18.8	6.2	2,953
LTC	LTC PROPERTIES INC	45.72	29.7	23.3	6.4	1	1	4	4	1	4	20.7	10.5	1,793
SPOK	SPOK HOLDINGS INC	19.90	29.4	18.9	10.4	1	1	4	1	1	3	15.6	11.9	409
FR	FIRST INDL REALTY TRUST INC	26.97	29.1	17.6	11.6	1	1	3	4	3	3	44.4	24.6	3,153
AKR	ACADIA REALTY TRUST	33.20	29.1	22.8	6.3	1	1	5	4	2	4	45.3	2.3	2,685
PEI	PENNSYLVANIA RE INVS TRUST	19.35	29.1	22.6	6.5	1	1	5	3	4	3	47.4	(7.9)	1,346
ROIC	RETAIL OPPORTUNITY INVTs CP	20.80	29.0	17.1	11.9	1	1	4	4	3	4	63.1	19.3	2,273
WDR	WADDELL&REED FINL INC -CL A	20.06	28.7	12.9	15.7	1	1	5	1	3	2	11.6	(23.2)	1,661
CHSP	CHESAPEAKE LODGING TRUST	24.58	28.6	18.2	10.4	1	1	5	1	2	1	22.6	2.7	1,477
EDR	EDUCATION REALTY TRUST INC	39.35	28.6	19.2	9.4	1	1	4	4	1	4	62.4	7.7	2,874
GOV	GOVERNMENT PPTYS INCOME TR	19.13	28.4	22.0	6.3	1	1	3	2	5	3	40.6	32.6	1,362
CLI	MACK-CALI REALTY CORP	28.07	27.9	20.8	7.1	1	1	3	4	4	2	83.7	23.2	2,517
UBSI	UNITED BANKSHARES INC/WV	47.30	27.4	17.6	9.8	1	1	3	4	2	4	23.8	31.2	3,616
HPT	HOSPITALITY PROPERTIES TRUST	29.93	27.3	20.1	7.2	1	1	3	1	3	2	18.9	23.5	4,917
LXP	LEXINGTON REALTY TRUST	10.45	27.1	19.1	8.0	1	1	3	2	4	1	32.9	37.8	2,478
COR	CORESITE REALTY CORP	70.49	27.0	19.2	7.7	1	1	4	4	2	4	39.9	26.8	2,392
DCT	DCT INDUSTRIAL TRUST INC	46.15	26.3	19.3	7.1	1	1	3	4	5	3	70.0	26.0	4,194
NWE	NORTHWESTERN CORP	54.82	26.0	15.7	10.3	1	1	5	2	1	4	16.2	3.6	2,649
TUP	TUPPERWARE BRANDS CORP	55.46	25.7	14.7	11.0	1	1	4	2	3	3	12.2	3.2	2,804
IDA	IDACORP INC	76.80	25.7	15.9	9.8	1	1	4	4	1	4	19.0	16.1	3,871
CDR	CEDAR REALTY TRUST INC	6.35	25.6	18.3	7.3	1	1	5	2	5	2	56.7	(7.7)	542
AMAG	AMAG PHARMACEUTICALS INC	35.80	25.5	10.1	15.5	1	1	2	1	4	1	5.3	18.6	1,225
CBB	CINCINNATI BELL INC	20.35	25.5	16.9	8.6	1	1	3	2	5	4	52.9	13.1	855
ORD	OLD REPUBLIC INTERNATIONAL CORP	18.06	25.4	17.0	8.4	1	1	4	1	5	2	13.0	0.9	4,743
TRJ	TELEPHONE & DATA SYSTEMS INC	28.37	25.3	16.7	8.6	1	1	4	1	4	1	60.0	11.4	3,119
INN	SUMMIT HOTEL PROPERTIES INC	14.96	25.2	14.7	10.5	1	1	3	1	2	1	21.8	30.8	1,306
CNSL	CONSOLIDATED COMM HLDGS INC	27.21	25.2	14.9	10.3	1	1	3	2	4	3	40.1	38.7	1,378
CMC	COMMERCIAL METALS	24.03	25.1	18.8	6.3	1	1	2	1	3	1	18.6	81.0	2,777
FUL	FULLER (H. B.) CO	47.49	24.8	15.2	9.6	1	1	3	2	3	2	17.1	31.9	2,391
CMO	CAPSTEAD MORTGAGE CORP	10.22	24.8	18.1	6.7	1	1	4	1	1	1	12.0	25.9	981
SON	SONOCO PRODUCTS CO	52.91	24.5	18.2	6.3	1	1	4	2	2	2	19.0	33.5	5,288
MDRX	ALLSCRIPTS HEALTHCARE SOLTNS	10.62	24.3	17.2	7.1	1	1	5	2	4	4	16.5	(30.9)	1,966
MANT	MANTECH INTL CORP	43.93	24.2	16.6	7.6	1	1	2	3	2	3	28.9	47.9	1,693
DEPO	DEPOMED INC	19.98	24.2	8.8	15.4	1	1	2	2	5	3	16.5	10.2	1,230
NWN	NORTHWEST NATURAL GAS CO	57.95	24.2	17.2	7.0	1	1	4	3	1	4	25.0	18.4	1,656
UFS	DOMTAR CORP	40.66	24.1	14.6	9.5	1	1	4	1	3	1	13.6	13.7	2,643
IRDM	IRIDIUM COMMUNICATIONS INC	9.50	24.1	9.2	14.9	1	1	3	2	4	1	15.1	13.0	910
GTY	GETTY REALTY CORP	24.29	23.9	17.5	6.4	1	1	2	3	2	2	23.7	46.7	824
AROC	ARCHROCK INC	14.00	23.5	14.4	9.2	1	1	1	2	5	2	NM	99.6	975
LGND	LIGAND PHARMACEUTICAL INC	105.87	23.5	12.5	11.1	1	1	4	5	3	5	22.0	(2.4)	2,213
VVC	VECTREN CORP	49.84	23.3	16.6	6.7	1	1	4	3	1	4	18.9	21.5	4,132
BCOR	BLUCORA INC	14.55	23.2	15.9	7.4	1	1	1	1	4	1	12.4	48.5	607

Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹ Limited to stocks with greater than 23% passive ownership.