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A Stock Picker's Guide to ETFs

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Written for Stock Pickers, useful for every investor.

Learn about the Asset Allocation revolution, the impact from asset allocators, how passive ownership affects your alpha opportunity, what ETFs can add value to your investment process, and how to read ETF volume and flow data in the right way.

The Asset Allocation revolution is redefining the investment landscape… ETFs are just (a big) part of that

The growth in ETFs is not just the result of a passive management phenomenon. They are rather the result of growing investor demand for multi asset investment solutions implemented via efficient building blocks. Traditional managers should reassess their ability to offer multi asset solutions and/or efficient building blocks in order to remain competitive.

Passive ownership (p/o) has redefined stock market dynamics and alpha opportunity

The Asset Allocation revolution has brought about the rise of the Asset Allocator and its respective market impact as average passive ownership for US stocks grew four times to about 16% in the past 15 years. As a consequence of high p/o some sectors such as Real Estate and Utilities have become more of a beta play due to a reduced alpha opportunity. Among size segments, the impact from p/o is not as relevant, although Small Caps exhibit some impact which could reduce alpha opportunity on names with high p/o. On the other hand, we found that stocks with lower passive ownership can provide a more abundant source of alpha.

ETFs have become an institutional vehicle also used by retail investors

Institutional investors continue to increase their usage of ETFs reaching an ownership level of 58% at the end of 2014. In addition, the number of institutional investors using ETFs rose above 3,000 at the end of last year including most of the major asset managers among investment advisers, brokers, private banks, hedge funds, mutual funds, and pension funds. Moreover, our research shows that ETF volume and cash flow activity is clearly dominated by institutional investors. Therefore the common belief that ETFs are a retail instrument is a misconception.

Every Stock Picker should know about the "Cash Management" and "Pseudo Futures" ETFs

It is difficult to keep up with the almost 1,500 ETFs listed in the US; however every Stock Picker should be acquainted with at least the relevant ETFs within the group of 105 ETFs which we call the Cash Management and Pseudo Futures ETFs. These ETFs can add value to investors' portfolios in several ways that do not conflict with an active manager's investment philosophy. In addition, understanding the different characteristics of these ETFs such as VIX elasticity of volume or flow patterns can help investors understand market trends in a more accurate way.

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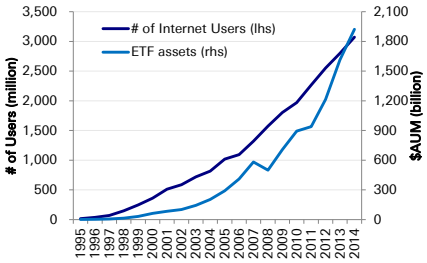
Meet the "new" kid in town: ETFs[1]

An Introduction to ETFs

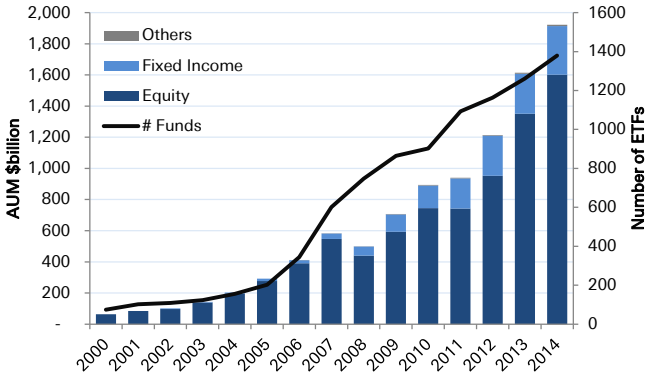
Unless you have been living under a rock, you probably have already heard about ETFs or Exchange Traded Funds by now. However, launched over 22 years ago, these products still remain a mystery to many investors despite their exponential growth. With an asset compound annual growth rate of just over 25% over the last 15 years (Figure 2) and a secondary market volume activity representing usually at least 25% of all cash equity volume in the US (Figure 3), ETFs are probably the major asset management development of the century. Although the debate on whether they are good or bad could fill hundreds of pages and hours of discussion, everybody should agree on the disruptive nature of ETFs. We have usually compared the growth of ETFs with the growth of internet users (with a correlation of 0.97), as a way to illustrate what other 21st century force has been as disruptive as ETFs; more recently, however, ETF assets have been growing even faster than internet users (Figure 1). In other words, if you think that the internet has changed the world around you and you work in asset management, you would do well in continuing reading this report.

Figure 1: 21st century disruptive forces: Internet and ETFs



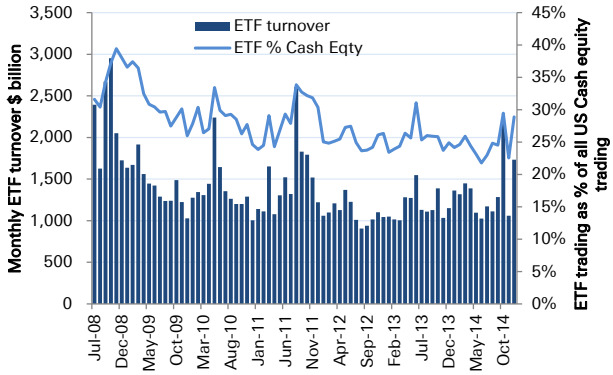
Source: Deutsche Bank, Bloomberg Finance LP, www.internetworldstats.com, International Communications Union

Figure 2: Historical AUM growth of ETFs (2000-2014)



Source: Deutsche Bank, Bloomberg Finance LP

Figure 3: Historical Turnover growth of ETFs (2008-2014)



Source: Deutsche Bank, Bloomberg Finance LP, FactSet

In this report we will deviate from our usual pro-ETF verbose, in order to present ETFs from a more neutral and fact-driven perspective which we hope can help investors understand the new investment ecosystem we live in, as well as different ways to use ETFs or ETF information to add value to their investment process.

[1] Every reference to ETFs or Mutual Funds in this report corresponds to US domiciled products, unless otherwise stated. In addition every reference to Mutual Funds in this report corresponds to Long Term Mutual Funds, unless otherwise stated.

Ok, enough writing already. Without further ado, we would like to introduce you to ETFs: *"ETFs are open-ended funds which are listed on an exchange and offer intra-day dual liquidity to access diversified investments in a transparent, cheap, and tax efficient way"*.[2]

ETFs are open-ended funds which are listed on an exchange and offer intra-day dual liquidity to access diversified investments in a transparent, cheap, and tax efficient way

I don't use ETFs, why should I care about them?

Despite the amazing growth story of ETFs, we are always surprised by the little attention they receive from the traditional investment community and business media, or if they receive some attention then we are surprised by the lack of understanding of the way these products work. Although we are glad to say that we've met with multiple large institutional investors around the world that are already using ETFs to add value to their investment practice, we still believe there is more we can do to help the investment community gain a better understanding of these funds. More specifically, in this report we would like to help our readers understand that they should care about ETFs for at least the following four reasons, even if they don't use them:

- They are the result of a phenomenon larger than just passive management that should call for a reassessment of your business model.
- They have changed the market dynamics of supply and demand of the traditional names you are used to buying and selingl, and therefore you should understand these new market dynamics and use them in your favor and not against.
- Institutional investors such as yourself are using more and more ETFs day after day, thus you should understand why and what ETFs can add value to your investment practice without conflicting with your investment philosophy.
- There is a group of ETFs that every investor should be aware of, whether you use them or not, because not understanding their behavior could lead to a misinterpretation of market developments.

Each of these four reasons is addressed in the following four sections of this report. We hope you enjoy the reading, or if time is limited we also provide the 10 key takeaways from this report in the next sub section.

[2] See Mercado [2014], "The advent of Non-Transparent ETFs" for more details.

10 key takeaways

- **1) Business Strategy**: the Asset Allocation revolution calls for a reassessment of the business strategy of traditional money managers. Considering a multi asset product offering and/or offering efficient building blocks for asset allocation strategies can be key for a sustainable business strategy within the new competitive context (Pages 8-10).
- **2) Asset Allocator profile**: Asset Allocators have a different value proposition relative to Stock Pickers, they focus on the attractiveness of the asset class rather than a single stock, they are more concerned with market risk than specific risk, and usually they based their decisions on Top-Down analysis and macro calls (Page 10).
- **3) Passive Ownership guide**: passive ownership (p/o) has grown significantly over the past 15 years. Find out how your stocks stand out with our p/o guide. (Appendix A – Page 39).
- **4) Understanding sector/size alpha/beta opportunity**: some sectors have basically become beta plays such as Real Estate, Utilities, and Industrials and therefore alpha generation should be more challenging. Small Cap investors should find more alpha opportunity in those names with a lower passive ownership (Pages 15-17).
- **5) Bottom 10% P/O basket**: a basket including the bottom 10% US stocks by passive ownership outperformed broad, small, and micro cap benchmarks consistently since early 2007 suggesting that there is more alpha available in names with low passive ownership (Pages 17-18).
- **6) How to use P/O data to your favor**: we provide four specific steps to help investors stay on top of passive ownership activity (Page 19)
- **7) List of major ETF institutional holders**: Most of the largest asset managers around the world are already using ETFs. See our lists of top institutional users. Do you recognize somebody? (Page 22)
- **8) Product Selection criteria and list of Pseudo Futures and Cash Management ETFs**: These ETFs can be of great help in your portfolio as cash management or risk management tools. You don't need to know all 1,500 ETFs, but you should at least know these 105 ETFs and how to use them– some of your peers already do (Pages 24-29).
- **9) VIX elasticity of ETF volume**: not all ETFs present the same level of relationship or sensitivity between volume and volatility. ETF volume for Pseudo Futures, and Levered and Inverse ETFs is more related to volatility and has higher VIX elasticity. Higher VIX elasticity of ETF volume can allow an ETF to absorb excess volume during volatility spikes, while at the same time reducing primary market impact (Pages 30-31).
- **10) Reading ETF flows in the right way**: The assumption that all ETF flows represent investors' directional allocation intentions is flawed and far from true. We believe that the flows from Cash Management and Asset Allocation ETFs provide better allocation insights than Pseudo Futures ETFs. A better understanding of different ETF products can clearly improve the accuracy of investors' interpretation of the market trends (Pages 33-35).

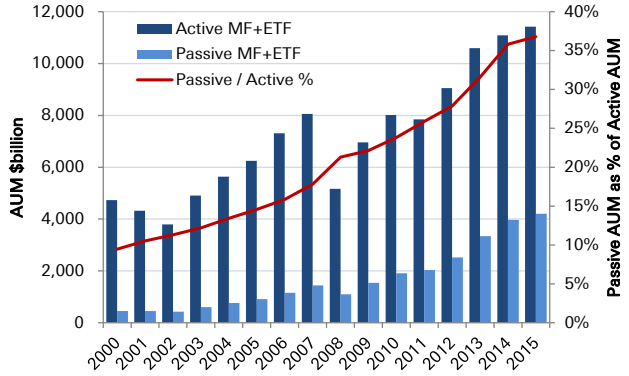
The Asset Allocation Revolution

The ETF growth is not just a passive phenomenon

Passive mutual funds and ETFs[3] have been growing at a more rapid pace than active mutual funds and ETFs[4] for the last 15 years. At the end of the year 2000, passive funds represented just under 10% of the assets in active funds, however by the end of 2014 that same figure had grown to almost 37% (Figure 4). Moreover, organic growth has clearly favored passive funds over active funds during the current decade with the passive vehicles gathering $1,281 billion versus $308 billion received by active products in the last 5 years (Figure 5). Given these numbers and the fact that most ETFs follow passive strategies, there is some true to the idea that the growth of passive management has helped ETF growth, however there is more than just passive to the ETF growth story.

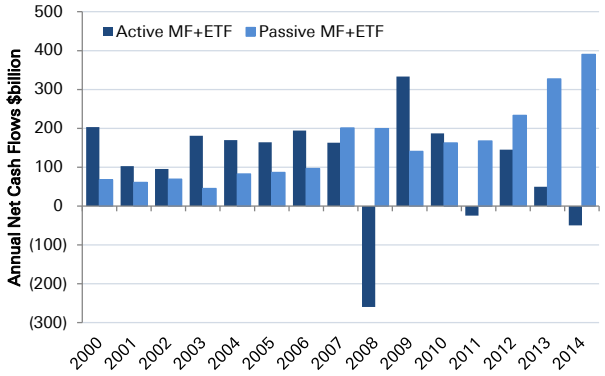
Passive vehicles with inflows of $1.3 trillion in the last 5 years have gathered more than 4 times the assets than active vehicles

Figure 4: Historical asset growth of Active and Passive management in Mutual Funds and ETFs (15Y)



Source: Deutsche Bank, Bloomberg Finance LP, ICI

Figure 5: Annual organic growth of Active and Passive management in Mutual Funds and ETFs (15Y)



Source: Deutsche Bank, Bloomberg Finance LP, ICI

ETF growth has also been helped by the increasing investor demand **for multi asset solution products** along with the need for **efficient building blocks** to implement such strategies

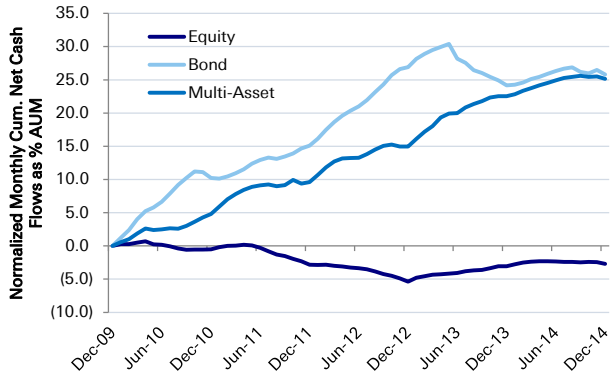
Besides passive management, there is another strong trend driving ETF growth. For many this may not seem as a direct relationship, but we need to remember that in the world we live in all things are connected, and investment management is not the exception. We are talking about the growing investor demand for multi asset solution products. We have mentioned in the past[5] the shift we have seen from stock picking alpha to asset allocation alpha, where the message is really simple: investors are in general disappointed with the performance, cost, and lack of transparency of active managers as well as the

[3] Passive ETFs and Passive Mutual Funds share almost the same amount of assets at the end of last year with $1,919bn and $2,053bn, respectively.
[4] Active ETF assets ($16.2bn at the end of 2014) are relatively insignificant compare to Active Mutual Fund assets ($11,074bn at the end of 2014).
[5] See Mercado [2014], "The advent of Non-Transparent ETFs" for more details

ever more difficult task of finding star managers; therefore many have shifted their focus and efforts to get the asset allocation right while employing a passive approach to security selection.

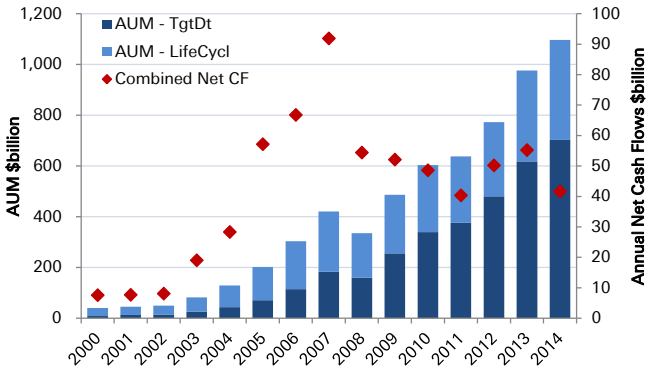
A couple of examples that illustrate this trend are the investment demand support experienced by Multi Asset mutual funds (also known as Hybrid) compared to the trend in Equity and Bond mutual funds, and the growth of assets in Target Date and Lifecycle funds. In the last 5 years Multi Asset funds have presented an organic growth trend that is both large in magnitude and consistent throughout the whole period, while Equity fund flows have remained under pressure and Bond fund flows have began to recede in the last 1.5 years despite their previous strength (Figure 6). Target Date and Lifecycle funds offer a range of products mixing equity and bond allocations in different proportions according to different risk profiles and have been very popular as all-in-one solutions in retirement portfolios, which has been manifested by their exponential asset growth from $40bn in 2000 to over $1.1 trillion in 2014 (Figure 7).

Figure 6: 5Y Cum Monthly Mutual Funds Cash Flow by asset class



Source: Deutsche Bank, ICI

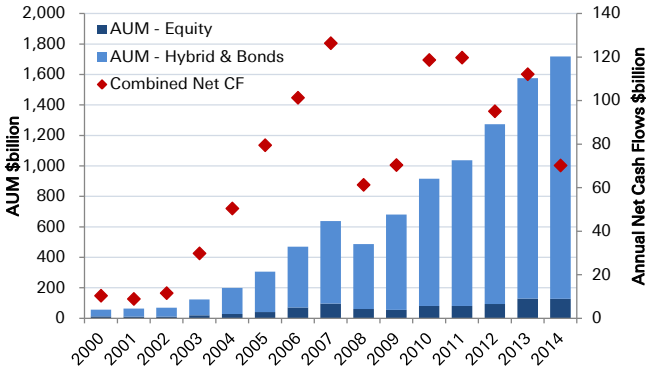
Figure 7: Historical growth of Target Date and Lifecycle Funds (15Y)



Source: Deutsche Bank, ICI

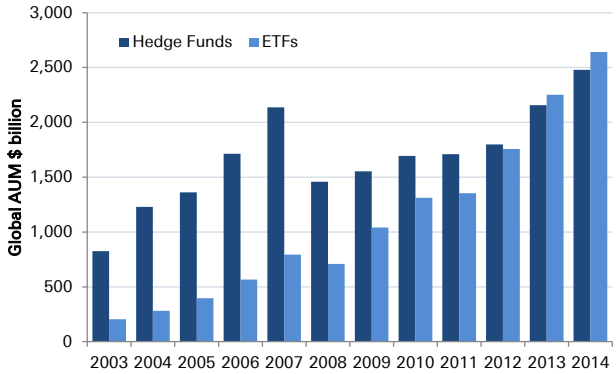
The growth of multi asset products has required the development of building blocks which can be used to implement such strategies. This development can be observed in the growth of Fund of Funds, Hedge Funds, and ETFs. Fund of Funds are Mutual Funds that invest in other mutual funds and had grown to over $1.7 trillion in assets as of the end of last year. On the other hand, Hedge Funds and ETFs are both widely used as building blocks, the first one as alpha building blocks and the second one as beta building blocks; however recent assets under management statistics have shown that Global ETF assets have surpassed Global Hedge Fund assets in recent years suggesting that investors are increasingly favoring ETFs as their efficient building block of choice.

Figure 8: Historical growth of Fund of Funds (15Y)



Source: Deutsche Bank, ICI

Figure 9: Historical asset growth of Global Hedge Funds and Global ETFs (12Y)



Source: Deutsche Bank, Bloomberg Finance LP. Barclay Hedge. Note: Fund of Funds excluded

A **sustainable business strategy** for an investment management firm should include a multi asset product line and/or products that can be used as efficient building blocks

We believe that any sustainable business strategy should include a multi asset product effort, a set of efficient building blocks, or both. Actually, many of the largest asset managers are already doing this. Figure 10 lists the top 10 fund manager companies offering multi asset funds via direct investment, while Figure 11 presents the top 10 fund manager companies offering multi asset funds via Fund of Funds implementation. We can quickly recognize the names of some of the largest asset managers such as American Funds, Vanguard, Fidelity, T Rowe Price, Franklin, BlackRock, and PIMCO, among others. Another interesting fact is that most of the top 10 managers of multi asset FoF presented on Figure 11 use their own equity or bond funds as building blocks for their multi asset strategy using the latter as a funnel of assets for their single asset class funds. In addition, many of the managers in these tables have ETF business strategies at different stages of maturity.

Figure 10: Top 10 direct multi asset managers by assets

Fund Company	AUM $M
American Funds	295,038
Fidelity Funds	162,131
Vanguard Funds	160,941
Franklin Funds	98,021
BlackRock Funds Inc	84,250
John Hancock Funds LLC	55,359
Ivy Funds	40,634
T Rowe Price Funds	38,111
Wells Fargo Funds	32,863
JP Morgan Funds	27,561

Source: Deutsche Bank, Bloomberg Finance LP. As of 05/14/15

Figure 11: Top 10 multi asset Fund of Funds managers by assets

Fund Company	AUM $M
Vanguard Funds	265,462
Fidelity Funds	150,667
T Rowe Price Funds	137,131
PIMCO Funds	48,053
American Funds	47,557
Principal Funds	37,199
JP Morgan Funds	36,642
GMO Funds	32,502
TIAA-CREF Lifestyle Funds	24,611
MFS Funds	23,185

Source: Deutsche Bank, Bloomberg Finance LP. As of 05/14/15

When it comes to multi asset product strategies, there are multiple options. However, an easy way to simplify them would be to think about strategic asset allocation solutions or tactical asset allocation solutions.

- **Strategic Asset Allocation (SAA) solutions** involve exposure to multiple asset class buckets with predefined target weights and minimal rebalancing beyond normal periodic rebalances required to bring the portfolio weights back in line with original target weights. Asset class allocation targets remain static throughout the life of the fund (e.g. risk profile funds such as Conservative, Moderate, and Aggressive), or they can change according to a preset time schedules (e.g. Target Date and Lifecycle funds). Some strategic solutions may add a tactical twist by adding bands to the target weights (e.g. equity weight = 60% +/- 5%). These strategies offer one-stop solution with the benefits of diversification as a value proposition.
- **Tactical Asset Allocation (TAA) solutions** also involve exposure to multiple asset class buckets, but unlike strategic solutions, they have no preset target weights. On the contrary, they based their weight allocation decisions based on fundamental, technical, and/or quantitative analysis at the asset class level favoring those asset classes that seem more attractive according to the analysis performed at the time. These strategies of course involve a higher level of turnover and management cost compared to SAA solutions. Their value proposition is to deliver alpha by performing asset class picking. Some examples of such solutions would be Sector Rotation, Country Rotation, Regional Rotation, Duration Rotation, Credit Rotation, or Asset Class Rotation, to name a few.
- **Core-Satellite Asset Allocation (C-SAA) solutions** are nothing but a combination of the two strategies described above. They usually involve a SAA core with a TAA satellite.

Good multi asset solutions require efficient building blocks. An efficient building block is a vehicle that provides:

Efficient building blocks provide clean access to the asset class, transparency, and low cost.

- **Clean access to the asset class**. In order to offer clean access to the asset class the fund manager should not deviate from the defined universe. For example, a Large cap fund that invests in small caps (even if the return is better) would not be considered as a clean-access product. The same applies to a fund that experiences style drift. Building block investors hire a manager for the security selection, not for the asset allocation decision.
- **Transparent investment process**. An efficient building block doesn't need to be managed passively or disclose all of its positions in order to be transparent, however its investment process should be transparent enough so investors can understand the exposures they are taking and the risks involved. Index-based products generally provide a good level of transparency via their index methodologies; however active funds need to make an additional effort to provide enough information about their investment process in order to be considered as efficient building blocks. Transparency about selection and weighting criteria allow investors to feel in control of their investment.
- **Low Cost**. Building block investors intend to add value via their asset class selection, therefore utilizing products with low management fees reduces the cost paid for security selection which is consistent with the investment strategy. In addition, if the portfolio turnover of the multi asset solution is significant (e.g. in TAA strategies), then products offering low transaction cost are also preferable. Finally, tax

efficiency can also contribute to a lower overall cost by reducing the "tax" cost.

Based on these characteristics, not all product types are equally efficient. Therefore we have developed a two-dimensional matrix to help us understand the level of efficiency for different products (Figure 12). The first dimension is management style and the second dimension is product type. Within the management style dimension, products can take a passive or active management approach; passive products are more efficient building blocks compared to active products because of their cleaner asset class access and better transparency (index methodology).

In terms of product types, building blocks can come in ETF or mutual fund wrapper. ETFs are more efficient building blocks than mutual funds because of their lower cost, and better transparency (portfolio disclosure).

Active mutual fund managers that do not want to forgo their active philosophy, but desire to improve their building block appeal can find some middle ground by exploring enhanced indexing (a.k.a. "Smart Beta") strategies, or newer fund structures such as ETMFs (See Mercado [2014]).

Figure 12: Building block efficiency matrix

		Product Type	
		ETF	Mutual Fund
Mgmt Style	Passive	1	2
	Active	3	4

Source: Deutsche Bank. Note: 1to 4 (more to less efficient)

The establishment of the Asset Allocator

The rise of the asset allocation revolution has seen the birth of the Asset Allocator. Although newer to the investment management scene relative to the traditional Stock Picker, the Asset Allocator participation and influence in the markets has grown significantly and therefore Stock Pickers cannot afford to ignore their existence. In order to coexist with Asset Allocators, Stock Pickers should develop an understanding of their behavior. Asset Allocators have a different value proposition, they focus on the attractiveness of the asset class rather than a single stock, they are more concerned with market risk than specific risk, and usually they based their decisions on Top-Down analysis and macro calls. Figure 13 presents a comparison of the profiles of Stock Pickers and Asset Allocators.

The Asset Allocator participation and influence in the markets has grown significantly and therefore Stock Pickers cannot afford ignoring their existence.

Figure 13: Comparison of the profiles of Stock Picker and Asset Allocator

	Stock Picker	Asset Allocator
Value proposition	Excess returns based on skill	Growth with downside protection based on diversification
Source of Alpha	Stock Selection	Asset Class Selection
Relevant risk	Specific risk	Market Risk
Vehicle of Implementation	Single Stock instruments	Portfolio/Index instruments
Type of analysis	Bottom-up	Top-Down
Drivers	Company specific fundamentals, news, and technicals	Macro fundamentals (e.g. country, sector), news, and technicals
Example of Drivers	Corporate Governance, earnings outlook, revenue potential, cost structure, product development	Sector earnings, country GDP outlook, fiscal policy, monetary policy

Source: Deutsche Bank

Not all investors dance to the same beat

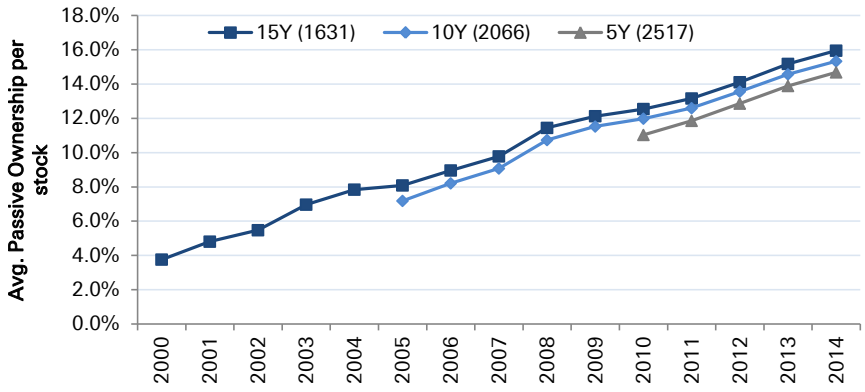
How Passive Ownership has redefined market dynamics

The influence of Asset Allocators has definitely been ramping up in the last 15 years. Thus in order to quantify such influence we decided to analyze the evolution of the passive ownership (p/o) level for US single stocks over time. We first obtained our passive ownership data from the FactSet ownership database. Then we focused on the holding style classification defined as Index[6]. This classification includes a diverse sample of managers of ETFs, index funds, and some quantitative funds, which we believe provides a good approximation of the passive manager universe. Finally, we aggregated individual index style holding data for each stock in order to achieve to a security's passive ownership number.

We obtained 15 years of annual history and calculated individual passive ownership figures for all stocks in the S&P US Total Market Index with over $100 million of market capitalization at the end of 2014 (over 3,200 stocks). We found that average passive ownership for 1,631 US stocks with non-zero p/o levels for each of the past 15 years since 2000 has increased from 4% at the end of the year 2000 to about 16% at the end of the year 2014, with some stocks reaching levels above 30%. We obtained similar results when we increased our sample size by reducing the number of years with non-zero p/o levels (Figure 14). Basically we found that p/o levels have increased across the board, but stocks with longer passive ownership history tend to have larger levels of p/o in average.

Average passive ownership for US stocks has grown over 4 times in the past 15 years from 4% at the end of the year 2000 to about 16% at the end of the year 2014.

Figure 14: Historical growth of passive ownership in US stocks



Source: Deutsche Bank, FactSet, S&P Dow Jones. Note: The number in parenthesis next to the legend name corresponds to the sample size; this format is used throughout this section. Additional statistical details can be found in the Appendix A.

[6] Passive Ownership data is obtained from the FactSet Global Ownership (formerly known as LionShares) database. Ownership classified as Index Holding Style is considered passive ownership. Index style definition is assigned by FactSet internal research staff; according to the following description: "Institutional portfolios are classified as Index by internal staff based on information obtained from portfolio managers' stated objectives from publicly available reports."

What drives passive owners' buy and sell decisions?

Unlike traditional Stock Pickers, passive owners do not base their decisions on single stock fundamentals, or corporate news. Nor do they act on such information with the same promptness as active owners. On the contrary, passive owners are more likely to remain muted during times that active owners are most engaged in market activity. Therefore, the first impact active owners can face as a consequence of passive ownership is reduced liquidity during information-driven trading episodes. Lower liquidity could lead to more volatility or higher prices, thus reducing the risk-adjusted return potential of the trade.

Active owners could face reduced liquidity during information-driven trading episodes due to high levels of passive ownership.

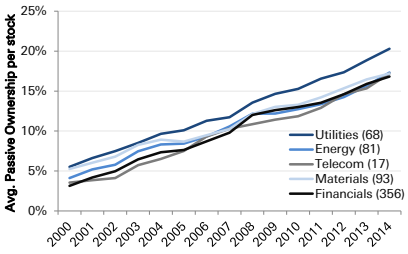
On the other hand, passive owners act according to rebalancing instructions and product demand patterns. Rebalancing instructions are dictated by the index methodology and in many cases are predictable or known before hand; usually these buy/sell decisions have little to do with company specific fundamentals or news affecting the stock[7]. Similarly, demand patterns depend on the overall attractiveness of the asset class rather than on the specific soundness of a particular stock. Therefore both situations could impact the price of a stock even if nothing has fundamentally changed with the stock.

Passive owner activity can impact a stock's price even if nothing has fundamentally changed at the stock level.

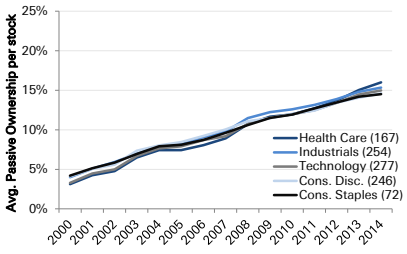
Not all stocks are equally affected by passive ownership

Although passive ownership has been on the rise for the last 15 years, not all stocks have been equally impacted by it. Figure 15 shows the historical evolution of average passive ownership for US stocks by different GICS sector; we notice that p/o levels have also increased across the board; however some sectors such as Utilities have always seen a larger level of p/o relative to the other sectors. More notably, we found that the Real Estate industry has been by far the most impacted by an increase in passive ownership (Figure 16).

Figure 15: Historical growth of passive ownership in US stocks broken down by GICS Sectors

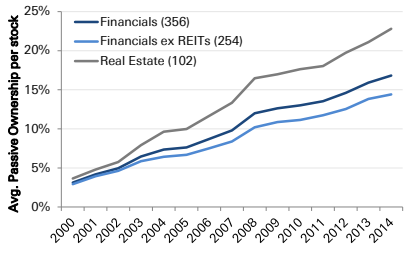


Source: Deutsche Bank, FactSet, S&P Dow Jones



Source: Deutsche Bank, FactSet, S&P Dow Jones

Figure 16: Historical growth of passive ownership in US Real Estate stocks

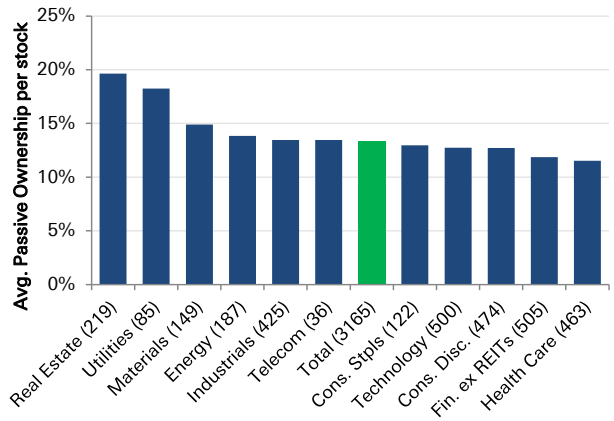


Source: Deutsche Bank, FactSet, S&P Dow Jones

At the end of 2014, Real Estate, Utilities, and Materials showed the largest levels of passive ownership, while Financials ex-REITs and Health Care showed the lowest levels (Figure 17). We also found that stocks which pay dividends have a larger average p/o level relative to the whole market, while stocks that do not pay dividends have a lower average p/o level compare to the broad market. Moreover, we found that among those stocks paying a dividend, those that have an above average yield presented a larger p/o level than those distributing a below average yield (Figure 18).

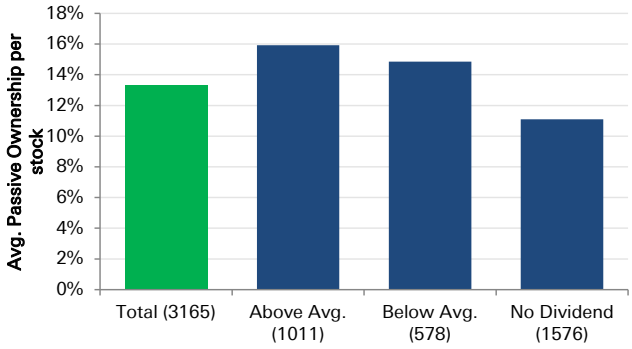
[7] Corporate action news that affects the weight or membership of the stock in the index are considered part of the rebalancing activities.

Figure 17: 2014 Passive Ownership by sector



Source: Deutsche Bank, FactSet, S&P Dow Jones. Ownership data as of end of Dec 2014.

Figure 18: 2014 Passive Ownership by Dividend Yield

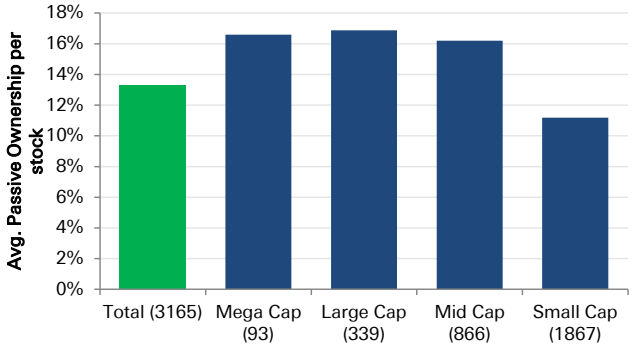


Source: Deutsche Bank, FactSet, S&P Dow Jones, Bloomberg Finance LP. Ownership data as of end of Dec 2014. Avg. Dividend Yield = 1.62% based on Russell 3000 ETF.

In terms of market cap, we observed that Mega, Large, and Mid Caps all have larger p/o levels relative to the broad market, while Small Caps have lower average p/o levels compared to the market (Figure 19).

Finally, we also took a look at passive ownership levels for companies that belong to different popular US indices. We found that practically all of them presented stocks with an average p/o level above the total market average. Furthermore we noticed that stocks included in the MSCI US Real Estate index have the largest average p/o level among popular US indices (over 24%); while the S&P 1500 family (includes the 500, 400, 600 indices) presented the second highest group of passive ownership (Figure 20).

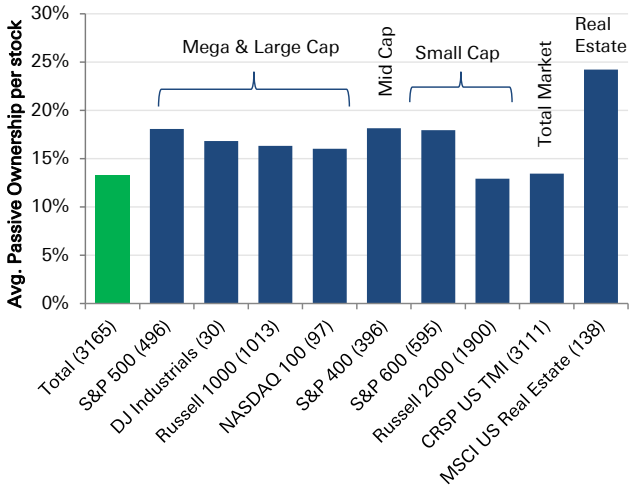
Figure 19: 2014 Passive Ownership by market cap



Note: Mega Cap (>$50bn), Large Cap ($10bn-$50bn), Mid Cap ($2bn-$10bn), Small Cap ($0.1bn-$2bn)

Source: Deutsche Bank, FactSet, S&P Dow Jones. Ownership data as of end of Dec 2014.

Figure 20: 2014 Passive Ownership by index



Source: Deutsche Bank, FactSet, S&P Dow Jones, FTSE Russell, NASDAQ OMX, CRSP, MSCI. Ownership data as of end of Dec 2014.

Overall our findings suggest that at least the following factors can contribute to a higher passive ownership: (1) Sector, (2) Index popularity, (3) Dividend policy, and (4) Market cap size.

Figure 21 presents the list of the top 50 US stocks by passive ownership at the end of 2014. Additional details can be found in the passive ownership guide for US stocks within the Appendix A which presents the top 50 stocks by passive ownership for each of the US sectors.

Figure 21: Top 50 US stocks by passive ownership at the end of 2014

Rank	Ticker	Sector	Size	Div. Yield	1Y Correlation to Bmk		Passive Own. 2014
					Size Bmk	Sector Bmk	
1	SKT	Real Estate	Mid Cap	Above Avg.	0.44	0.78	32.4%
2	FRT	Real Estate	Mid Cap	Above Avg.	0.48	0.83	32.1%
3	NNN	Real Estate	Mid Cap	Above Avg.	0.36	0.73	31.9%
4	HCP	Real Estate	Large Cap	Above Avg.	0.14	0.69	30.9%
5	KIM	Real Estate	Large Cap	Above Avg.	0.54	0.86	30.3%
6	AVB	Real Estate	Large Cap	Above Avg.	0.29	0.76	30.3%
7	HCN	Real Estate	Large Cap	Above Avg.	0.16	0.70	30.2%
8	ESS	Real Estate	Large Cap	Above Avg.	0.45	0.85	30.1%
9	PBYI	Health Care	Mid Cap	No Dividend	0.09	0.18	29.9%
10	SSS	Real Estate	Mid Cap	Above Avg.	0.43	0.76	29.9%
11	POM	Utilities	Mid Cap	Above Avg.	0.20	0.34	29.8%
12	HST	Real Estate	Large Cap	Above Avg.	0.68	0.72	29.4%
13	AIV	Real Estate	Mid Cap	Above Avg.	0.42	0.76	29.4%
14	BKH	Utilities	Mid Cap	Above Avg.	0.64	0.79	29.4%
15	HIW	Real Estate	Mid Cap	Above Avg.	0.58	0.84	29.4%
16	CLI	Real Estate	Small Cap	Above Avg.	0.26	0.55	29.3%
17	PBCT	Financials	Mid Cap	Above Avg.	0.59	0.66	29.2%
18	LHO	Real Estate	Mid Cap	Above Avg.	0.63	0.71	29.2%
19	REG	Real Estate	Mid Cap	Above Avg.	0.54	0.87	29.1%
20	DRH	Real Estate	Mid Cap	Above Avg.	0.64	0.73	29.1%
21	DFT	Real Estate	Mid Cap	Above Avg.	0.30	0.51	28.9%
22	HR	Real Estate	Mid Cap	Above Avg.	0.37	0.72	28.9%
23	EGP	Real Estate	Mid Cap	Above Avg.	0.56	0.78	28.8%
24	DRE	Real Estate	Mid Cap	Above Avg.	0.57	0.83	28.8%
25	PEI	Real Estate	Small Cap	Above Avg.	0.40	0.58	28.7%
26	LTC	Real Estate	Small Cap	Above Avg.	0.34	0.69	28.6%
27	LMT	Industrials	Mega Cap	Above Avg.	0.58	0.62	28.5%
28	EPR	Real Estate	Mid Cap	Above Avg.	0.36	0.60	28.5%
29	GEO	Real Estate	Mid Cap	Above Avg.	0.44	0.44	28.4%
30	CPT	Real Estate	Mid Cap	Above Avg.	0.36	0.77	28.4%
31	AEC	Real Estate	Small Cap	Above Avg.	0.36	0.61	28.3%
32	LEG	Cons. Disc.	Mid Cap	Above Avg.	0.68	0.66	28.3%
33	UDR	Real Estate	Mid Cap	Above Avg.	0.41	0.82	28.3%
34	AMAG	Health Care	Small Cap	No Dividend	0.28	0.29	28.2%
35	BXP	Real Estate	Large Cap	Above Avg.	0.49	0.84	28.2%
36	CUZ	Real Estate	Mid Cap	Above Avg.	0.56	0.65	28.1%
37	SPG	Real Estate	Mega Cap	Above Avg.	0.52	0.87	28.0%
38	NJR	Utilities	Mid Cap	Above Avg.	0.39	0.65	28.0%
39	LPT	Real Estate	Mid Cap	Above Avg.	0.49	0.73	27.9%
40	CHSP	Real Estate	Mid Cap	Above Avg.	0.61	0.68	27.9%
41	PLD	Real Estate	Large Cap	Above Avg.	0.62	0.84	27.9%
42	SLG	Real Estate	Large Cap	Above Avg.	0.52	0.85	27.9%
43	WPG	Real Estate	Mid Cap	Above Avg.	n.a.	n.a.	27.8%
44	PES	Energy	Small Cap	No Dividend	0.43	0.68	27.7%
45	ARE	Real Estate	Mid Cap	Above Avg.	0.38	0.76	27.6%
46	O	Real Estate	Large Cap	Above Avg.	0.28	0.72	27.6%
47	ACC	Real Estate	Mid Cap	Above Avg.	0.33	0.71	27.6%
48	MAC	Real Estate	Large Cap	Above Avg.	0.41	0.64	27.6%
49	HPT	Real Estate	Mid Cap	Above Avg.	0.59	0.73	27.5%
50	OLN	Materials	Small Cap	Above Avg.	0.56	0.58	27.4%

Source: Deutsche Bank, FactSet, S&P Dow Jones. Note: Avg. Dividend Yield = 1.62%.

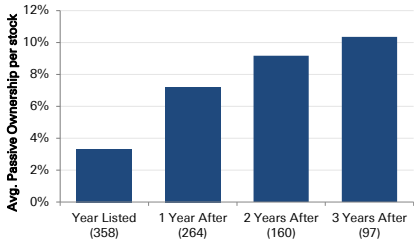
Passive ownership has become relevant even for newer public companies such as recent IPOs

Passive ownership growth is not only a trend affecting long-term established companies; it can also affect new companies. We analyzed over 350 IPOs launched during the 5 year period since the beginning of 2010 until the end of 2014, and we found out that:

- IPOs can experience a fast growth in passive ownership going from about 3% on the year they are listed to over 10% in just 3 years following their launch (Figure 22).
- Similar to US stocks in general, IPOs can also see their passive ownership level influenced by sector characteristics. At the end of 2014, IPOs launched within the Real Estate industry during the years 2010-2013 had the largest p/o level (Figure 23).
- Security type can also play a role in determining p/o levels. At the end of 2014, REITs IPOs had the largest p/o level relative to Common Stocks, and MLPs. However we believe that this is more related to a sector driver than a security type driver (Figure 24).

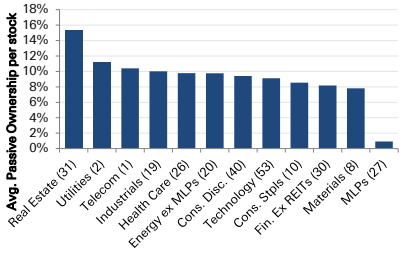
IPOs can experience a fast growth in passive ownership going from about 3% on the year they are listed to over 10% in just 3 years following their launch

Figure 22: Growth of passive ownership in IPOs (2010-2014)



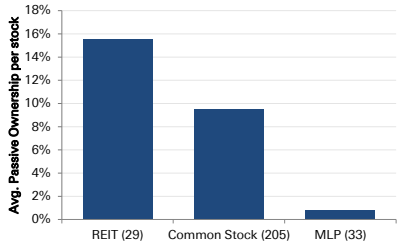
Source: Deutsche Bank, Factset, Bloomberg Finance LP.

Figure 23: 2014 passive ownership for IPOs launched between 2010 & 2013 by sector



Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 24: 2014 passive ownership for IPOs launched between 2010 & 2013 by security type



Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

To Beta, or to Alpha, that is the question

In some occasions, a higher level of passive ownership can lead to less alpha

We have already established a framework for defining passive ownership, measuring it, and understanding some of its drivers. However the question still remains, how does passive ownership truly affect the alpha opportunity of Stock Pickers?

We decided to approach this question from two angles: size and sector. For each stock we first estimated their alpha opportunity by calculating the correlation of its daily returns with the daily returns of its respective size and sector benchmark. A higher correlation to benchmark suggests less alpha opportunity in the stock, while a lower correlation to benchmark suggests higher alpha opportunity. After calculating the level of alpha opportunity for each stock, we analyzed whether there was any linear relationship between the level of stock alpha opportunity and the level of stock passive ownership. Figure 25 summarizes the different benchmarks for each category along with the explanatory power for each linear relationship (R-squares and correlation).

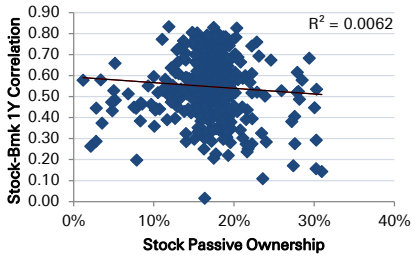
Figure 25: Strength of linear relationship between stock-benchmark return correlation and stock passive ownership

	Benchmark		Explained by Passive Ownership		
Categories	Index Name	ETF	Sample Size	R-Square	Correlation
By Size					
Mega & Large Cap	S&P 500	SPY	428	0.006	-0.08
Mid Cap	S&P 400	MDY	834	0.016	0.13
Small Cap	Russell 2000	IWM	1,716	0.205	0.45
By Sectors (sorted by relevance)					
Real Estate	MSCI US REIT	VNQ	210	0.646	0.80
Financials ex REITs	MSCI IM Financials	VFH	484	0.512	0.72
Utilities	MSCI IM Utilities	VPU	81	0.452	0.67
Industrials	MSCI IM Industrials	VIS	416	0.414	0.64
Information Technology	MSCI IM Inf. Technology	VGT	471	0.326	0.57
Consumer Staples	MSCI IM Cons. Staples	VDC	120	0.256	0.51
Energy	MSCI IM Energy	VDE	174	0.246	0.50
Health Care	MSCI IM Health Care	VHT	396	0.233	0.48
Materials	MSCI IM Materials	VAW	145	0.220	0.47
Telecommunication Services	MSCI IM Telecom. Serv.	VOX	36	0.179	0.42
Consumer Discretionary	MSCI IM Cons. Disc.	VCR	445	0.179	0.42

Source: Deutsche Bank, FactSet, S&P Dow Jones. Note: Benchmark used for Financials ex-REITs includes Real Estate, while the sample used for passive ownership doesn't.

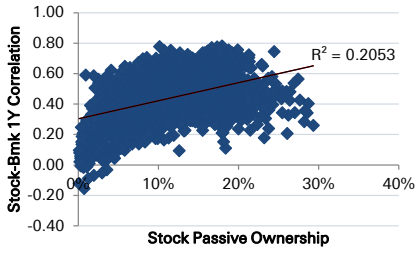
For Mega Caps and Large Caps, and Mid Caps[8] the linear relationship between alpha opportunity and stock ownership was very weak, and therefore doesn't provide enough evidence to support the idea that passive ownership directly affects the alpha opportunity of these investment segments. However in the case of Small Caps we found some explanatory power supporting the idea that passive ownership could lead to a higher correlation to benchmark and therefore reduced alpha opportunity (Figure 26 and Figure 27).

Figure 26: Mega & Large Cap 1Y daily return Stock-Benchmark Correlation & Passive Ownership



Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 27: Small Cap 1Y daily return Stock-Benchmark Correlation & Passive Ownership

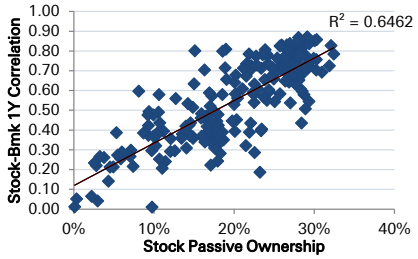


Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

At a sector level, we did find some level of linear relationship between alpha opportunity and passive ownership across all sectors. However, in some sectors the relationship was more evident than in others such as in the Real Estate and the Utilities sectors (Figure 28 and Figure 29).

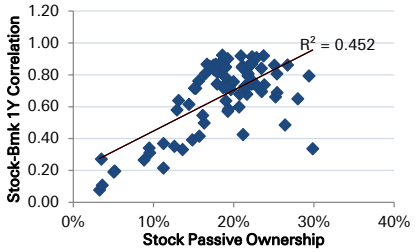
[8] Refer to Appendix A for additional individual size and sector charts for each category.

Figure 28: Real Estate 1Y daily return Stock-Benchmark Correlation & Passive Ownership



Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 29: Utilities 1Y daily return Stock-Benchmark Correlation & Passive Ownership



Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

These results suggest that at a size segment level Small Cap investors should find more alpha opportunity in those names with a lower passive ownership compared to names with higher passive ownership. While within Mega, Large, and Mid Caps alpha opportunity should be independent from passive ownership.

Small Cap investors should find more alpha opportunity in those names with a lower passive ownership.

Sector wise, we noticed that some sectors have basically become beta plays such as Real Estate, Utilities, and Industrials and therefore alpha generation should be more challenging due to reduced alpha opportunity. On the other hand, for the remaining sectors that still present a good level of linear relationship between passive ownership and alpha opportunity, investors should find that names with lower passive ownership have more room for alpha generation

Some sectors have basically become beta plays such as Real Estate, Utilities, and Industrials and therefore alpha generation should be more challenging.

Stocks with lower passive ownership can be a better source of alpha

We have just examined the thesis that stocks with a higher passive ownership have limited room for alpha generation given their higher correlation to their benchmark, which in some cases seemed very likely. Now if this is true, the opposite should be true as well, that is stocks with lower passive ownership should have more room for alpha generation.

In order to test this rationale, we built a basket of stocks that represented the bottom 10% of non-zero passive ownership at the end of each year. We utilized our sample of 3,200+ stocks above $100 million in market cap that were members of the S&P US Total Market Index at the end of 2014 as our universe. The methodology ranks the stocks once a year after mid February[9] and implements the new basket corresponding to the bottom 10% by non-zero passive ownership at the end of February. Stocks are equally weighted within the basket. We repeated this exercise each year from February 2007 until April 2015. Our universe of selection covers the broad market, but the basket usually has a bias towards small cap stocks, therefore we compare the results of our basket against the Russell 3000 Index (broad market), the Russell 2000 index (Small Cap), and the Russell MicroCap Index.

Figure 30: Total period performance and risk statistics – Bottom 10% P/O basket vs. benchmarks

Full Period Perf. Statistics	Bottom 10% P/O	Russell 3000 TR	Russell 2000 TR	Russell MicroCap TR
Annualized Return	20.60%	7.35%	6.87%	5.09%
Ann. Std. Dev.	19.62%	22.20%	27.55%	26.71%
Sharpe (RF=0%)	1.05	0.33	0.25	0.19
Max. Drawdown	-57.3%	-55.7%	-58.9%	-64.3%
Downside Deviation	15.56%	18.30%	20.95%	20.09%
Sortino (T=0%)	1.32	0.40	0.33	0.25

Source: Deutsche Bank, Bloomberg Finance LP. Note: represents backtested results for period: 02/2007-04/2015

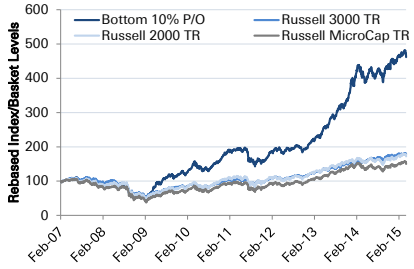
During the full backtested period our basket registered an annualized total return of 20.60% compared to 7.35%, 6.87%, and 5.09% for the Russell 3000, Russell 2000, and Russell MicroCap indices, respectively. The basket also outperformed the other benchmarks on a risk-adjusted basis (Figure 30).

A low passive ownership basket could provide a significant source of alpha.

[9] End of year 13f filings providing ownership data are due around mid February (45 days after quarter end)

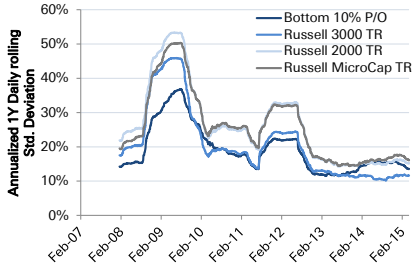
The bottom 10% basket recorded not only cumulative outperformance (Figure 31), and lower rolling volatility for most of the period (Figure 32), but also good outperformance on a periodical year-to-year basis (Figure 33), suggesting that outperformance didn't originate just due to single outlier performance events.

Figure 31: Historical cumulative total return performance – Bottom 10% P/O basket vs. benchmarks



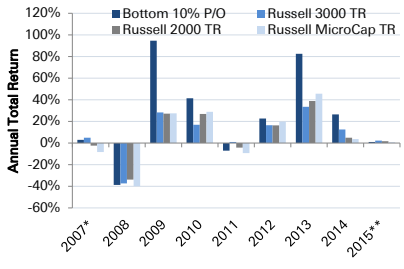
Source: Deutsche Bank, Bloomberg Finance LP. Note: represents backtested results.

Figure 32: Historical 1Y rolling std. deviation –Bottom 10% P/O basket vs. benchmarks



Source: Deutsche Bank, Bloomberg Finance LP. Note: represents backtested results.1Y based on 252 days.

Figure 33: Historical annual total returns – Bottom 10% P/O basket vs. benchmarks



*Source: Deutsche Bank, Bloomberg Finance LP.*Since 02/2007, **Until 04/20015*

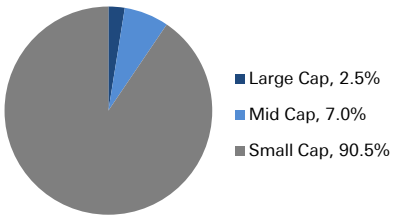
Finally, a further look at the basket composition helps us understand its exposure better. First we note that the large number of stocks in the basket (316) and the equal weighting methodology reduces the risk from concentrated positions and allow us to focus better on the low passive ownership factor (Figure 34). Median market cap is relatively low ($228m) reflecting a clear small cap bias (Figure 35). And sector wise, we see a clear overweight towards sectors with lower passive ownership (Figure 36).

Figure 34: Current Bottom 10% P/O basket characteristics

Bottom 10% Passive Ownership Basket	
Number of Holdings	316
Max. Mkt Cap $	25,688,631,440
Median Mkt Cap $	228,401,100
Avg. Mkt Cap $	1,047,933,385
Min. Mkt Cap $	100,331,040
Weighting methodology	Equal Weighted
Review Frequency	Annual
Selection cut-off date	End of December
Implementation date	End of February

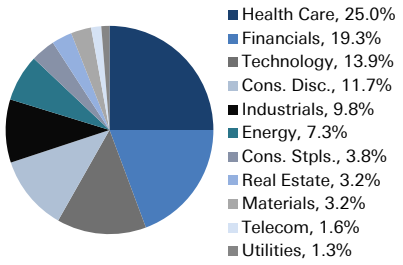
Source: Deutsche Bank, S&P Dow Jones.

Figure 35: Current Bottom 10% P/O basket market cap exposure



Source: Deutsche Bank, S&P Dow Jones.

Figure 36: Current Bottom 10% P/O basket sector exposure



Source: Deutsche Bank, S&P Dow Jones. Note: Financials exclude REITs

The results of our low passive ownership basket suggest that stocks with lower levels of passive ownership can provide a good source of alpha.

Turning passive ownership data knowledge to your favor

So far we have reviewed some of the market implications of passive ownership for Stock Pickers. However in the next few lines we would like to share a systematic approach to understanding passive ownership and turning that knowledge to your favor.

- **Quantify passive ownership of the stock.** Understand the impact of passive ownership with relation to the volume available to Stock Pickers, as well as the alpha opportunity of the stock depending on its p/o level, sector, and market cap segment. You may use our Passive Ownership guide located in Appendix A to find this information for the Top 50 stocks by p/o in each sector.
- **Identify any significant Index/Passive fund concentration.** Stocks with a passive ownership distributed across multiple indices or passive funds are less likely to experience impact from passive ownership activity compared to those stocks with concentrated passive ownership. For example, the S&P 500 is the most relevant index when it comes to AAPL passive ownership, therefore index activity related to the S&P 500 is more likely to have an impact in AAPL compare to other indices. Similarly, the Vanguard REIT Index Fund is the most relevant fund when it comes to SKT passive ownership, then flow activity related to that product is more likely to have an impact in SKT.
- **Understand the index methodology and passive fund activity.** After identifying relevant concentrations, investors should develop an understanding of the relevant index methodologies and passive fund flow patterns. Rebalancing and review dates, membership criteria, and treatment of significant corporate actions are key aspects of index methodologies investors should become acquainted with. ETF usage (more about this later) and historical activity are key for understanding ETF flow patterns. All of this should prepare them to face passive owner activity in a better way.
- **Monitor index rebalancing/review activity and passive fund flow patterns.** If Stock Pickers monitor index and passive fund flow activity they can know what to expect from passive owners, and should not be caught off-guard. Deutsche Bank's SYNDEX team produces periodical research to help investors monitor index activity and ETF flow patterns. Please contact us if you would like to be added to our distribution or find out more about our research offering.

Institutional ETF Usage

ETFs are institutional products also used by retail investors

For a long time ETFs have been considered a retail product, however we believe that such affirmation is currently a misstatement. Although adopted earlier by retail investors, ETFs have become an institutional [10] vehicle and we have the data to support this statement. We believe that a more accurate statement would be: "ETFs are institutional products also used by retail investors".

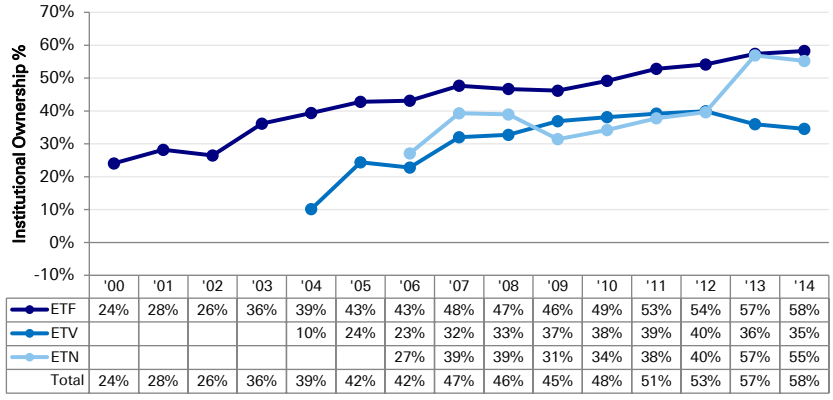
ETF institutional ownership stood at 58% at the end of 2014, and has been above 50% since 2011 (Figure 37 and Figure 38). Investment Adviser, Private Banking/WM, and Broker institutions are the major holders of ETF institutional assets with 28.3%, 11.8%, and 11.4%, respectively. Other institutions with less significant ETF asset ownership such as Mutual Fund, Hedge Fund, and Pension Fund managers have also been increasing their ETF usage. Furthermore, not only the assets tilt towards institutional investors, but ETF activity such as volume and flows (as we will discuss in the next section) is even more heavily dominated by institutions. Therefore the data strongly supports the fact that ETFs are not a retail phenomenon anymore.

Figure 37: 2014 Institutional ETF Ownership Summary

Investor Type	# of ETFs Q4 2014	ETF AUM $M Q4 2014	ETF Ownership % Q4 2014
Institutional Investor			
Investment Adviser	1,297	543,428	28.3%
Private Banking/WM	1,094	226,168	11.8%
Broker	1,319	219,655	11.4%
Mutual Fund Manager	657	44,897	2.3%
Hedge Fund Manager	507*	38,369	2.0%
Pension Fund Manager	168	22,513	1.2%
Other (8 Others)	365	19,871	1.0%
Inst. Investor Total	1,363	1,114,901	58.0%
Retail Investor			
Retail Investor Total	1,338	806,606	42.0%
Total ETFs	**1,380**	**1,921,506**	**100.0%**

*Source: Deutsche Bank, FactSet, Bloomberg Finance LP. *This number is actually larger due to one hedge fund investing a minimum amount in almost all ETFs; those ETFs with a minimum investment from only this one hedge fund were not accounted for in the number presented in this table.*

Figure 38: Evolution of ETF, ETV, & ETN Institutional ownership



	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14
ETF	24%	28%	26%	36%	39%	43%	43%	48%	47%	46%	49%	53%	54%	57%	58%
ETV					10%	24%	23%	32%	33%	37%	38%	39%	40%	36%	35%
ETN							27%	39%	39%	31%	34%	38%	40%	57%	55%
Total	24%	28%	26%	36%	39%	42%	42%	47%	46%	45%	48%	51%	53%	57%	58%

Source: Deutsche Bank, FactSet, Bloomberg Finance L:P.

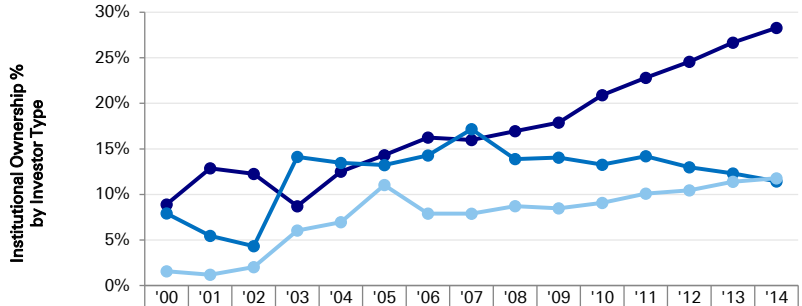
Among institutional investors, Investment Advisers have been steadily increasing their usage of ETFs registering the largest growth rate of ETF assets in the last 15 years. Private Banking/Wealth Management institutions have also been steadily increasing their usage of ETFs, and have recently become the second largest group among institutional holders. Brokers, however, have

ETFs are being used for investment purposes more and more.

[10] We provide detailed definitions for institutional investor, institutional investor types, and institutional ownership data in Appendix B

begun to represent a lower proportion of institutional ETF assets since the financial crisis (Figure 39). These trends support the idea that ETFs are being used for investment purposes more and more. Investment Advisers and Private Banking/WM mostly use ETFs as building blocks to implement their investment solutions; however, Brokers use ETFs mostly for non-investment purposes such as inventory for market making, create to lend activities, and seeding of new ETFs.

Figure 39: Evolution of ETF ownership by main institutional investors



	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14
Investment Adviser	9%	13%	12%	9%	13%	14%	16%	16%	17%	18%	21%	23%	25%	27%	28%
Broker	8%	5%	4%	14%	13%	13%	14%	17%	14%	14%	13%	14%	13%	12%	11%
Private Banking	2%	1%	2%	6%	7%	11%	8%	8%	9%	8%	9%	10%	10%	11%	12%

Source: Deutsche Bank, FactSet, Bloomberg Finance L:P.

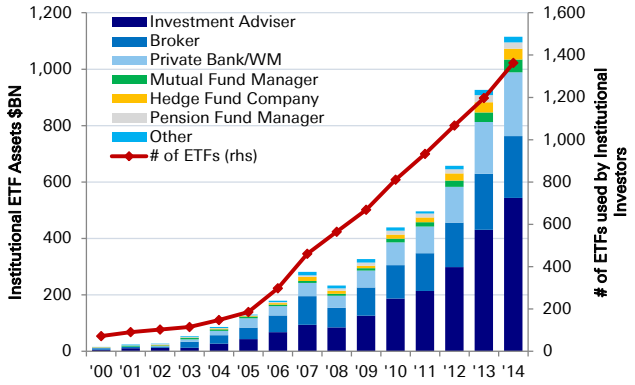
Despite the decreasing market share of some institutional investors (e.g. Brokers), ETF institutional assets in dollars have grown at every institutional investor category. Moreover the number of ETFs used by institutions has also increased consistently over the years. Therefore for those that still question whether there is room for new products, the simple answer is: apparently yes (Figure 40).

For those that still question whether there is room for new products, the simple answer is: apparently yes.

The growth in institutional usage has not only been due to an increase in dollar investments, or additional products, but also due to an increase in new institutional ETF users. Figure 41 depicts the historical evolution of the number of institutions using ETFs; this figure has grown from under 400 in the year 2000 to over 3,000 institutions at the end of 2014.

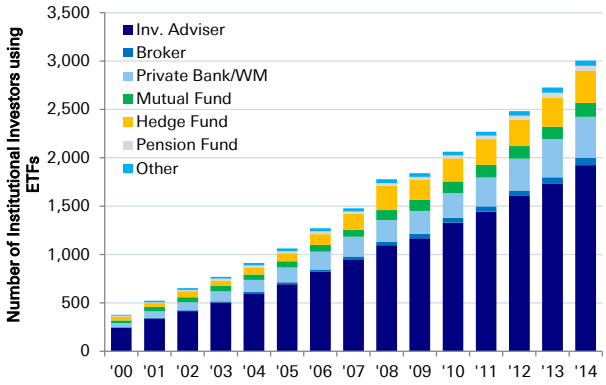
More than 3,000 institutions were using ETFs at the end of 2014

Figure 40: Evolution of Institutional ETF assets and # of products used by institutional investors



Source: Deutsche Bank, FactSet, Bloomberg Finance L:P.

Figure 41: Evolution of the number of institutional investors using ETFs by investor type



Source: Deutsche Bank, FactSet, Bloomberg Finance L:P.

Recognize somebody?

Figure 42: Top 20 Institutional ETF Holders

Institution Name	Institution Type	ETF Assets $M
Morgan Stanley Smith Barney LLC	Broker	45,300
Merrill Lynch, Pierce, Fenner & Smith, Inc.	Broker	42,390
Goldman Sachs & Co. (Private Banking)	Private Banking/Wealth Mgmt	40,048
Wells Fargo Advisors LLC	Private Banking/Wealth Mgmt	35,128
Bank of America, NA (Private Banking)	Private Banking/Wealth Mgmt	29,746
JPMorgan Chase Bank, NA (Investment Management)	Investment Adviser	29,331
UBS Financial Services, Inc.	Private Banking/Wealth Mgmt	26,029
Wells Fargo Bank, NA (Private Banking)	Private Banking/Wealth Mgmt	25,135
Morgan Stanley & Co. LLC	Broker	19,607
Citigroup Global Markets, Inc. (Broker)	Broker	17,207
Managed Account Advisors LLC	Investment Adviser	16,418
BlackRock Advisors LLC	Investment Adviser	16,069
JPMorgan Securities LLC	Broker	15,860
Northern Trust Investments, Inc.	Investment Adviser	15,506
PNC Bank, NA (Investment Management)	Investment Adviser	15,448
Barclays Capital, Inc.	Broker	14,519
Edward D. Jones & Co. LP (Investment Management)	Investment Adviser	13,988
Fidelity Management & Research Co.	Investment Adviser	12,999
LPL Financial LLC	Private Banking/Wealth Mgmt	12,992
Windhaven Investment Management, Inc.	Investment Adviser	12,992

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

Figure 43: Top 20 Institutional ETV Holders

Institution Name	Institution Type	ETV Assets $M
BlackRock Advisors LLC	Investment Adviser	1,318
Paulson & Co., Inc.	Hedge Fund Manager	1,162
Windhaven Investment Management, Inc.	Investment Adviser	1,151
Bank of America, NA (Private Banking)	Private Banking/Wealth Mgmt	890
Morgan Stanley Smith Barney LLC	Broker	695
JPMorgan Securities LLC	Broker	572
Merrill Lynch, Pierce, Fenner & Smith, Inc.	Broker	470
First Eagle Investment Management LLC	Investment Adviser	445
Morgan Stanley & Co. LLC	Broker	428
Goldman Sachs & Co. (Private Banking)	Private Banking/Wealth Mgmt	422
Wells Fargo Advisors LLC	Private Banking/Wealth Mgmt	360
UBS Financial Services, Inc.	Private Banking/Wealth Mgmt	359
Citigroup Global Markets, Inc. (Broker)	Broker	291
Credit Suisse Securities (USA) LLC (Broker)	Broker	291
Abu Dhabi Investment Council (Invt Mgmt)	Sovereign Wealth Manager	259
Ronald Blue & Co. LLC	Investment Adviser	245
Susquehanna Capital Group	Broker	224
Wellington Management Co. LLP	Mutual Fund Manager	214
Jane Street Capital LLC	Investment Adviser	212
JPMorgan Chase Bank, NA (Investment Management)	Investment Adviser	209

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

Figure 44: Top 20 Institutional ETN Holders

Institution Name	Institution Type	ETN Assets $M
Fisher Asset Management LLC	Investment Adviser	3,837
Wells Fargo Bank, NA (Private Banking)	Private Banking/Wealth Mgmt	1,794
Barclays Capital, Inc.	Broker	843
JPMorgan Securities LLC	Broker	469
Barclays Bank Plc (Private Banking)	Private Banking/Wealth Mgmt	414
Bank of America, NA (Private Banking)	Private Banking/Wealth Mgmt	346
ClearArc Capital, Inc.	Investment Adviser	282
AT Investment Advisers, Inc.	Private Banking/Wealth Mgmt	243
Mitsubishi UFJ Trust & Banking Corp. (Investment Management)	Investment Adviser	232
Credit Suisse Securities (USA) LLC (Broker)	Broker	231
PNC Bank, NA (Investment Management)	Investment Adviser	215
Aspiriant LLC	Private Banking/Wealth Mgmt	210
Jane Street Capital LLC	Investment Adviser	195
UBS Financial Services, Inc.	Private Banking/Wealth Mgmt	167
Deutsche Bank Securities, Inc.	Broker	163
Wells Fargo Advisors LLC	Private Banking/Wealth Mgmt	158
Goldman Sachs & Co. (Private Banking)	Private Banking/Wealth Mgmt	144
BNP Paribas Arbitrage SNC	Arbitrage	139
Morgan Stanley & Co. LLC	Broker	129
BMO Asset Management Corp.	Investment Adviser	123

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

Most of the largest asset managers around the world are already using ETFs. Do you recognize some of the names in these tables? You can look at top users by product (ETF, ETV, ETN), or ETF top users by institutional investor type on the next page. Are you already using ETFs?

Figure 45: Top 20 ETF Holders – Inv. Advisers

Institution Name	ETF Assets $M
JPMorgan Chase Bank, NA (Investment Management)	29,331
Managed Account Advisors LLC	16,418
BlackRock Advisors LLC	16,069
Northern Trust Investments, Inc.	15,506
PNC Bank, NA (Investment Management)	15,448
Edward D. Jones & Co. LP (Investment Management)	13,988
Fidelity Management & Research Co.	12,999
Windhaven Investment Management, Inc.	12,992
Aegon USA Investment Management LLC	12,814
BlackRock Fund Advisors	11,624
Envestnet Asset Management, Inc.	10,686
Deutsche Asset & Wealth Management Investment GmbH	7,882
Manulife Asset Management (US) LLC	7,814
Creative Planning, Inc.	6,790
TIAA-CREF Trust Co., FSB	6,649
BlackRock Financial Management, Inc.	6,493
Edelman Financial Services LLC	6,114
1832 Asset Management LP	5,768
US Bancorp Asset Management, Inc.	5,496
Raymond James & Associates, Inc. (Invt Mgmt)	5,450

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

Figure 46: Top 20 ETF Holders – Brokers

Institution Name	ETF Assets $M
Morgan Stanley Smith Barney LLC	45,300
Merrill Lynch, Pierce, Fenner & Smith, Inc.	42,390
Morgan Stanley & Co. LLC	19,607
Citigroup Global Markets, Inc. (Broker)	17,207
JPMorgan Securities LLC	15,860
Barclays Capital, Inc.	14,519
Susquehanna Financial Group LLLP	10,961
Credit Suisse Securities (USA) LLC (Broker)	10,831
UBS Securities LLC	8,944
RBC Capital Markets LLC	5,666
RBC Dominion Securities, Inc.	4,350
Commonwealth Equity Services, Inc.	4,189
Deutsche Bank Securities, Inc.	3,687
SG Americas Securities LLC	2,555
Commerzbank AG (Broker)	2,266
BMO Capital Markets (Canada)	1,356
Susquehanna Capital Group	1,057
Goldman Sachs International	1,035
Timber Hill LLC	1,008
Maple Securities USA, Inc.	849

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

Figure 47: Top 20 ETF Holders – Mutual Fund Managers

Institution Name	ETF Assets $M
Columbia Management Investment Advisers LLC	7,202
SSgA Funds Management, Inc.	6,867
JPMorgan Investment Management, Inc.	5,026
AllianceBernstein LP	4,291
The Vanguard Group, Inc.	3,153
Wilmington Trust Investment Advisors, Inc.	2,442
Psagot Mutual Funds Ltd.	2,354
Wellington Management Co. LLP	1,400
Franklin Templeton Investments Corp.	1,181
Invesco Canada Ltd.	982
Thrivent Investment Management, Inc.	929
Franklin Advisers, Inc.	819
AGF Investments, Inc.	778
Federated Equity Management Company of Pennsylvania	740
Voya Investment Management Co. LLC	633
Arrow Investment Advisors LLC	493
American Century Investment Management, Inc.	422
Operadora Valmex de Sociedades de Inversion SA de CV	330
Neuberger Berman LLC	326
Industrial Alliance Investment Management, Inc.	309

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

Figure 48: Top 20 ETF Holders – Pension Funds

Institution Name	ETF Assets $M
AFP Provida SA (Investment Management)	4,764
Clal Gemel Ltd.	2,897
Lockheed Martin Investment Management Co.	2,195
New Jersey Division of Investment	1,878
Tennessee Consolidated Retirement System	1,598
Keskinainen Elakevakuutusyhtio Ilmarinen	1,478
Ontario Teachers' Pension Plan Board	1,026
Amitim Senior Pension Funds	985
Canada Pension Plan Investment Board	918
The Dow Chemical Co. Pension Fund	825
BP Investment Management Ltd.	810
The Retirement Systems of Alabama	724
Shell Asset Management Company BV	678
Coordinating Invest Fiduciary of Raytheon Co. Employee Ben	674
APG Asset Management NV	588
Arizona State Retirement System	539
National Pension Service of Korea	513
Employees Retirement System of Texas	454
The Caisse de depot et placement du Quebec	351
USS Investment Management Ltd.	308

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

Figure 49: Top 20 ETF Holders – Private Banking/WM

Institution Name	ETF Assets $M
Goldman Sachs & Co. (Private Banking)	40,048
Wells Fargo Advisors LLC	35,128
Bank of America, NA (Private Banking)	29,746
UBS Financial Services, Inc.	26,029
Wells Fargo Bank, NA (Private Banking)	25,135
LPL Financial LLC	12,992
Nomura Securities Co., Ltd. (Private Banking)	3,597
SunTrust Banks, Inc. (Wealth Management)	3,330
Veritable LP	2,578
First Republic Investment Management, Inc.	1,896
Robert W. Baird & Co., Inc. (Private Wealth Management)	1,492
Barclays Bank Plc (Private Banking)	1,246
Pinnacle Advisory Group, Inc.	1,021
Brinker Capital, Inc.	911
Wharton Business Group LLC	894
AT Investment Advisers, Inc.	828
Ballentine Partners LLC	801
Janney Montgomery Scott LLC (Investment Management)	767
Convergent Wealth Advisors LLC	739
Homrich & Berg, Inc.	704

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

Figure 50: Top 20 ETF Holders – Hedge Funds

Institution Name	ETF Assets $M
Bridgewater Associates LP	10,980
SCS Capital Management LLC	2,147
Marketfield Asset Management LLC	1,513
IndexIQ Advisors LLC	1,330
MKP Capital Management LLC	948
Eton Park Capital Management LP	823
Lumina Fund Management LLC	752
Broadmark Asset Management LLC	688
Capstone Investment Advisors LLC	646
Voloridge Investment Management LLC	634
JBF Capital, Inc.	612
OZ Management LP	536
Bailard, Inc.	501
Main Management LLC	500
Discovery Capital Management LLC	485
Argentiere Capital AG	475
Wolverine Asset Management LLC	474
BlueCrest Capital Management (UK) LLP	459
Parallax Volatility Advisers LP	452
Millennium Management LLC	398

Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Assets as of End of Dec 2014.

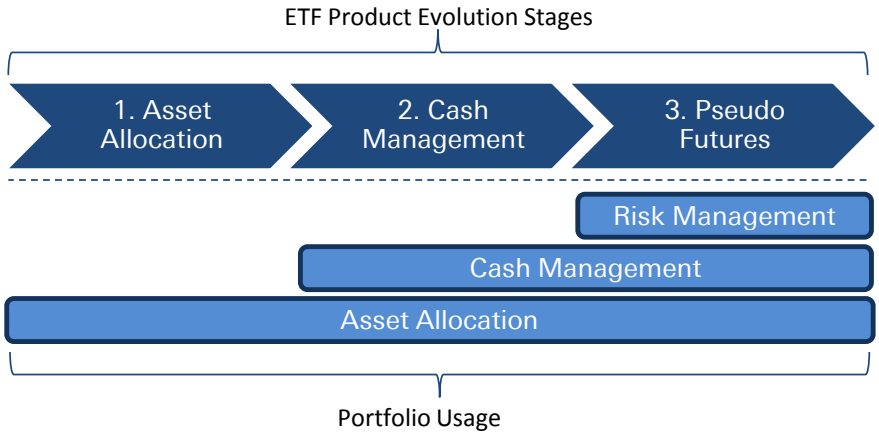
ETFs with multiple personalities and behavior

ETFs that every institutional investor should know

In the beginning all ETFs[11] are created with the same purpose in mind: asset allocation. Therefore most ETFs, with the exception of Levered and Inverse[12] products, are good asset allocation tools. However as ETFs hit the market and investors begin to use them they begin to develop a personality of their own. Thus a reduced number of ETFs may develop specific traits that can lead to additional portfolio usages beyond asset allocation such as cash management and risk management. Although the exposure offered by these ETFs that fulfill multiple portfolio functions is not affected due to the new traits, their product characteristics such as liquidity, borrow ability, and flow patterns can be significantly influenced. Therefore in order to obtain a better understanding of ETF activity and a more accurate ETF selection we classify our ETF universe (ex Levered & Inverse) of over 1,250 products in three main evolution categories of products: Asset Allocation, Cash Management, and Pseudo Futures (Figure 51).

A reduced number of ETFs may develop specific traits that can lead to additional portfolio usages beyond asset allocation such as cash management and risk management

Figure 51: ETF Product evolution stages and portfolio usage



Source: Deutsche Bank

- **Asset Allocation ETFs:** This group covers all ETFs with exception of levered and inverse products. These are usually good products for market access strategies, portfolio completion, and core positions. They are also efficient building blocks for multi asset strategies. When selecting these products, major emphasis should be set on the desired exposure, tracking efficiency, primary liquidity (i.e. the liquidity of the underlying basket), and cost.

Asset Allocation ETFs are usually good products for market access strategies, portfolio completion, and core positions.

[11] In this section when we refer to ETFs we will be referring to all funded products (i.e. ETFs and ETPs)

[12] Levered and Inverse products are designed as trading tools, and should be used in a tactical way for short period of times. They are not instruments designed for buy and hold investors. Given their unique characteristics and usage we usually treat them as a complete separate group of products from the rest of ETFs.

- **Cash Management ETFs**: This group covers a more selected group of ETFs which in addition to being good asset allocation tools, also serves a series of cash management portfolio needs. For example, these products are very good for equitizing cash between transitions, around reporting periods (window dressing), and during tax loss harvesting. These ETFs usually have good liquidity, large fund size, and low cost, all of which makes it easier to execute sizeable short-term transactions, therefore secondary market liquidity and fund size tend to be a more relevant factor compared to asset allocation ETFs. The most popular asset allocation usage of these funds is as core building blocks.

Cash Management ETFs are very good for equitizing cash between transitions, around reporting periods (window dressing), and during tax loss harvesting.

- **Pseudo Futures ETFs**: This group covers an even more selected sample of ETFs which in addition to being good asset allocation and cash management tools can also be used for fulfilling risk management functions such as risk hedging, portable alpha [13] strategies, or tactical shorts. Many times they also trade at a cheaper level than their underlying basket, and offer large amounts of liquidity which can make them attractive for market making activities as well. Secondary and short liquidity (ease to borrow), and fund size tend to be more relevant characteristics at the moment of selecting this type of ETFs. There is usually no more than one pseudo futures ETF per asset class. The most popular asset allocation usage of these funds is among portfolios that require more liquidity given their size or more tactical nature.

Pseudo Futures ETFs can fulfill risk management functions such as risk hedging, portable alpha strategies, or tactical shorts.

Figure 52 presents a summary of the different selection criteria investors can consider for selecting different types of ETFs depending on the usage they require. We have utilized these criteria guidelines to implement a quantitative process for classifying each non-levered/inverse ETF in a single group.

Figure 52: Selection criteria depending on intended ETF usage

Criteria	Measured by	Source	Pseudo Futures	Cash Mgmt	Asset Allocation
Secondary Liquidity (quantity)	Avg. Daily Value traded in $	FactSet	More Relevant	More Relevant	Less Relevant
Secondary Liquidity (cost)	Avg. Bid/Ask Spreads	Bloomberg Finance LP	More Relevant	More Relevant	Less Relevant
Primary Liquidity	Implied liquidity of basket	Bloomberg Finance LP	Less Relevant	Less Relevant	More Relevant
Short Liquidity (quantity)	Short Interest/ Shrs. Out. %	Bloomberg Finance LP	More Relevant	Less Relevant	Less Relevant
Short Liquidity (cost)	Avg. Borrow Rate	Deutsche Bank	More Relevant	Less Relevant	Less Relevant
Size	AUM $	Bloomberg Finance LP	More Relevant	More Relevant	Less Relevant
Ownership:					
Brokers+Hedge Funds	Ownership %	FactSet	More Relevant	Relevant	Less Relevant
Mutual Funds+Pension Funds	Ownership %	FactSet	Relevant	More Relevant	Relevant
Invest. Adviser+Private Bank/WM+Retail	Ownership %	FactSet	Less Relevant	Less Relevant	More Relevant
Flow Activity	Abs(Daily Flows Median) $	Bloomberg Finance LP	More Relevant	Less Relevant	Less Relevant
Cost	Total Expense Ratio	ETF Issuer	Less Relevant	Relevant	More Relevant
Exposure/Benchmark	Investor's objective	Investor	Relevant	Relevant	More Relevant
Tracking efficiency to Index	NAV-Index Performance dif.	Bloomberg Finance LP	Less Relevant	Relevant	More Relevant
Tracking efficiency to NAV	Price-NAV premium/discounts	Bloomberg Finance LP	Less Relevant	Relevant	More Relevant
Product Provider	Assets, products, years	Combination of above	Less Relevant	Less Relevant	Relevant

Source: Deutsche Bank

According to our quantitative product classification process, Pseudo Futures, Cash Management, Asset Allocation, and Levered & Inverse products represent 3%, 4%, 80%, and 13% of the number of ETFs listed in the US, respectively. When it comes to assets under management the market share in the same order is 30%, 39%, 29%, and 2%; and for turnover the proportion is

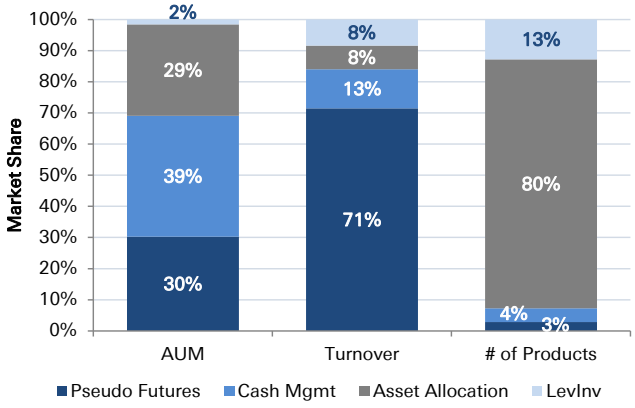
[13] In a portable alpha strategy the ETF can be shorted in order to remove the market risk or beta from a particular security long position.

71%, 13%, 8%, and 8%, still in the same order (Figure 53). The first fact that we would like to highlight is the high level of asset concentration in Pseudo Futures and Cash Management product, which despite representing 7% of the number of products listed in the US concentrate almost 70% of the ETF assets. The second fact that we would like to bring to the reader's attention is the high concentration of trading activity with more than 70% being generated by Pseudo Futures despite representing just 3% of the total number of US listed ETFs.

In terms of institutional ownership, different types of products have different levels of institutional involvement. For example, more than 75% of Pseudo Futures assets, and over 50% of Cash Management assets are held by institutional investors. While Asset Allocation and Levered & Inverse[14] products have a larger participation of retail investors. Adding the fact that most activity in ETFs is being driven by institutional investors underpins the truth that ETFs are Institutional vehicles also used by retails investors.

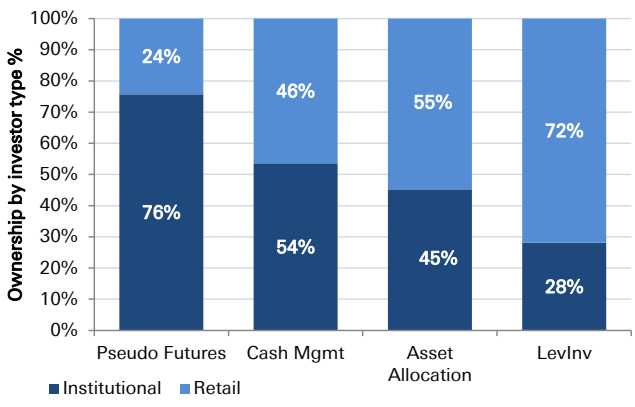
Adding the fact that most activity in ETFs is being driven by institutional investors underpins the truth that ETFs are primarily institutional vehicles.

Figure 53: 2014 Major ETF metrics broken down by product type – market share



Source: Deutsche Bank, Bloomberg Finance LP, FactSet. Note: AUM and # of Products are based on Dec end 2014, Turnover is average daily value traded during 2014.

Figure 54: 2014 ETF ownership broken down by investor type and product type



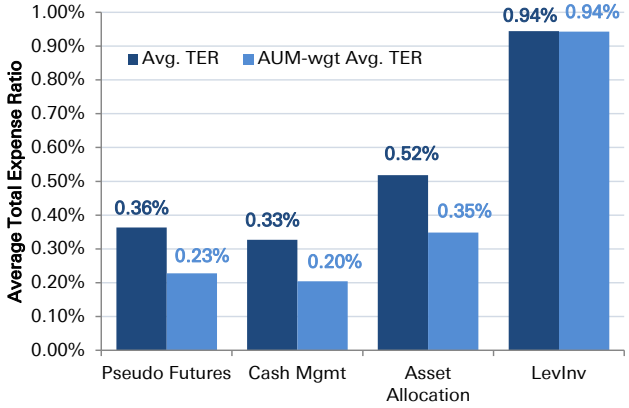
Source: Deutsche Bank, FactSet, Bloomberg Finance LP. Note: Ownership is based on Dec end 2014 data.

In terms of costs, Pseudo Futures, and Cash Management ETFs exhibit lower total expense ratios (TER) compared to Asset Allocation products. This can be explained by the economies of scale achieved by the former group. This is actually true for all three groups and further confirmed by the fact that TERs on an asset-weighted basis are even lower than simple averages for all product types (Figure 55).

Borrow availability is also better and cheaper for Pseudo Futures, compared to Cash Management and Asset Allocation ETFs. Furthermore, the fact that the average of the daily average borrow rate for the month of April for Asset Allocation ETFs is practically prohibitive highlights the importance of understanding the characteristics of the different groups of ETFs and the portfolio usage potential (Figure 56).

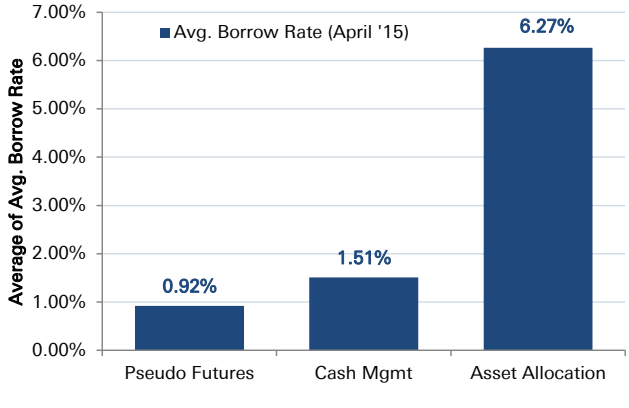
[14] We recommend readers to be cautious with the interpretation of the high level of retail participation in levered and inverse products. We know through primary research that institutional usage of these products is probably higher in practice, however many institutional investors may not hold them over the reporting periods because they are not using them as buy and hold vehicles.

Figure 55: 2014 Avg. Total Expense Ratio (TER) broken down by product type



Source: Deutsche Bank, Bloomberg Finance LP. Note: TER data is as of Dec end 2014.

Figure 56: 2015 April Avg. Borrow Rate broken down by product type



Source: Deutsche Bank. Note: Chart displays the average of the 1M average Borrow Rate of ETFs.

With the number of ETFs approaching 1,500, the task for selecting the right ETFs doesn't get any easier. However, institutional investors that may not be using ETFs as main building blocks for their strategies such as Stock Pickers, should be acquainted with at least the 105 products covered within the Pseudo Futures and Cash Management groups. As previously discussed these ETFs provide several functionalities that can add value to your investment process without conflicting with your investment philosophy.

Stock Pickers should be familiar with at least the 105 Pseudo Futures and Cash Management ETFs in order to add value to their investment process without conflicting with their investment philosophy.

An additional fact about Pseudo Futures and Cash Management ETFs is that all of them have listed options, which can also be very liquid. Therefore even macro derivatives strategies could also be implemented in an efficient way with these products.

Figure 57 and Figure 58 present the lists of the 41 Pseudo Futures and 64 Cash Management ETFs, respectively. Each table contains identifiers and additional details to help improve the understanding of the product characteristics.

Figure 57: List of "Pseudo Futures" ETFs

Ticker	Focus	Index/Sub focus	Op-tions	TER	AUM $M	20D ADV $M	Implied Liq. $M	Total Liq. $	Avg. Bid/Ask Spreads 5-Day $	5-Day bps	Apr. D Avg. Borrow Rate
Equities - US Size and Style											
SPY	US Large Cap	S&P 500	Y	0.09%	177,680	20,335	7,607	27,942	0.01	0.48	0.40%
QQQ	US Large Cap	NASDAQ 100	Y	0.20%	39,018	2,893	1,559	4,452	0.01	0.91	0.40%
DIA	US Large Cap	DJ Industrials	Y	0.17%	11,627	801	1,538	2,339	0.01	0.67	0.40%
IWF	US Large Cap Growth	Russell 1000 Growth	Y	0.20%	30,166	146	3,441	3,588	0.01	1.20	0.77%
IWD	US Large Cap Value	Russell 1000 Value	Y	0.20%	26,255	136	2,994	3,130	0.01	1.19	0.90%
MDY	US Mid Cap	S&P 400	Y	0.25%	17,074	445	893	1,338	0.03	1.25	0.83%
IWM	US Small Cap	Russell 2000	Y	0.20%	27,383	3,992	242	4,234	0.01	0.87	1.16%
Equities - US Sector & Industry											
IBB	US Sector	Biotech & Pharma	Y	0.48%	8,779	579	252	831	0.15	4.25	1.90%
XLY	US Sector	Cons. Discretionary	Y	0.15%	10,382	453	2,273	2,727	0.01	1.33	0.48%
XLP	US Sector	Cons. Staples	Y	0.15%	7,507	291	991	1,282	0.01	2.05	0.72%
XLE	US Sector	Energy	Y	0.15%	13,376	1,024	1,303	2,327	0.01	1.30	0.51%
OIH	US Sector	Energy Equip. & Services	Y	0.35%	1,128	282	372	655	0.01	2.90	1.40%
XOP	US Sector	Energy Exp. & Prod.	Y	0.35%	1,536	386	90	476	0.01	2.67	2.53%
XLF	US Sector	Financials	Y	0.15%	18,209	656	1,235	1,891	0.01	4.05	0.40%
XLV	US Sector	HealthCare	Y	0.15%	14,535	621	1,895	2,516	0.01	1.37	0.40%
XHB	US Sector	Home Builders	Y	0.35%	1,637	128	67	195	0.01	2.91	0.92%
XLI	US Sector	Industrials	Y	0.15%	7,932	431	1,655	2,086	0.01	1.78	0.52%
XLB	US Sector	Materials	Y	0.15%	2,900	185	642	827	0.01	1.99	0.40%
XME	US Sector	Metals & Mining	Y	0.35%	368	54	47	101	0.01	3.95	1.52%
IYR	US Sector	Real Estate	Y	0.43%	4,613	835	581	1,416	0.01	1.40	0.75%
KRE	US Sector	Regional Banks	Y	0.35%	2,051	161	53	214	0.01	2.50	1.24%
XRT	US Sector	Retail	Y	0.35%	1,304	232	110	341	0.02	2.48	1.51%
SMH	US Sector	Semiconductors	Y	0.35%	510	197	463	659	0.01	1.95	1.61%
XLK	US Sector	Technology	Y	0.15%	13,639	324	3,052	3,377	0.01	2.32	0.40%
XLU	US Sector	Utilities	Y	0.15%	6,418	559	440	1,000	0.01	2.27	0.67%
Equities - Emerging Markets											
EEM	EM	MSCI Emerging Markets	Y	0.67%	32,097	1,832	437	2,268	0.01	2.38	0.46%
EWZ	Brazil	MSCI Brazil	Y	0.61%	3,028	576	114	690	0.01	3.00	1.10%
FXI	China	FTSE China 50	Y	0.74%	8,022	1,026	428	1,454	0.01	1.97	1.08%
EWW	Mexico	MSCI Mexico	Y	0.50%	1,734	117	8	125	0.01	2.17	0.51%
RSX	Russia	Market Vectors Russia	Y	0.62%	2,209	161	0	161	0.01	5.14	0.53%
EWT	Taiwan	MSCI Taiwan	Y	0.61%	4,376	119	158	277	0.01	6.11	0.69%
Equities - Global Themes											
GDX	Thematic	Gold Miners	Y	0.53%	6,209	664	34	698	0.01	5.14	0.42%
GDXJ	Thematic	Junior Gold Miners	Y	0.56%	1,631	215	5	220	0.01	4.05	0.42%
Fixed Income											
HYG	High Yield Corporates	iBoxx $ Liquid High Yield	Y	0.50%	15,506	604	n.a.	604	0.01	1.14	0.40%
TLT	Long Term Treasuries	Barclays US Treasury 20+ Year	Y	0.15%	4,975	1,336	n.a.	1,336	0.01	0.89	0.91%
Commodity											
USO	Crude Oil	WTI Crude Oil futures	Y	0.45%	2,311	422	n.a.	422	0.01	5.11	1.57%
GLD	Gold	Physical Gold bullion	Y	0.40%	27,263	604	n.a.	604	0.01	0.92	0.40%
UNG	Natural Gas	Natural Gas futures	Y	0.60%	594	80	n.a.	80	0.01	7.35	1.61%
SLV	Silver	Physical Silver bullion	Y	0.50%	5,287	99	n.a.	99	0.01	6.23	0.52%
Currency											
FXE	EURUSD		Y	0.40%	386	88	n.a.	88	0.01	1.13	2.27%
FXY	JPYUSD		Y	0.40%	66	10	n.a.	10	0.02	1.94	2.12%

Source: Deutsche Bank, Bloomberg Finance LP, FactSet. Data as of May 28, 2015.Borrow rate is the average borrow rate for the month of April 2015

Figure 58: List of "Cash Management" ETFs

Ticker	Focus	Index/Sub focus	Op-tions	TER	AUM $M	20D ADV $M	Implied Liq. $M	Total Liq. $	Avg. Bid/Ask Spreads 5-Day $	5-Day bps	Apr. D Avg. Borrow Rate
Equities - US Size and Style											
VTI	US Total Market	CRSP US Total Market	Y	0.05%	57,477	249	4,010	4,259	0.01	1.06	0.42%
IVV	US Large Cap	S&P 500	Y	0.07%	71,033	640	7,599	8,239	0.02	0.89	0.41%
VOO	US Large Cap	S&P 500	Y	0.05%	32,772	259	7,570	7,829	0.02	1.02	0.50%
RSP	US Large Cap	S&P 500 Equal Weight	Y	0.40%	11,446	82	2,350	2,432	0.01	1.34	1.36%
OEF	US Large Cap	S&P 100	Y	0.20%	4,383	47	4,741	4,788	0.01	1.44	0.87%
VUG	US Large Cap Growth	CRSP US LC Growth	Y	0.09%	19,101	72	7,131	7,203	0.02	1.37	0.75%
IVW	US Large Cap Growth	S&P 500 Growth	Y	0.18%	13,055	72	6,459	6,531	0.01	1.11	2.24%
VTV	US Large Cap Value	CRSP US LC Value	Y	0.09%	18,767	72	4,199	4,272	0.01	1.61	0.51%
IVE	US Large Cap Value	S&P 500 Value	Y	0.18%	8,534	50	369	419	0.01	1.53	1.77%
IJH	US Mid Cap	S&P 400	Y	0.12%	26,063	106	884	989	0.02	1.35	0.42%
IJR	US Small Cap	S&P 600	Y	0.12%	16,622	73	290	363	0.02	1.53	1.10%
Equities - US Sector & Industry											
XBI	US Sector	Biotechnology	Y	0.35%	2,245	247	104	351	0.20	8.35	4.15%
ITB	US Sector	Home Builders	Y	0.45%	2,058	81	45	126	0.01	3.82	1.56%
AMLP	US Sector	MLPs	Y	0.85%	9,151	69	97	166	0.01	6.08	3.62%
VNQ	US Sector	Real Estate	Y	0.10%	26,294	368	223	591	0.01	1.49	0.51%
Equities - US Dividend											
VIG	Dividend Growth	NASDAQ Div. Achievers Select	Y	0.10%	20,682	51	692	743	0.02	1.87	1.07%
DVY	Dividend Yield	Dow Jones Select Dividend	Y	0.39%	14,849	56	669	725	0.01	1.65	0.94%
VYM	Dividend Yield	FTSE High Dividend Yield	Y	0.10%	11,236	35	3,525	3,560	0.01	1.99	1.03%
SDY	Dividend Yield & Growth	S&P High Yield Div. Aristocrats	Y	0.35%	13,596	43	317	360	0.01	1.70	3.03%
Equities - Global											
ACWI	Global	MSCI ACWI	Y	0.33%	6,671	64	408	472	0.01	1.97	1.10%
VEU	Global ex US	FTSE All-World ex-US	Y	0.15%	14,776	87	5	92	0.01	2.03	0.69%
Equities - Developed Markets ex US											
EFA	DM ex US	MSCI EAFE	Y	0.33%	62,066	1,168	1,945	3,113	0.01	1.49	0.40%
VEA	DM ex US	FTSE Dev. Ex NA	Y	0.09%	28,372	151	364	515	0.01	2.41	0.40%
IDV	DM ex US	Intl. Dividend	Y	0.50%	4,467	36	56	92	0.01	3.75	3.04%
VGK	Europe	FTSE Developed Europe	Y	0.12%	14,705	249	846	1,094	0.01	1.77	0.40%
EZU	Eurozone	MSCI EMU	Y	0.50%	10,276	245	1,220	1,465	0.01	2.55	0.85%
FEZ	Eurozone	Euro STOXX 50	Y	0.29%	5,005	84	2,158	2,242	0.01	2.61	1.42%
EWA	Australia	MSCI Australia	Y	0.51%	1,634	48	505	553	0.01	4.46	1.58%
EWC	Canada	MSCI Canada	Y	0.51%	2,613	40	602	641	0.01	3.65	1.19%
EWG	Germany	MSCI Germany	Y	0.51%	7,043	138	371	509	0.01	3.38	1.62%
EWH	Hong Kong	MSCI Hong Kong	Y	0.51%	3,688	79	98	177	0.01	4.16	2.88%
EWI	Italy	MSCI Italy	Y	0.50%	1,053	33	361	394	0.01	6.60	2.04%
EWJ	Japan	MSCI Japan	Y	0.48%	19,216	457	1,110	1,567	0.01	7.60	0.40%
EWS	Singapore	MSCI Singapore	Y	0.51%	834	12	62	74	0.01	8.10	1.09%
EWP	Spain	MSCI Spain	Y	0.51%	1,810	48	91	138	0.01	3.09	3.02%
EWU	UK	MSCI UK	Y	0.51%	3,081	72	1,542	1,613	0.01	5.20	0.75%
Equities - Emerging Markets											
VWO	EM	FTSE Emerging Markets	Y	0.15%	49,089	423	0	423	0.01	2.32	0.41%
EPI	India	WisdomTree India Earnings	Y	0.83%	2,487	97	53	150	0.01	4.61	0.82%
EWM	Malaysia	MSCI Malaysia	Y	0.51%	435	16	20	35	0.01	7.77	0.78%
EWY	South Korea	MSCI South Korea	Y	0.61%	4,187	138	285	423	0.01	1.74	0.40%
Fixed Income - Aggregate											
BND	Aggregate	Barclays Aggregate Bond	Y	0.08%	27,103	226	n.a.	226	0.01	1.29	0.40%
AGG	Aggregate	Barclays Aggregate Bond	Y	0.08%	24,856	197	n.a.	197	0.01	0.97	0.40%
Fixed Income - Rates											
TIP	Inflation	Barclays US TIPS	Y	0.20%	13,834	62	n.a.	62	0.03	2.82	0.40%
IEF	Intermediate Treasuries	Barclays US Treasury 7-10 Y	Y	0.15%	6,410	156	n.a.	156	0.01	1.13	1.09%
IEI	Intermediate Treasuries	Barclays US Treasury 3-7 Y	Y	0.15%	4,400	33	n.a.	33	0.03	2.60	3.63%
SHY	Short Term Treasuries	Barclays US Treasury 1-3 Y	Y	0.15%	9,163	130	n.a.	130	0.01	1.21	1.17%
SHV	Very Short Treasuries	Barclays Short Treasury	Y	0.15%	2,415	129	n.a.	129	0.01	0.91	2.81%
Fixed Income - Credit											
EMB	EM Debt USD	JP Morgan EM Bond	Y	0.40%	5,267	76	n.a.	76	0.04	3.19	3.52%
PCY	EM Debt USD	DB EM USD Liquid	Y	0.50%	2,546	21	n.a.	21	0.01	4.85	4.82%
JNK	High Yield Corporates	Barclays HY Very liquid Bond	Y	0.40%	11,467	319	n.a.	319	0.01	2.56	0.71%
BIV	Intermediate Gov/Credit	Barclays 5-10 Y Gov/Cred	Y	0.10%	5,862	33	n.a.	33	0.05	5.63	2.12%
LQD	Inv. Grade Corporates	iBoxx $ Liquid Investment Grade	Y	0.15%	22,102	373	n.a.	373	0.01	1.11	0.40%
PFF	Preferred	S&P Preferred Stock	Y	0.47%	13,447	125	n.a.	125	0.01	2.55	1.73%
PGX	Preferred	BofA ML Core+ Fixed Rate Pref.	Y	0.50%	2,800	17	n.a.	17	0.01	7.04	5.58%
BKLN	Senior Loans	S&P/LSTA US Lev. Loan 100	Y	0.65%	5,708	50	n.a.	50	0.01	4.26	1.60%
CSJ	Short Term Credit	Barclays 1-3 Y Credit	Y	0.20%	10,880	46	n.a.	46	0.02	1.77	1.12%
BSV	Short Term Gov/Credit	Barclays 1-5 Y Gov/Credit	Y	0.10%	15,993	81	n.a.	81	0.01	1.29	0.46%
SJNK	Short Term HY Corporates	Barclays US HY 0-5 Y	Y	0.40%	4,507	38	n.a.	38	0.01	4.12	1.62%
VCSH	Short Term IG Corporates	Barclays US 1-5 Y Corporate	Y	0.12%	10,142	63	n.a.	63	0.02	2.15	1.25%
SCPB	Short Term IG Corporates	Barclays US 1-3 Y Corporate	Y	0.12%	4,122	17	n.a.	17	0.01	3.61	5.53%
Commodity											
DBA	Agriculture	DBIQ Diversified Agriculture	Y	0.89%	883	10	n.a.	10	0.01	4.90	1.89%
DBC	Broad Diversified	DBIQ Optimum Yield Divers.	Y	0.93%	3,129	32	n.a.	32	0.01	5.69	0.85%
IAU	Gold	Physical Gold bullion	Y	0.25%	6,346	22	n.a.	22	0.01	8.69	0.56%
Currency											
UUP	USD	DB US Dollar(Long USDX future)	Y	0.80%	1,223	71	n.a.	71	0.01	3.93	1.33%

Source: Deutsche Bank, Bloomberg Finance LP, FactSet. Data as of May 28, 2015.Borrow rate is the average borrow rate for the month of April 2015

Understanding VIX elasticity of ETF volume

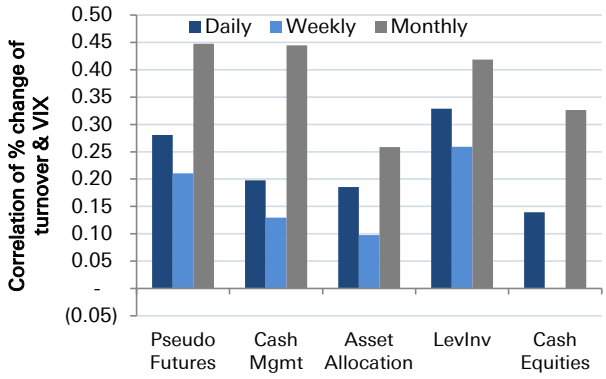
Not all ETFs present the same level of relationship or sensitivity between volume and volatility.

The fact that volatility and volume have a linear positive relationship is well accepted and supported by data. Moreover such relationship holds still true for ETFs. However what many market participants don't realize is that not all ETFs present the same level of relationship or sensitivity between volume and volatility.

In order to obtain a better understanding of the relationship between ETF volume and volatility, we will use ETF turnover (i.e. volume in USD) and the VIX index level as relevant proxies. In addition, we will continue to analyze ETF behavior for the different four groups of ETFs we defined in the previous sub section.

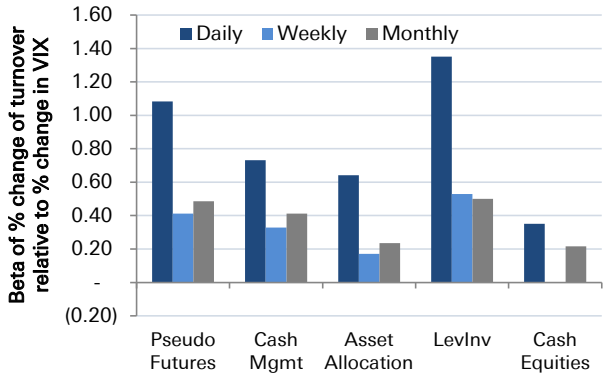
All ETF groups and Cash equities present positive linear relationships between volume and volatility. However, Levered and Inverse, and Pseudo Futures ETFs present a higher correlation of % changes between volatility and volume. We also observed that daily and monthly correlations were higher than weekly correlations (Figure 59). Continuing with our analysis, we tried to understand how sensitive the volume variations were compared to volatility variations. Our results showed that Pseudo Futures and Levered and Inverse ETF volumes were the most sensitive relative to VIX changes, as shown by their betas in every period calculated (Figure 60).

Figure 59: Correlation of % changes between VIX and turnover ($ volume)



Source: Deutsche Bank, Bloomberg Finance LP. Note: turnover and VIX data corresponds to the period from 1-Jul-2008 to 31-dec-2014.

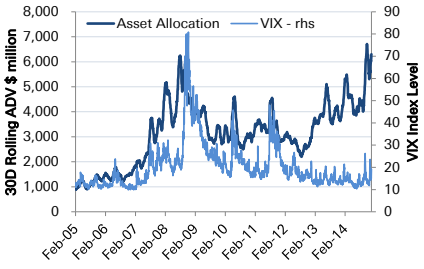
Figure 60: Sensitivity of % changes in turnover ($ volume) relative to % changes in VIX



Source: Deutsche Bank, Bloomberg Finance LP. Note: turnover and VIX data corresponds to the period from 1-Jul-2008 to 31-dec-2014.

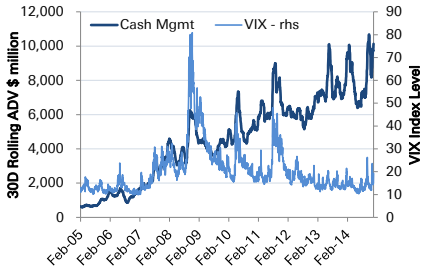
We can further expand our understanding of these relationships by visually examining the historical charts for ETF rolling 30D volume in USD and the VIX level. A quick glance at these five charts reveals that volume for Asset Allocation ETFs, Cash Management ETFs, and Cash Equities is less related to volatility (especially most recently) compared to Pseudo Futures ETFs, and Levered and Inverse ETFs which exhibit a higher relationship to volatility (Figure 61 to Figure 65).

Figure 61: Asset Allocation ETF turnover vs. VIX



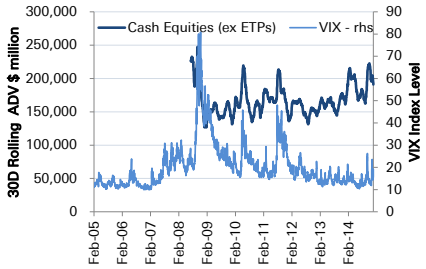
Source: Deutsche Bank, Bloomberg Finance LP.

Figure 62: Cash Management ETF turnover vs. VIX



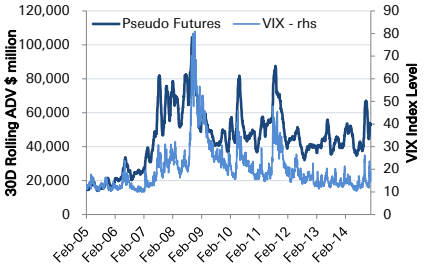
Source: Deutsche Bank, Bloomberg Finance LP.

Figure 63: Cash Equities (ex ETPs) turnover vs. VIX



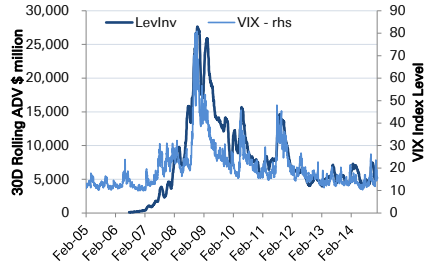
Source: Deutsche Bank, Bloomberg Finance LP.

Figure 64: Pseudo Futures ETF turnover vs. VIX



Source: Deutsche Bank, Bloomberg Finance LP.

Figure 65: Leveraged & Inverse ETF turnover vs. VIX



Source: Deutsche Bank, Bloomberg Finance LP.

The bottom line is that ETF volume for Pseudo Futures, and Levered and Inverse ETFs is more related to volatility and is more likely to experience expansive behavior (i.e. be more elastic) during volatility spikes than other type of ETFs . Therefore it should not be unusual to see ETFs in these groups experiencing significant excess volume during market stress. Actually, this is totally consistent with the way investors use these types of products. For example, during market stress it should be common to see investors hedging their positions with Pseudo Futures ETFs, or trying to turn a quick profit using levered ETFs, both being objectives which can be efficiently achieved with these types of ETFs.

ETF volume for Pseudo Futures, and Levered and Inverse ETFs is more related to volatility and has a higher VIX elasticity.

Higher VIX elasticity of ETF volume can allow an ETF to absorb excess volume during volatility spikes, while at the same time reducing primary market impact.

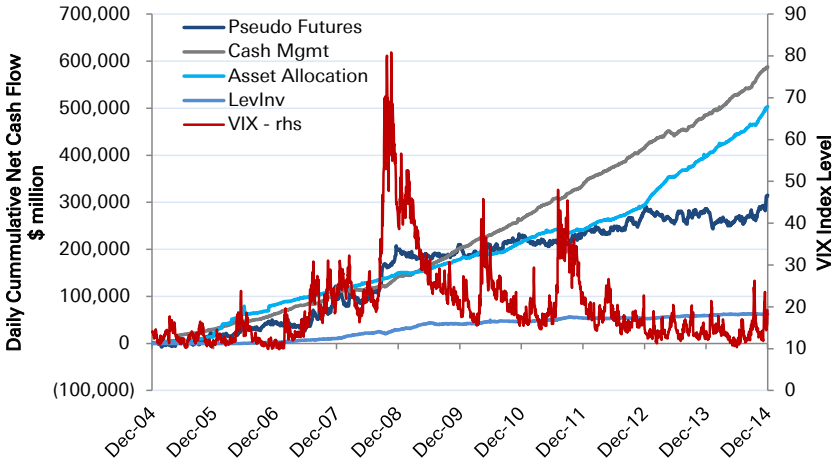
How much does secondary market ETF volume activity affect the ETF's primary market?

If ETF volume is to some extent positively related to volatility, then a first attempt to answer this question would be to look at the flow activity (a reflection of primary market activity) versus volatility. The rationale being that if higher volatility leading to higher ETF volume impacts the primary market we should be able to see flow spikes around volatility spikes in a similar way we observed with ETF volume. Figure 66 depicts the historical evolution of cumulative flows for each ETF group versus the VIX level. We can observe that the cumulative flow trends for Asset Allocation, Cash Management, and Levered and Inverse ETFs are fairly smooth over time and seem to follow a growth pattern independent from volatility. In the meantime, although we do notice that the Pseudo Futures cumulative flow trend exhibits some

Our analysis shows no strong proofs that excess ETF volume impact the ETF's primary market in any significant way.

unsteadiness we do not see any strong relationship between the VIX level and flows that would make us think that the VIX or volume affect the ETF primary market in any significant way.

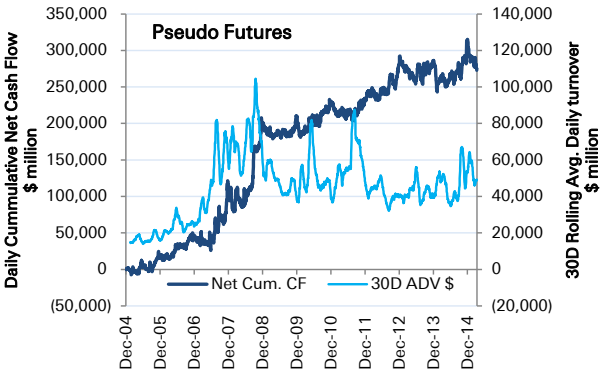
Figure 66: Daily cumulative Net Cash Flows by product type versus VIX



Source: Deutsche Bank, Bloomberg Finance LP.

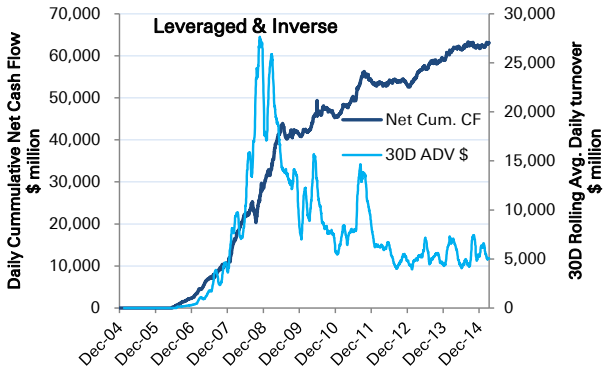
A closer look at ETF primary market activity versus ETF volume for Pseudo Futures confirms the fact that primary activity is not affected by ETF secondary excess volume as there is no significant relationship, especially after 2008 (Figure 67). In the case of Levered and Inverse ETFs the results are similar, with the minor difference that we do notice some mild relationship around volume spikes in 2010 and 2011 (Figure 68).[15]

Figure 67: Cumulative Net Cash Flows vs. 30D rolling turnover – Pseudo Futures



Source: Deutsche Bank, Bloomberg Finance LP.

Figure 68: Cumulative Net Cash Flows vs. 30D rolling turnover – Leveraged & Inverse



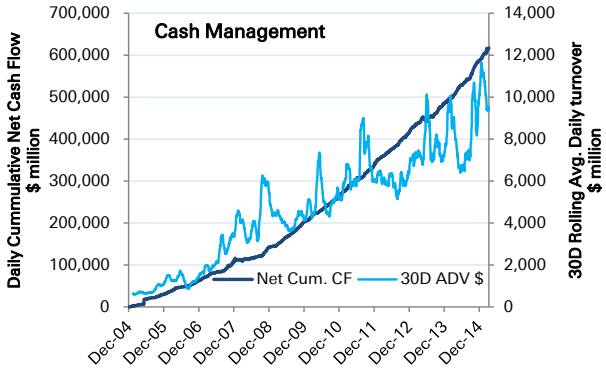
Deutsche Bank, Bloomberg Finance LP.

[15] Leveraged and Inverse ETFs are more likely to have a more relevant impact in the primary market due to their daily reset activities towards the close than due to their secondary market volume. However the analysis of such impact is beyond the scope of this report.

A similar review of primary activity and secondary market volume for Cash Management, and Asset Allocation ETFs yields very interesting results. In these cases we can see a clear relationship between cumulative flows and ETF volume, however the relative size of the secondary volume activity compared to the magnitude of the flows strongly suggests that it is not ETF volume the one inducing the flows, but the other way around. In other words, we believe that secondary market volume in these types of products increases with demand as represented by positive flows. This would be consistent with the nature of these products which primarily satisfy asset allocation needs depending on investors' demand. Therefore for these ETFs it is not ETF volume what impacts the primary market, but rather investors' demand expressed via flows.

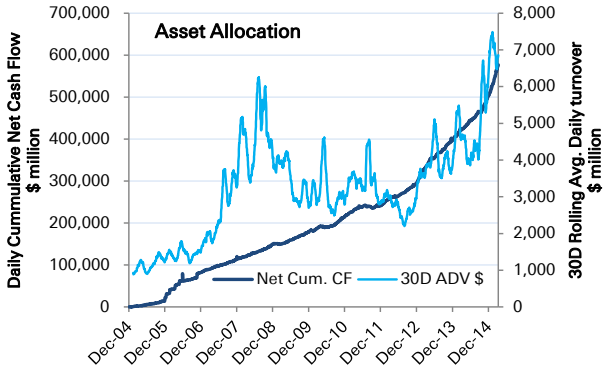
Cash Management and Asset Allocation ETFs create asset class liquidity as investors' demand grows.

Figure 69: Cumulative Net Cash Flows vs. 30D rolling turnover – Cash Management



Source: Deutsche Bank, Bloomberg Finance LP.

Figure 70: Cumulative Net Cash Flows vs. 30D rolling turnover – Asset Allocation



Deutsche Bank, Bloomberg Finance LP.

Extracting the right information from ETF flows

We have already discussed how some ETFs are different from others given their characteristics and investor usage. We have also examined how different product types exhibit different volume patterns. Now in this sub section we explore important differences and particularities related to different ETF types and their flow patterns.

When investors look at flows the objective is to try to understand the investor demand for a specific asset class in order to identify whether there is buying support or selling pressure.

When investors look at ETF flows without any distinction they are making the assumption that all ETFs are being used for asset allocation and therefore ETF flows reflect the directional intentions of investors. However, this assumption is flawed and will most often lead to a wrong interpretation of investors' behavior. As we have discussed previously in this section, there are different types of ETFs depending on their evolution stage and the way investors use them in their portfolios. For example, Leveraged and Inverse ETFs do not reflect allocation trends or directional intentions, but rather short term speculative behavior or contrarian directionality, respectively. Moreover, in the case of Pseudo Futures ETFs we know that a significant amount of their primary market activity can at times be driven by non-investment or non-

The assumption that all ETF flows represent investors' directional allocation intentions is flawed and far from true. We believe that the flows from Cash Management and Asset Allocation ETFs provide better allocation insights.

directional objectives such as create to lend[16], risk hedging, market making, cash equitization, etc.

On the other hand, we know that ETF flow patterns for Cash Management and Asset Allocation ETFs tend to reflect investor allocation preferences in a way that is more consistent with directionality. Thus we believe that an approach to analyzing ETF flows that focuses on the Cash Management and Asset Allocation ETFs provides a better proxy for understanding investors' asset allocation shifts.

Furthermore, we believe that there is also value in analyzing the different ETF flow patterns for Pseudo Futures, and non-Pseudo Futures ETFs (i.e. Cash Management and Asset Allocation ETFs).

Although these products may track the same or very similar indices or exposures, they can present very dissimilar flow patters due mostly to the way investors use them or the type of investor using them. In general we observe that ETF flows into non-Pseudo Futures ETFs tend to be more stable and more aligned with the price trend; while Pseudo Futures ETF flows seem to be more volatile and diverge more frequently from the price trend. Figure 71 to Figure 79 present a visual analysis of these trends for different asset classes. In particular, we are concerned with two specific patterns: Consistency, and Divergence/Convergence.

- **Consistency**: When the flow trends for Pseudo Futures and non-Pseudo Futures are consistent (i.e. both up or down trend) that is usually a sign of a stronger consensus in the underlying allocation trend. It basically suggests that both short term traders and long term allocators agree on the strong or weak prospects of the asset class. The Health Care, Utilities, and Latin America figures depict this pattern.
- **Convergence/Divergence**: this is the pattern investors should be more concerned about. More often than not, we see people (investors or media) jumping to asset allocation shift conclusions based on Pseudo Futures flows. This is probably because Pseudo Futures ETFs include the most popular products and therefore it is easier to keep track of their activity. However, by focusing on these products without understanding their usage or looking at the whole picture, they are most likely to arrive at the wrong conclusion or to introduce significant noise in their analysis. For example, Figure 71 presents the flows for Large Cap ETFs during the first quarter of 2015; we can clearly see how PF ETFs experienced strong outflows while non PF ETF flows remained mostly neutral and slightly positive. Many market participants were quick to state that US equities were experiencing strong selling pressure; however the reality was that allocators had remained adding to the US while short term investors unwound their non-allocation trades (e.g. tax loss harvesting, cash equitization, risk hedges, etc). As a consequence we saw US equities continue a neutral

[16] Create to lend is a very common practice among brokers and their clients in which a broker that is also an Authorized Participant (i.e. authorized to create new shares of the ETF) creates new ETF shares to lend to a client that desires to take short exposure by borrowing those shares. The broker usually hedges their long ETF position, and therefore the net market impact of this operation is the short position intended by the client which translates into a bearish view on the underlying as opposed to the bullish view suggested by the ETF inflows, otherwise.

to positive trend which was more aligned to the non PF ETF flow trend. Similar patterns can be observed for US Small Caps, EM, and China in the figures provided.

An additional set of data that can further contribute to the understanding of Pseudo Futures ETF flow trends is ETF short interest. For example, an upwards flow trend accompanied by an upwards short interest trend will be a very strong sign of create to lend activity and therefore a bearish indicator. Similar rationale applies on the opposite direction.

The bottom line is that a better understanding of different ETF products can clearly improve the accuracy of investors' interpretation of the market trends.

The bottom line is that a better understanding of different ETF products can clearly improve the accuracy of investors' interpretation of the market trends

Figure 71: Non-PF & PF ETF flow trends vs. price – US Large Cap

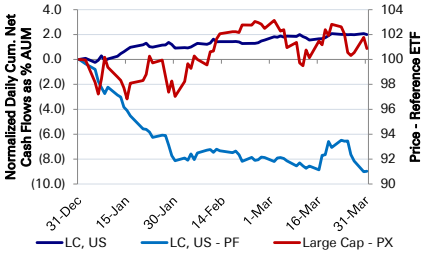


Figure 72: Non-PF & PF ETF flow trends vs. price – US Mid Cap

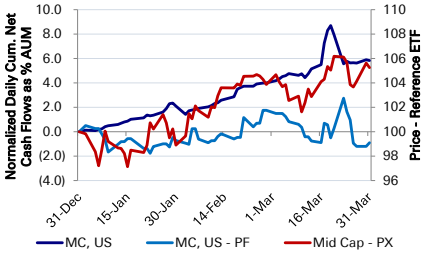
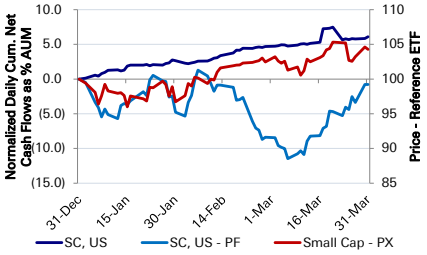


Figure 73: Non-PF & PF ETF flow trends vs. price – US Small Cap



Source: Deutsche Bank, Bloomberg Finance LP. Note: Non-PF = Non Pseudo Futures ETFs; PF = Pseudo Futures ETF. Price is based on the total return of an ETF representative of the asset class

Figure 74: Non-PF & PF ETF flow trends vs. price – US Cons. Disc.

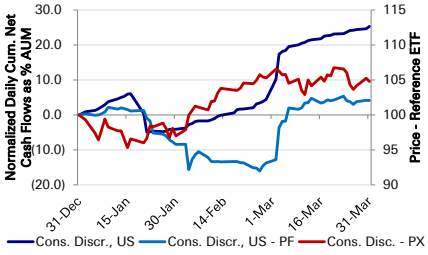


Figure 75: Non-PF & PF ETF flow trends vs. price – US Health Care

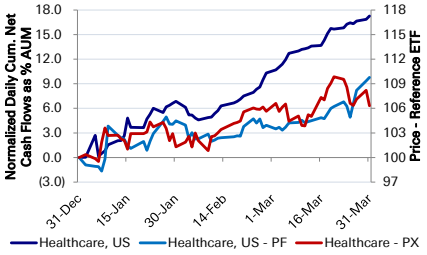
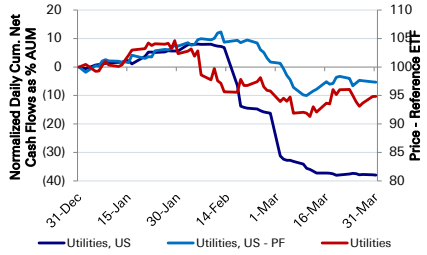


Figure 76: Non-PF & PF ETF flow trends vs. price – US Utilities



Source: Deutsche Bank, Bloomberg Finance LP. Note: Non-PF = Non Pseudo Futures ETFs; PF = Pseudo Futures ETF. Price is based on the total return of an ETF representative of the asset class

Figure 77: Non-PF & PF ETF flow trends vs. price – EM

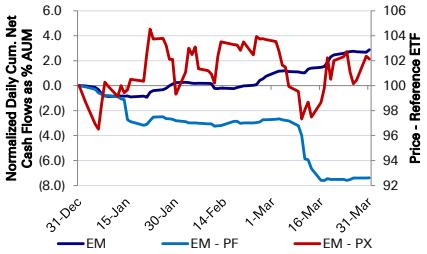


Figure 78: Non-PF & PF ETF flow trends vs. price – China

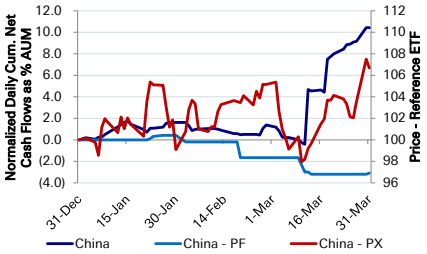
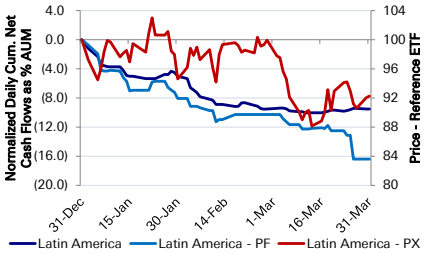


Figure 79: Non-PF & PF ETF flow trends vs. price – Latin America



Source: Deutsche Bank, Bloomberg Finance LP. Note: Non-PF = Non Pseudo Futures ETFs; PF = Pseudo Futures ETF. Price is based on the total return of an ETF representative of the asset class

ETF Disclaimers and Risks

Information on ETFs is provided strictly for illustrative purposes and should not be deemed an offer to sell or a solicitation of an offer to buy shares of any fund that is described in this document. Consider carefully any fund's investment objectives, risk factors, and charges and expenses before investing. This and other information can be found in the fund's prospectus. Prospectuses about db X-trackers funds and Powershares DB funds can be obtained by calling 1-877-369-4617 or by visiting www.DBXUS.com. Read prospectuses carefully before investing. Past performance is not necessarily indicative of future results. Investing involves risk, including possible loss of principal. To better understand the similarities and differences between investments, including investment objectives, risks, fees and expenses, it is important to read the products' prospectuses. Shares of ETFs may be sold throughout the day on an exchange through any brokerage account. However, shares may only be redeemed directly from an ETF by authorized participants, in very large creation/redemption units. Transactions in shares of ETFs will result in brokerage commissions and will generate tax consequences. ETFs are obliged to distribute portfolio gains to shareholders. Deutsche Bank may be an issuer, advisor, manager, distributor or administrator of, or provide other services to, an ETF included in this report, for which it receives compensation. db X-trackers and Powershares DB funds are distributed by ALPS Distributors, Inc. The opinions expressed are those of the authors and do not necessarily reflect the views of DB, ALPS or their affiliates.

Appendix A: Additional Passive Ownership details

Historical passive ownership additional sample details

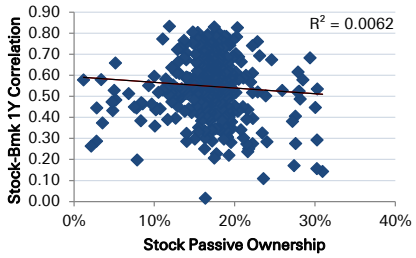
Figure 80: Historical passive ownership statistics for US stocks

Passive Ownership	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Number of Stocks	3,165	2,945	2,750	2,634	2,524	2,418	2,355	2,306	2,195	2,104	2,002	1,901	1,823	1,775	1,694
Average	13.3	12.9	12.2	11.5	11.0	10.8	10.1	8.5	7.9	7.1	7.0	6.4	5.1	4.5	3.7
Percentiles															
Max, Q4 (100%)	32.4	35.0	33.6	31.6	30.6	29.1	28.7	26.9	30.9	31.6	26.7	22.0	21.2	21.6	21.2
90%	20.2	19.4	17.8	16.9	16.5	16.2	15.4	14.1	13.2	12.1	11.8	10.8	8.9	8.2	6.9
Q3 (75%)	17.8	17.2	16.0	15.1	14.5	14.2	13.6	11.7	10.8	10.0	9.8	9.0	7.4	6.6	5.3
Median, Q2 (50%)	14.3	14.0	13.4	12.5	12.0	11.7	10.8	8.8	8.0	7.1	6.9	6.2	4.9	4.4	3.3
Q1 (25%)	8.6	8.7	8.5	8.2	7.8	7.4	6.6	4.8	4.4	3.7	3.7	3.6	2.6	2.2	1.6
10%	4.1	4.0	3.8	3.4	2.8	3.1	2.6	1.6	1.4	1.2	1.3	1.3	0.8	0.6	0.7

Source: Deutsche Bank, FactSet, S&P Down Jones.

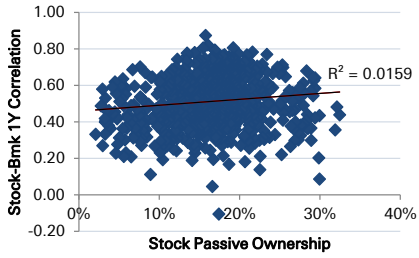
Market Cap and Sector Stock-Benchmark correlation vs. Passive Ownership

Figure 81: Mega & Large Cap 1Y daily return Stock-Benchmark Correlation & Passive Ownership



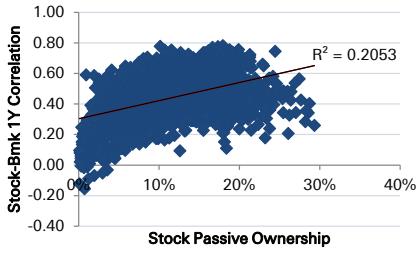
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 82: Mid Cap 1Y daily return Stock-Benchmark Correlation & Passive Ownership



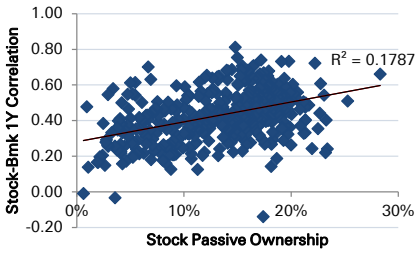
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 83: Small Cap 1Y daily return Stock-Benchmark Correlation & Passive Ownership



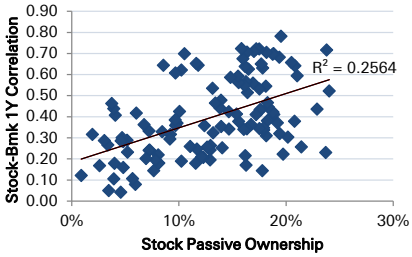
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 84: Cons. Disc. 1Y daily return Stock-Benchmark Correlation & Passive Ownership



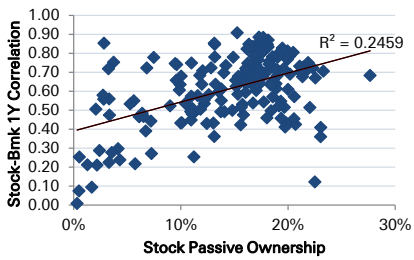
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 85: Cons. Staples 1Y daily return Stock-Benchmark Correlation & Passive Ownership



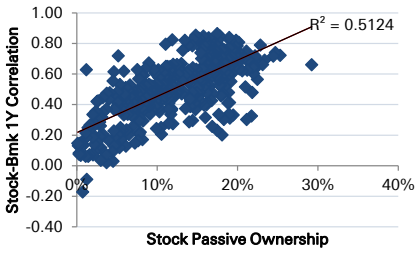
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 86: Energy 1Y daily return Stock-Benchmark Correlation & Passive Ownership



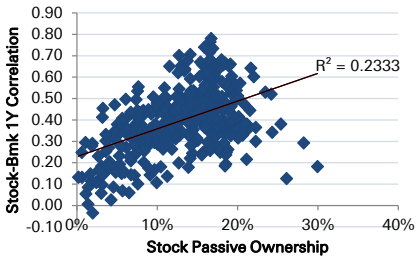
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 87: Financials 1Y daily return Stock-Benchmark Correlation & Passive Ownership



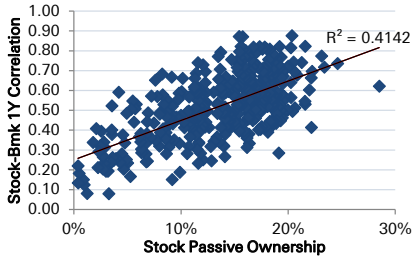
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 88: Health Care 1Y daily return Stock-Benchmark Correlation & Passive Ownership



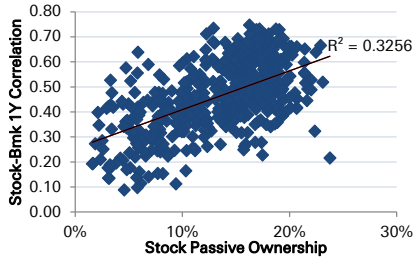
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 89: Industrials 1Y daily return Stock-Benchmark Correlation & Passive Ownership



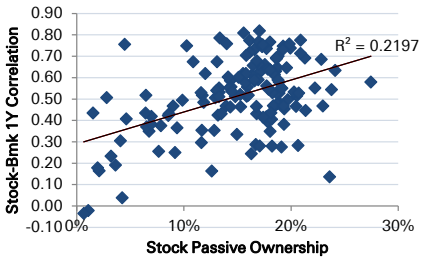
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 90: Inf. Technology 1Y daily return Stock-Benchmark Correlation & Passive Ownership



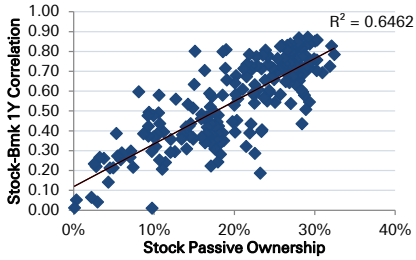
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 91: Materials 1Y daily return Stock-Benchmark Correlation & Passive Ownership



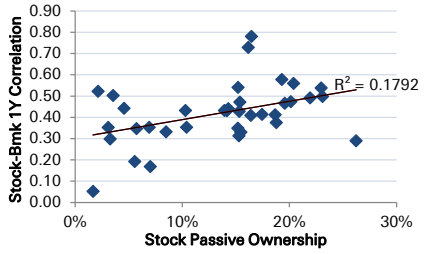
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 92: Real Estate 1Y daily return Stock-Benchmark Correlation & Passive Ownership



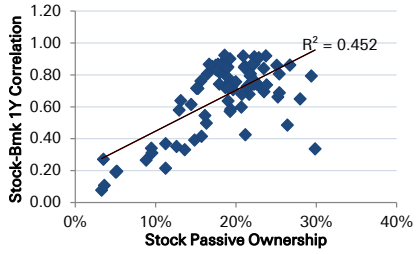
Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 93: Telecom 1Y daily return Stock-Benchmark Correlation & Passive Ownership



Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Figure 94: Utilities 1Y daily return Stock-Benchmark Correlation & Passive Ownership



Source: Deutsche Bank, Factset. Note: 2014 Daily Total Returns

Passive Ownership Guide – Top 50 US Stocks by sector

Figure 95: Consumer Discretionary

Ticker	Size	Div. Yield	1Y Correlation to Bmk Size Bmk	1Y Correlation to Bmk Sector Bmk	Passive Own. 2014
Consumer Discretionary					
LEG	Mid Cap	Above Avg.	0.68	0.66	28.3%
MDP	Mid Cap	Above Avg.	0.52	0.51	25.3%
STRA	Small Cap	No Dividend	0.31	0.24	23.4%
NTRI	Small Cap	Above Avg.	0.39	0.40	23.3%
RCII	Small Cap	Above Avg.	0.18	0.22	23.2%
RYL	Small Cap	Below Avg.	0.53	0.54	23.1%
NWSA	Mid Cap	No Dividend	0.57	0.61	22.8%
SCSS	Small Cap	No Dividend	0.43	0.44	22.7%
NILE	Small Cap	No Dividend	0.42	0.35	22.5%
GPC	Large Cap	Above Avg.	0.74	0.72	22.2%
PSUN	Small Cap	No Dividend	0.33	0.24	22.0%
TGT	Large Cap	Above Avg.	0.44	0.49	21.7%
CVC	Mid Cap	Above Avg.	0.47	0.50	21.4%
SKX	Mid Cap	No Dividend	0.38	0.40	21.3%
CATO	Small Cap	Above Avg.	0.45	0.48	21.3%
LL	Small Cap	No Dividend	0.42	0.40	21.3%
OUTR	Small Cap	No Dividend	0.35	0.33	21.3%
GME	Mid Cap	Above Avg.	0.26	0.33	21.2%
BWS	Small Cap	Below Avg.	0.48	0.51	21.2%
SSI	Small Cap	Above Avg.	0.32	0.37	20.9%
JACK	Mid Cap	Below Avg.	0.44	0.46	20.8%
LEN	Mid Cap	Below Avg.	0.53	0.56	20.6%
DRI	Mid Cap	Above Avg.	0.46	0.52	20.6%
MHO	Small Cap	No Dividend	0.53	0.52	20.5%
GT	Mid Cap	Below Avg.	0.57	0.55	20.2%
FOXA	Mega Cap	Below Avg.	0.52	0.60	20.2%
ANF	Mid Cap	Above Avg.	0.42	0.44	20.0%
KBH	Small Cap	Below Avg.	0.49	0.52	20.0%
JCP	Small Cap	No Dividend	0.24	0.26	20.0%
MDC	Small Cap	Above Avg.	0.51	0.50	20.0%
ICON	Small Cap	No Dividend	0.56	0.56	19.9%
FINL	Small Cap	Below Avg.	0.34	0.36	19.9%
PBY	Small Cap	No Dividend	0.52	0.50	19.8%
TUES	Small Cap	No Dividend	0.41	0.45	19.8%
WYN	Large Cap	Above Avg.	0.69	0.73	19.8%
NWL	Large Cap	Above Avg.	0.53	0.50	19.8%
TRW	Large Cap	No Dividend	0.42	0.46	19.7%
FRAN	Small Cap	No Dividend	0.34	0.32	19.7%
COH	Large Cap	Above Avg.	0.28	0.37	19.5%
PLCE	Small Cap	Below Avg.	0.44	0.44	19.5%
HIBB	Small Cap	No Dividend	0.35	0.37	19.4%
PHM	Mid Cap	Below Avg.	0.59	0.59	19.4%
IPG	Mid Cap	Above Avg.	0.64	0.64	19.4%
MAT	Large Cap	Above Avg.	0.39	0.46	19.4%
DISCA	Mid Cap	No Dividend	0.48	0.54	19.3%
SPLS	Large Cap	Above Avg.	0.22	0.29	19.3%
FRED	Small Cap	Below Avg.	0.43	0.40	19.3%
ANN	Small Cap	No Dividend	0.37	0.36	19.2%
NVR	Mid Cap	No Dividend	0.33	0.36	19.1%
HAS	Mid Cap	Above Avg.	0.44	0.47	19.1%

Figure 96: Consumer Staples

Ticker	Size	Div. Yield	1Y Correlation to Bmk Size Bmk	1Y Correlation to Bmk Sector Bmk	Passive Own. 2014
Consumer Staples					
CLX	Large Cap	Above Avg.	0.28	0.52	24.0%
MKC	Mid Cap	Above Avg.	0.50	0.72	23.8%
BDBD	Small Cap	No Dividend	0.42	0.23	23.7%
SAFM	Small Cap	Below Avg.	0.32	0.44	22.9%
CENTA	Small Cap	No Dividend	0.34	0.26	21.4%
DPS	Large Cap	Above Avg.	0.45	0.59	21.0%
CCE	Large Cap	Above Avg.	0.67	0.64	20.8%
CAG	Large Cap	Above Avg.	0.34	0.38	20.8%
SJM	Large Cap	Above Avg.	0.58	0.66	20.5%
ANDE	Small Cap	Below Avg.	0.34	0.30	20.2%
POST	Small Cap	No Dividend	0.38	0.22	19.7%
CL	Mega Cap	Above Avg.	0.54	0.78	19.5%
AVP	Mid Cap	Above Avg.	0.38	0.32	19.4%
BF.B	Large Cap	Below Avg.	0.59	0.68	19.4%
CASY	Mid Cap	Below Avg.	0.44	0.37	19.2%
TSN	Large Cap	Below Avg.	0.34	0.41	18.9%
CHD	Large Cap	Below Avg.	0.52	0.70	18.8%
ENR	Mid Cap	Below Avg.	0.39	0.42	18.8%
GIS	Large Cap	Above Avg.	0.54	0.70	18.8%
WDFC	Small Cap	Below Avg.	0.57	0.45	18.3%
DAR	Mid Cap	No Dividend	0.59	0.47	18.3%
SVU	Mid Cap	No Dividend	0.45	0.38	18.3%
KMB	Large Cap	Above Avg.	0.47	0.71	18.2%
DF	Small Cap	Below Avg.	0.33	0.31	18.2%
ADM	Large Cap	Above Avg.	0.50	0.54	18.1%
BGS	Small Cap	Above Avg.	0.33	0.34	17.9%
UVV	Small Cap	Above Avg.	0.51	0.35	17.9%
TAP	Large Cap	Above Avg.	0.58	0.63	17.8%
MED	Small Cap	No Dividend	0.36	0.14	17.8%
SYY	Large Cap	Above Avg.	0.61	0.65	17.7%
THS	Mid Cap	No Dividend	0.44	0.43	17.6%
UNFI	Mid Cap	No Dividend	0.61	0.43	17.6%
STZ	Large Cap	No Dividend	0.55	0.53	17.5%
WWAV	Mid Cap	No Dividend	0.45	0.34	17.5%
KRFT	Large Cap	Above Avg.	0.61	0.72	17.5%
CVS	Mega Cap	Below Avg.	0.64	0.72	17.2%
LO	Large Cap	Above Avg.	0.29	0.41	17.2%
PEP	Mega Cap	Above Avg.	0.50	0.71	17.0%
KR	Large Cap	Below Avg.	0.46	0.56	16.9%
SAM	Mid Cap	No Dividend	0.50	0.36	16.7%
MDLZ	Mega Cap	Below Avg.	0.57	0.63	16.5%
EL	Large Cap	Below Avg.	0.53	0.51	16.4%
PG	Mega Cap	Above Avg.	0.41	0.71	16.4%
MNST	Large Cap	No Dividend	0.30	0.34	16.3%
WFM	Large Cap	Below Avg.	0.25	0.17	16.3%
INGR	Mid Cap	Above Avg.	0.57	0.57	16.3%
AOI	Small Cap	No Dividend	0.34	0.22	16.2%
COST	Mega Cap	Below Avg.	0.52	0.64	16.2%
MJN	Large Cap	Below Avg.	0.55	0.55	16.1%
SPTN	Small Cap	Above Avg.	0.47	0.34	16.1%

Source: Deutsche Bank, FactSet, Bloomberg Finance LP., S&P Dow Jones. Note: Mega Cap (>$50bn), Large Cap ($10bn-$50bn), *Mid Cap ($2bn-$10bn), Small Cap ($0.1bn-$2bn). Avg. Yield: 1.62%. Avg. Yield and Size data as of 2014 end. Correlations based on daily returns during 2014.*

Figure 97: Energy

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive Own. 2014
			Size Bmk	Sector Bmk	
Energy					
PES	Small Cap	No Dividend	0.43	0.68	27.7%
CRK	Small Cap	Above Avg.	0.41	0.71	23.3%
ACI	Small Cap	Below Avg.	0.37	0.41	23.1%
TSO	Mid Cap	Below Avg.	0.30	0.36	23.0%
AREX	Small Cap	No Dividend	0.45	0.67	22.6%
DRC	Mid Cap	No Dividend	0.14	0.12	22.5%
PDCE	Small Cap	No Dividend	0.49	0.72	22.3%
CLD	Small Cap	No Dividend	0.38	0.51	22.0%
NBR	Mid Cap	Below Avg.	0.45	0.75	21.9%
NOG	Small Cap	No Dividend	0.42	0.72	21.8%
PVA	Small Cap	No Dividend	0.45	0.73	21.4%
BAS	Small Cap	No Dividend	0.37	0.68	21.4%
NE	Mid Cap	Above Avg.	0.46	0.71	21.3%
BBG	Small Cap	No Dividend	0.45	0.70	21.2%
OKE	Large Cap	Above Avg.	0.59	0.73	21.1%
ANR	Small Cap	No Dividend	0.35	0.43	20.7%
GPRE	Small Cap	Below Avg.	0.53	0.57	20.6%
HFC	Mid Cap	Above Avg.	0.32	0.46	20.6%
EGN	Mid Cap	Below Avg.	0.64	0.81	20.5%
REXX	Small Cap	No Dividend	0.40	0.69	20.2%
DNR	Mid Cap	Above Avg.	0.44	0.78	20.1%
EQT	Large Cap	Below Avg.	0.46	0.61	20.0%
XEC	Mid Cap	Below Avg.	0.56	0.81	20.0%
SGY	Small Cap	No Dividend	0.49	0.77	19.9%
GEOS	Small Cap	No Dividend	0.50	0.43	19.8%
NFX	Mid Cap	No Dividend	0.50	0.78	19.8%
MTRX	Small Cap	No Dividend	0.44	0.41	19.7%
COG	Large Cap	Below Avg.	0.35	0.52	19.7%
ESV	Mid Cap	Above Avg.	0.45	0.72	19.6%
MUR	Mid Cap	Above Avg.	0.51	0.81	19.5%
HP	Mid Cap	Above Avg.	0.54	0.83	19.5%
CAM	Mid Cap	No Dividend	0.55	0.81	19.5%
VLO	Large Cap	Above Avg.	0.41	0.46	19.4%
CNX	Mid Cap	Below Avg.	0.53	0.55	19.3%
EXH	Mid Cap	Above Avg.	0.37	0.52	19.2%
ROSE	Small Cap	No Dividend	0.55	0.80	19.1%
FTI	Large Cap	No Dividend	0.49	0.78	19.0%
TTI	Small Cap	No Dividend	0.52	0.68	19.0%
EXXI	Small Cap	Above Avg.	0.42	0.71	19.0%
RRC	Mid Cap	Below Avg.	0.38	0.61	18.9%
SFY	Small Cap	No Dividend	0.37	0.64	18.9%
CKH	Small Cap	No Dividend	0.64	0.64	18.8%
SLCA	Small Cap	Above Avg.	0.51	0.72	18.7%
BRS	Mid Cap	Above Avg.	0.47	0.57	18.6%
QEP	Mid Cap	Below Avg.	0.44	0.78	18.6%
GLF	Small Cap	Above Avg.	0.43	0.65	18.5%
MPC	Large Cap	Above Avg.	0.39	0.50	18.4%
NR	Small Cap	No Dividend	0.49	0.64	18.4%
APC	Large Cap	Below Avg.	0.47	0.76	18.3%
RDC	Mid Cap	Below Avg.	0.49	0.74	18.2%

Figure 98: Financials ex-Real Estate

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive Own. 2014
			Size Bmk	Sector Bmk	
Financials ex Real Estate					
PBCT	Mid Cap	Above Avg.	0.59	0.66	29.2%
RLI	Mid Cap	Above Avg.	0.71	0.72	25.3%
BOH	Mid Cap	Above Avg.	0.70	0.74	24.7%
TRMK	Small Cap	Above Avg.	0.74	0.72	24.4%
FNB	Mid Cap	Above Avg.	0.67	0.69	23.4%
UBSI	Mid Cap	Above Avg.	0.62	0.66	23.1%
BRK.B	Mega Cap	No Dividend	0.76	0.79	22.8%
EV	Mid Cap	Above Avg.	0.58	0.56	22.5%
CINF	Mid Cap	Above Avg.	0.61	0.70	22.2%
GBCI	Mid Cap	Above Avg.	0.71	0.72	22.2%
WTFC	Mid Cap	Below Avg.	0.67	0.71	22.2%
VLY	Mid Cap	Above Avg.	0.65	0.63	22.1%
TCBI	Mid Cap	No Dividend	0.59	0.60	22.0%
FMER	Mid Cap	Above Avg.	0.65	0.66	22.0%
ORI	Mid Cap	Above Avg.	0.69	0.65	21.9%
ITG	Small Cap	No Dividend	0.52	0.48	21.8%
SUSQ	Mid Cap	Above Avg.	0.31	0.33	21.7%
FCF	Small Cap	Above Avg.	0.72	0.68	21.3%
WABC	Small Cap	Above Avg.	0.71	0.69	21.3%
PJC	Small Cap	No Dividend	0.72	0.70	21.3%
WAFD	Mid Cap	Above Avg.	0.64	0.63	21.2%
WRLD	Small Cap	No Dividend	0.32	0.30	21.1%
HBHC	Mid Cap	Above Avg.	0.73	0.75	21.1%
OFG	Small Cap	Above Avg.	0.50	0.52	21.0%
PVTB	Mid Cap	Below Avg.	0.68	0.71	20.9%
BBCN	Small Cap	Above Avg.	0.66	0.62	20.6%
WBS	Mid Cap	Above Avg.	0.73	0.72	20.6%
NAVI	Mid Cap	Above Avg.			20.5%
BPFH	Small Cap	Above Avg.	0.64	0.63	20.2%
KEY	Large Cap	Above Avg.	0.70	0.81	20.2%
CMA	Mid Cap	Above Avg.	0.65	0.73	20.1%
AIZ	Mid Cap	Below Avg.	0.67	0.75	20.1%
FMBI	Small Cap	Above Avg.	0.68	0.69	20.1%
BXS	Mid Cap	Below Avg.	0.66	0.67	20.0%
HBAN	Mid Cap	Above Avg.	0.70	0.78	20.0%
CBU	Small Cap	Above Avg.	0.76	0.72	19.9%
HIG	Large Cap	Below Avg.	0.77	0.82	19.8%
ONB	Small Cap	Above Avg.	0.70	0.66	19.8%
CBSH	Mid Cap	Above Avg.	0.70	0.77	19.7%
RF	Large Cap	Above Avg.	0.68	0.78	19.7%
CFR	Mid Cap	Above Avg.	0.68	0.72	19.6%
PB	Mid Cap	Above Avg.	0.63	0.65	19.6%
ASB	Mid Cap	Above Avg.	0.71	0.76	19.6%
PRAA	Mid Cap	No Dividend	0.39	0.33	19.5%
UNM	Mid Cap	Above Avg.	0.69	0.77	19.4%
CHCO	Small Cap	Above Avg.	0.73	0.66	19.3%
BRKL	Small Cap	Above Avg.	0.72	0.60	19.3%
CATY	Mid Cap	Below Avg.	0.75	0.76	19.3%
UMPQ	Mid Cap	Above Avg.	0.65	0.68	19.3%
HCBK	Mid Cap	Below Avg.	0.62	0.71	19.2%

Source: Deutsche Bank, FactSet, Bloomberg Finance LP., S&P Dow Jones. Note: Mega Cap (>$50bn), Large Cap ($10bn-$50bn), *Mid Cap ($2bn-$10bn), Small Cap ($0.1bn-$2bn). Avg. Yield: 1.62%. Avg. Yield and Size data as of 2014 end. Correlations based on daily returns during 2014.*

Figure 99: Health Care

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive
			Size Bmk	Sector Bmk	Own. 2014
Health Care					
PBYI	Mid Cap	No Dividend	0.09	0.18	29.9%
AMAG	Small Cap	No Dividend	0.28	0.29	28.2%
ADXS	Small Cap	No Dividend	0.21	0.13	26.1%
HTWR	Small Cap	No Dividend	0.44	0.38	25.4%
DEPO	Small Cap	No Dividend	0.40	0.34	24.3%
SPPI	Small Cap	No Dividend	0.55	0.52	24.2%
ACOR	Small Cap	No Dividend	0.48	0.53	23.4%
MDCO	Small Cap	No Dividend	0.46	0.36	22.2%
VVUS	Small Cap	No Dividend	0.42	0.30	22.2%
BCR	Large Cap	Below Avg.	0.57	0.60	22.0%
WST	Mid Cap	Below Avg.	0.62	0.64	21.6%
MNK	Large Cap	No Dividend	0.39	0.44	21.5%
HAE	Small Cap	No Dividend	0.45	0.35	21.2%
ARIA	Small Cap	No Dividend	0.42	0.38	21.1%
EXEL	Small Cap	No Dividend	0.30	0.22	21.1%
PRXL	Mid Cap	No Dividend	0.42	0.38	20.8%
CRL	Mid Cap	No Dividend	0.50	0.48	20.7%
IPXL	Mid Cap	No Dividend	0.31	0.33	20.6%
PBH	Small Cap	No Dividend	0.31	0.35	20.4%
GB	Small Cap	No Dividend	0.71	0.57	20.3%
CHE	Small Cap	Below Avg.	0.41	0.41	20.1%
SQNM	Small Cap	No Dividend	0.48	0.31	20.0%
MMSI	Small Cap	No Dividend	0.46	0.40	20.0%
AFFX	Small Cap	No Dividend	0.60	0.51	20.0%
LGND	Small Cap	No Dividend	0.50	0.54	19.8%
MNTA	Small Cap	No Dividend	0.44	0.39	19.8%
INFI	Small Cap	No Dividend	0.36	0.36	19.8%
THOR	Small Cap	No Dividend	0.34	0.37	19.7%
MYL	Large Cap	No Dividend	0.51	0.57	19.7%
EW	Large Cap	No Dividend	0.38	0.40	19.6%
MGLN	Small Cap	No Dividend	0.54	0.48	19.5%
DGX	Mid Cap	Above Avg.	0.42	0.42	19.4%
BSX	Large Cap	No Dividend	0.51	0.56	19.4%
VAR	Mid Cap	No Dividend	0.57	0.60	19.2%
LH	Mid Cap	No Dividend	0.47	0.46	19.2%
SRDX	Small Cap	No Dividend	0.48	0.33	19.1%
UHS	Large Cap	Below Avg.	0.43	0.46	19.1%
OMI	Mid Cap	Above Avg.	0.56	0.53	19.1%
BDX	Large Cap	Below Avg.	0.52	0.55	19.1%
CAH	Large Cap	Above Avg.	0.62	0.66	19.1%
AET	Large Cap	Below Avg.	0.53	0.55	19.1%
LDR	Small Cap	Above Avg.	0.48	0.39	19.1%
OCR	Mid Cap	Below Avg.	0.51	0.46	19.0%
VRTX	Large Cap	No Dividend	0.31	0.44	19.0%
ABC	Large Cap	Above Avg.	0.60	0.65	18.9%
NUVA	Mid Cap	No Dividend	0.59	0.55	18.9%
ALOG	Small Cap	Below Avg.	0.34	0.26	18.8%
WCG	Mid Cap	No Dividend	0.45	0.37	18.6%
HSP	Large Cap	No Dividend	0.56	0.57	18.6%
KND	Small Cap	Above Avg.	0.31	0.25	18.6%

Figure 100: Industrials

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive
			Size Bmk	Sector Bmk	Own. 2014
Industrials					
LMT	Mega Cap	Above Avg.	0.58	0.62	28.5%
NOC	Large Cap	Above Avg.	0.67	0.74	24.6%
DLX	Mid Cap	Above Avg.	0.77	0.72	23.4%
UTX	Mega Cap	Above Avg.	0.69	0.77	23.1%
CAT	Mega Cap	Above Avg.	0.61	0.70	22.2%
MATX	Small Cap	Above Avg.	0.46	0.41	22.2%
CLC	Mid Cap	Below Avg.	0.66	0.66	22.1%
ARCB	Small Cap	Below Avg.	0.57	0.60	22.0%
R	Mid Cap	Below Avg.	0.78	0.82	21.6%
NX	Small Cap	Below Avg.	0.64	0.53	21.6%
PBI	Mid Cap	Above Avg.	0.55	0.55	21.6%
SNA	Mid Cap	Below Avg.	0.72	0.74	21.3%
AOS	Mid Cap	Below Avg.	0.65	0.68	20.8%
DNB	Mid Cap	Below Avg.	0.50	0.51	20.6%
MOG.A	Mid Cap	No Dividend	0.73	0.69	20.6%
PNR	Large Cap	Above Avg.	0.69	0.74	20.5%
CHRW	Large Cap	Above Avg.	0.43	0.49	20.4%
HON	Mega Cap	Above Avg.	0.83	0.88	20.3%
HEI	Mid Cap	Below Avg.	0.58	0.56	20.3%
JOY	Mid Cap	Below Avg.	0.56	0.64	20.2%
MMM	Mega Cap	Above Avg.	0.78	0.82	20.2%
HII	Mid Cap	Below Avg.	0.68	0.72	20.0%
EXPD	Mid Cap	Above Avg.	0.41	0.50	20.0%
MAN	Mid Cap	Above Avg.	0.72	0.71	19.9%
MAS	Mid Cap	Below Avg.	0.56	0.56	19.6%
SRCL	Large Cap	No Dividend	0.59	0.57	19.6%
APOG	Small Cap	Below Avg.	0.65	0.55	19.6%
EME	Mid Cap	Below Avg.	0.69	0.67	19.5%
RECN	Small Cap	Above Avg.	0.65	0.49	19.5%
WTS	Mid Cap	Below Avg.	0.69	0.70	19.5%
CTAS	Mid Cap	Above Avg.	0.60	0.63	19.5%
ADT	Mid Cap	Above Avg.	0.41	0.46	19.4%
XLS	Mid Cap	Above Avg.	0.66	0.67	19.4%
LSTR	Mid Cap	Above Avg.	0.56	0.58	19.4%
FLR	Mid Cap	Below Avg.	0.73	0.77	19.3%
RRD	Mid Cap	Above Avg.	0.56	0.50	19.3%
SXI	Small Cap	Below Avg.	0.49	0.45	19.3%
UFPI	Small Cap	Below Avg.	0.67	0.53	19.2%
KSU	Large Cap	Below Avg.	0.66	0.71	19.2%
SPW	Mid Cap	Above Avg.	0.81	0.82	19.2%
LNN	Small Cap	Below Avg.	0.29	0.28	19.1%
SWK	Large Cap	Above Avg.	0.69	0.73	19.1%
LLL	Large Cap	Above Avg.	0.51	0.52	19.0%
SKYW	Small Cap	Below Avg.	0.53	0.48	18.9%
HUBG	Small Cap	No Dividend	0.40	0.45	18.9%
KFY	Small Cap	No Dividend	0.63	0.59	18.9%
TTEK	Small Cap	Below Avg.	0.62	0.57	18.9%
ROP	Large Cap	Below Avg.	0.74	0.76	18.9%
BGG	Small Cap	Above Avg.	0.65	0.60	18.9%
ASEI	Small Cap	Above Avg.	0.51	0.43	18.9%

Source: Deutsche Bank, FactSet, Bloomberg Finance LP., S&P Dow Jones. Note: Mega Cap (>$50bn), Large Cap ($10bn-$50bn), *Mid Cap ($2bn-$10bn), Small Cap ($0.1bn-$2bn). Avg. Yield: 1.62%. Avg. Yield and Size data as of 2014 end. Correlations based on daily returns during 2014.*

Figure 101: Information Technology

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive Own. 2014
			Size Bmk	Sector Bmk	
Information Technology					
HAWK	Small Cap	No Dividend	0.24	0.22	23.8%
DBD	Mid Cap	Above Avg.	0.54	0.52	23.1%
MPWR	Small Cap	Below Avg.	0.66	0.67	22.9%
HRS	Mid Cap	Above Avg.	0.69	0.64	22.5%
CRUS	Small Cap	No Dividend	0.27	0.32	22.3%
CSC	Mid Cap	Below Avg.	0.49	0.53	22.0%
LXK	Mid Cap	Above Avg.	0.53	0.49	22.0%
QRVO	Mid Cap	No Dividend	0.46	0.49	21.7%
TTWO	Mid Cap	No Dividend	0.44	0.45	21.6%
MANH	Mid Cap	No Dividend	0.53	0.52	21.5%
LLTC	Large Cap	Above Avg.	0.60	0.65	21.4%
IM	Mid Cap	No Dividend	0.59	0.55	21.4%
CSGS	Small Cap	Above Avg.	0.64	0.56	21.4%
BHE	Small Cap	No Dividend	0.68	0.60	21.4%
PRGS	Small Cap	No Dividend	0.53	0.45	20.7%
MWW	Small Cap	No Dividend	0.38	0.42	20.7%
EFII	Mid Cap	No Dividend	0.66	0.66	20.7%
MMS	Mid Cap	Below Avg.	0.47	0.41	20.7%
HLIT	Small Cap	No Dividend	0.53	0.46	20.6%
FICO	Mid Cap	Below Avg.	0.50	0.48	20.5%
NEWP	Small Cap	No Dividend	0.67	0.63	20.2%
KLAC	Large Cap	Above Avg.	0.62	0.66	20.2%
DTSI	Small Cap	No Dividend	0.51	0.42	20.1%
AXE	Mid Cap	Above Avg.	0.61	0.54	20.0%
SNPS	Mid Cap	No Dividend	0.67	0.66	20.0%
HPY	Small Cap	Below Avg.	0.44	0.46	20.0%
NSIT	Small Cap	No Dividend	0.59	0.52	19.8%
CCMP	Small Cap	No Dividend	0.66	0.59	19.7%
ALTR	Large Cap	Above Avg.	0.61	0.66	19.7%
UTEK	Small Cap	No Dividend	0.41	0.40	19.7%
CEVA	Small Cap	No Dividend	0.56	0.52	19.6%
NVDA	Large Cap	Above Avg.	0.56	0.62	19.6%
BBOX	Small Cap	Above Avg.	0.63	0.53	19.6%
XRX	Large Cap	Above Avg.	0.61	0.61	19.5%
WU	Mid Cap	Above Avg.	0.63	0.61	19.5%
FISV	Large Cap	No Dividend	0.74	0.69	19.4%
LOGM	Small Cap	No Dividend	0.53	0.49	19.4%
BCOR	Small Cap	No Dividend	0.37	0.38	19.3%
CMTL	Small Cap	Above Avg.	0.50	0.44	19.3%
XLNX	Large Cap	Above Avg.	0.45	0.48	19.2%
FCS	Mid Cap	No Dividend	0.61	0.61	19.2%
ELNK	Small Cap	Above Avg.	0.44	0.39	19.1%
BLKB	Mid Cap	Below Avg.	0.53	0.51	19.1%
SANM	Small Cap	No Dividend	0.54	0.47	19.1%
CACI	Mid Cap	No Dividend	0.44	0.41	19.1%
PLCM	Small Cap	No Dividend	0.51	0.50	19.1%
BR	Mid Cap	Above Avg.	0.75	0.73	19.0%
AEIS	Small Cap	No Dividend	0.60	0.56	19.0%
PLT	Mid Cap	Below Avg.	0.70	0.68	18.9%
LRCX	Large Cap	Below Avg.	0.55	0.60	18.9%

Figure 102: Materials

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive Own. 2014
			Size Bmk	Sector Bmk	
Materials					
OLN	Small Cap	Above Avg.	0.56	0.58	27.4%
AVY	Mid Cap	Above Avg.	0.67	0.63	24.1%
FUL	Mid Cap	Below Avg.	0.58	0.54	23.8%
SIAL	Large Cap	Below Avg.	0.11	0.14	23.6%
UFS	Mid Cap	Above Avg.	0.46	0.47	23.0%
SON	Mid Cap	Above Avg.	0.72	0.69	22.8%
BMS	Mid Cap	Above Avg.	0.54	0.55	22.2%
LPX	Mid Cap	No Dividend	0.51	0.45	21.4%
MWV	Mid Cap	Above Avg.	0.68	0.69	21.3%
RPM	Mid Cap	Above Avg.	0.77	0.78	20.9%
CMC	Small Cap	Above Avg.	0.65	0.71	20.9%
AKS	Small Cap	No Dividend	0.49	0.53	20.7%
NEM	Mid Cap	Below Avg.	0.18	0.28	20.7%
CF	Large Cap	Above Avg.	0.43	0.52	20.5%
SWC	Small Cap	No Dividend	0.39	0.47	20.5%
BLL	Mid Cap	Below Avg.	0.52	0.53	20.3%
IFF	Mid Cap	Above Avg.	0.71	0.74	19.9%
ATR	Mid Cap	Above Avg.	0.77	0.76	19.8%
CCC	Small Cap	No Dividend	0.58	0.50	19.7%
OI	Mid Cap	No Dividend	0.58	0.65	19.6%
IPHS	Small Cap	Above Avg.	0.54	0.45	19.4%
KALU	Small Cap	Above Avg.	0.39	0.38	19.3%
MTRN	Small Cap	Below Avg.	0.53	0.47	19.3%
EMN	Large Cap	Above Avg.	0.65	0.75	19.3%
RS	Mid Cap	Above Avg.	0.70	0.73	19.2%
IP	Large Cap	Above Avg.	0.55	0.55	19.1%
CLW	Small Cap	No Dividend	0.36	0.28	19.1%
OMG	Small Cap	Below Avg.	0.64	0.55	19.1%
X	Mid Cap	Below Avg.	0.45	0.48	18.9%
AA	Large Cap	Below Avg.	0.54	0.58	18.9%
BCC	Small Cap	No Dividend	0.58	0.53	18.9%
NUE	Large Cap	Above Avg.	0.61	0.70	18.8%
GEF	Mid Cap	Above Avg.	0.58	0.59	18.8%
SXC	Small Cap	No Dividend	0.54	0.48	18.7%
VMC	Mid Cap	Below Avg.	0.63	0.65	18.7%
SHLM	Small Cap	Above Avg.	0.60	0.53	18.7%
POL	Mid Cap	Below Avg.	0.69	0.69	18.7%
SXT	Mid Cap	Above Avg.	0.75	0.69	18.6%
SEE	Mid Cap	Below Avg.	0.65	0.63	18.6%
MTX	Mid Cap	Below Avg.	0.65	0.61	18.5%
SWM	Small Cap	Above Avg.	0.52	0.47	18.4%
RTI	Small Cap	No Dividend	0.48	0.47	18.3%
RKT	Mid Cap	Below Avg.	0.51	0.53	18.3%
NP	Small Cap	Above Avg.	0.67	0.53	18.3%
CLF	Small Cap	Above Avg.	0.26	0.28	18.2%
GLT	Small Cap	Above Avg.	0.57	0.41	18.2%
KRA	Small Cap	No Dividend	0.45	0.44	18.1%
FMC	Mid Cap	Below Avg.	0.58	0.63	18.1%
GSM	Small Cap	Above Avg.	0.67	0.64	18.1%
WPP	Small Cap	Below Avg.	0.55	0.35	18.0%

Source: Deutsche Bank, FactSet, Bloomberg Finance LP., S&P Dow Jones. Note: Mega Cap (>$50bn), Large Cap ($10bn-$50bn), *Mid Cap ($2bn-$10bn), Small Cap ($0.1bn-$2bn). Avg. Yield: 1.62%. Avg. Yield and Size data as of 2014 end. Correlations based on daily returns during 2014.*

Figure 103: Real Estate

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive
			Size Bmk	Sector Bmk	Own. 2014
Real Estate					
SKT	Mid Cap	Above Avg.	0.44	0.78	32.4%
FRT	Mid Cap	Above Avg.	0.48	0.83	32.1%
NNN	Mid Cap	Above Avg.	0.36	0.73	31.9%
HCP	Large Cap	Above Avg.	0.14	0.69	30.9%
KIM	Large Cap	Above Avg.	0.54	0.86	30.3%
AVB	Large Cap	Above Avg.	0.29	0.76	30.3%
HCN	Large Cap	Above Avg.	0.16	0.70	30.2%
ESS	Large Cap	Above Avg.	0.45	0.85	30.1%
SSS	Mid Cap	Above Avg.	0.43	0.76	29.9%
HST	Large Cap	Above Avg.	0.68	0.72	29.4%
AIV	Mid Cap	Above Avg.	0.42	0.76	29.4%
HIW	Mid Cap	Above Avg.	0.58	0.84	29.4%
CLI	Small Cap	Above Avg.	0.26	0.55	29.3%
LHO	Mid Cap	Above Avg.	0.63	0.71	29.2%
REG	Mid Cap	Above Avg.	0.54	0.87	29.1%
DRH	Mid Cap	Above Avg.	0.64	0.73	29.1%
DFT	Mid Cap	Above Avg.	0.30	0.51	28.9%
HR	Mid Cap	Above Avg.	0.37	0.72	28.9%
EGP	Mid Cap	Above Avg.	0.56	0.78	28.8%
DRE	Mid Cap	Above Avg.	0.57	0.83	28.8%
PEI	Small Cap	Above Avg.	0.40	0.58	28.7%
LTC	Small Cap	Above Avg.	0.34	0.69	28.6%
EPR	Mid Cap	Above Avg.	0.36	0.60	28.5%
GEO	Mid Cap	Above Avg.	0.44	0.44	28.4%
CPT	Mid Cap	Above Avg.	0.36	0.77	28.4%
AEC	Small Cap	Above Avg.	0.36	0.61	28.3%
UDR	Mid Cap	Above Avg.	0.41	0.82	28.3%
BXP	Large Cap	Above Avg.	0.49	0.84	28.2%
CUZ	Mid Cap	Above Avg.	0.56	0.65	28.1%
SPG	Mega Cap	Above Avg.	0.52	0.87	28.0%
LPT	Mid Cap	Above Avg.	0.49	0.73	27.9%
CHSP	Mid Cap	Above Avg.	0.61	0.68	27.9%
PLD	Large Cap	Above Avg.	0.62	0.84	27.9%
SLG	Large Cap	Above Avg.	0.52	0.85	27.9%
WPG	Mid Cap	Above Avg.			27.8%
ARE	Mid Cap	Above Avg.	0.38	0.76	27.6%
O	Large Cap	Above Avg.	0.28	0.72	27.6%
ACC	Mid Cap	Above Avg.	0.33	0.71	27.6%
MAC	Large Cap	Above Avg.	0.41	0.64	27.6%
HPT	Mid Cap	Above Avg.	0.59	0.73	27.5%
VTR	Large Cap	Above Avg.	0.17	0.69	27.4%
AKR	Mid Cap	Above Avg.	0.53	0.80	27.3%
SNH	Mid Cap	Above Avg.	0.30	0.70	27.3%
PPS	Mid Cap	Above Avg.	0.34	0.67	27.3%
EQR	Large Cap	Above Avg.	0.38	0.79	27.2%
SBRA	Small Cap	Above Avg.	0.34	0.54	27.0%
WRI	Mid Cap	Above Avg.	0.53	0.84	27.0%
HME	Mid Cap	Above Avg.	0.40	0.79	26.9%
UHT	Small Cap	Above Avg.	0.54	0.75	26.9%
TCO	Mid Cap	Above Avg.	0.47	0.74	26.9%

Figure 104: Telecommunications Services

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive
			Size Bmk	Sector Bmk	Own. 2014
Telecommunications Services					
SPOK	Small Cap	Above Avg.	0.33	0.29	26.2%
CBB	Small Cap	No Dividend	0.43	0.50	23.1%
TDS	Mid Cap	Above Avg.	0.35	0.54	23.0%
FTR	Mid Cap	Above Avg.	0.29	0.49	21.9%
CNSL	Small Cap	Above Avg.	0.53	0.56	20.4%
WIN	Mid Cap	Above Avg.	0.27	0.47	20.1%
GNCMA	Small Cap	No Dividend	0.55	0.47	19.6%
CTL	Large Cap	Above Avg.	0.40	0.58	19.3%
IQNT	Small Cap	Above Avg.	0.43	0.38	18.8%
EGHT	Small Cap	No Dividend	0.54	0.41	18.7%
LMOS	Small Cap	Above Avg.	0.38	0.41	17.4%
T	Mega Cap	Above Avg.	0.46	0.78	16.5%
VG	Small Cap	No Dividend	0.42	0.41	16.4%
VZ	Mega Cap	Above Avg.	0.46	0.73	16.2%
PGI	Small Cap	No Dividend	0.46	0.33	15.5%
SHEN	Small Cap	Below Avg.	0.60	0.47	15.4%
IDT	Small Cap	Above Avg.	0.52	0.43	15.3%
ATNI	Small Cap	Above Avg.	0.52	0.31	15.3%
LVLT	Large Cap	No Dividend	0.45	0.54	15.2%
IRDM	Small Cap	No Dividend	0.45	0.35	15.2%
SBAC	Large Cap	No Dividend	0.44	0.44	14.3%
SAAS	Small Cap	No Dividend	0.58	0.43	14.2%
CCOI	Small Cap	Above Avg.	0.43	0.43	13.9%
RNG	Small Cap	No Dividend	0.54	0.35	10.4%
FRP	Small Cap	No Dividend	0.52	0.43	10.3%
HCOM	Small Cap	No Dividend	0.50	0.33	8.5%
STRP	Small Cap	No Dividend	0.24	0.17	7.0%
ORBC	Small Cap	No Dividend	0.53	0.35	6.9%
WIFI	Small Cap	No Dividend	0.33	0.35	5.7%
GSAT	Mid Cap	No Dividend	0.21	0.19	5.6%
USM	Mid Cap	No Dividend	0.23	0.44	4.6%
TMUS	Large Cap	No Dividend	0.37	0.50	3.6%
TWER	Small Cap	No Dividend	0.28	0.30	3.3%
I	Small Cap	No Dividend	0.33	0.35	3.1%
S	Large Cap	No Dividend	0.26	0.52	2.2%
ETAK	Small Cap	No Dividend	0.04	0.05	1.7%

Source: Deutsche Bank, FactSet, Bloomberg Finance LP., S&P Dow Jones. Note: Mega Cap (>$50bn), Large Cap ($10bn-$50bn), *Mid Cap ($2bn-$10bn), Small Cap ($0.1bn-$2bn). Avg. Yield: 1.62%. Avg. Yield and Size data as of 2014 end. Correlations based on daily returns during 2014.*

Figure 105: Utilities

Ticker	Size	Div. Yield	1Y Correlation to Bmk		Passive Own. 2014
			Size Bmk	Sector Bmk	
Utilities					
POM	Mid Cap	Above Avg.	0.20	0.34	29.8%
BKH	Mid Cap	Above Avg.	0.64	0.79	29.4%
NJR	Mid Cap	Above Avg.	0.39	0.65	28.0%
PNW	Mid Cap	Above Avg.	0.36	0.86	26.7%
CNL	Mid Cap	Above Avg.	0.38	0.48	26.4%
WGL	Mid Cap	Above Avg.	0.45	0.69	25.4%
AVA	Mid Cap	Above Avg.	0.41	0.81	25.4%
TEG	Mid Cap	Above Avg.	0.22	0.66	25.2%
IDA	Mid Cap	Above Avg.	0.49	0.86	25.1%
EE	Small Cap	Above Avg.	0.36	0.74	23.8%
CMS	Mid Cap	Above Avg.	0.31	0.92	23.7%
STR	Mid Cap	Above Avg.	0.50	0.69	23.5%
EIX	Large Cap	Above Avg.	0.33	0.84	23.4%
CNP	Large Cap	Above Avg.	0.52	0.73	22.9%
SCG	Mid Cap	Above Avg.	0.31	0.91	22.8%
UGI	Mid Cap	Above Avg.	0.55	0.74	22.6%
DTE	Large Cap	Above Avg.	0.40	0.91	22.3%
WEC	Large Cap	Above Avg.	0.28	0.87	22.2%
NI	Large Cap	Above Avg.	0.52	0.74	22.2%
ALE	Mid Cap	Above Avg.	0.42	0.77	22.2%
PNY	Mid Cap	Above Avg.	0.50	0.74	22.1%
VVC	Mid Cap	Above Avg.	0.50	0.87	22.0%
GAS	Mid Cap	Above Avg.	0.41	0.81	21.8%
ETR	Large Cap	Above Avg.	0.25	0.79	21.8%
FE	Large Cap	Above Avg.	0.24	0.68	21.6%
ED	Large Cap	Above Avg.	0.27	0.82	21.5%
WTR	Mid Cap	Above Avg.	0.49	0.73	21.5%
ATO	Mid Cap	Above Avg.	0.45	0.73	21.4%
AWR	Small Cap	Above Avg.	0.56	0.42	21.2%
AEE	Large Cap	Above Avg.	0.30	0.85	21.1%
TE	Mid Cap	Above Avg.	0.30	0.85	21.0%
LNT	Mid Cap	Above Avg.	0.42	0.92	20.9%
SJI	Small Cap	Above Avg.	0.47	0.68	20.7%
MDU	Mid Cap	Above Avg.	0.58	0.60	20.7%
OGS	Mid Cap	Above Avg.			20.4%
PNM	Mid Cap	Above Avg.	0.43	0.76	20.0%
OGE	Mid Cap	Above Avg.	0.53	0.75	19.7%
SWX	Mid Cap	Above Avg.	0.53	0.71	19.6%
UIL	Mid Cap	Above Avg.	0.35	0.73	19.5%
NRG	Mid Cap	Above Avg.	0.37	0.58	19.3%
NFG	Mid Cap	Above Avg.	0.56	0.57	19.3%
AEP	Large Cap	Above Avg.	0.34	0.90	19.2%
EXC	Large Cap	Above Avg.	0.31	0.75	19.1%
AES	Mid Cap	Below Avg.	0.43	0.64	19.0%
NWN	Small Cap	Above Avg.	0.47	0.72	19.0%
PPL	Large Cap	Above Avg.	0.33	0.85	19.0%
NWE	Mid Cap	Above Avg.	0.42	0.78	19.0%
PEG	Large Cap	Above Avg.	0.33	0.84	18.9%
PCG	Large Cap	Above Avg.	0.30	0.72	18.7%
XEL	Large Cap	Above Avg.	0.36	0.92	18.6%

Source: Deutsche Bank, FactSet, Bloomberg Finance LP., S&P Dow Jones. Note: Mega Cap (>$50bn), Large Cap ($10bn-$50bn), *Mid Cap ($2bn-$10bn), Small Cap ($0.1bn-$2bn). Avg. Yield: 1.62%. Avg. Yield and Size data as of 2014 end. Correlations based on daily returns during 2014.*

Appendix B: Additional Institutional ETF ownership details

Institutional Investor Definitions

We classify an investor as an institutional investor according to the SEC definition of institutional investment manager and the FactSet classification for institutional investor types.

The SEC provides the following definition for institutional investment manager:

"An institutional investment manager is an entity that either invests in, or buys and sells, securities for its own account. For example, banks, insurance companies, and broker/dealers are institutional investment managers. So are corporations and pension funds that manage their own investment portfolios.

An institutional investment manager is also a natural person or an entity that exercises investment discretion over the account of any other natural person or entity. For example, an investment adviser that manages private accounts, mutual fund assets, or pension plan assets is an institutional investment manager. So is the trust department of a bank.

A trustee is an institutional investment manager, but a natural person who exercises investment discretion over his or her own account is not an institutional investment manager."

The FactSet classification relevant to ETF holders involves fourteen institutional investor types, out of which Investment Adviser, Broker, and Private Banking/WM are the most relevant ones. Mutual Fund Manager, Hedge Fund Manager, and Pension Fund make up the second, albeit distant, group; while the rest of the institutional investor types are less significant in terms of ETF assets held. Figure 106 presents the definitions for each of the fourteen investor types

Figure 106: FactSet Institutional Investor Type definitions relevant to ETFs

Institutional Investor Type	Definition
Arbitrage	A financial institution that engages in arbitrage. Such firms look for market inefficiencies and securities that they feel are mis-priced, and then undertake trades that allow them to make risk-free profits.
Bank Investment Division	The division within a bank responsible for managing the bank's own portfolio of investments.
Broker	An institution that introduces two parties in a transaction to each other in exchange for a fee. Sell-side should be chosen as the filer type.
Family Office	A family office is a private company that manages investments and trusts for a single wealthy family. The company's financial capital is the family's own wealth.
Foundation/Endowment Manager	Non-profit organizations, including universities and religions, whose investment activities support their activities.
Fund of Funds Manager	An Investment firm whose main focus is to manage mutual funds or insurance products that are investing in other mutual funds. The firm researches fund management companies to select funds it will use to construct its portfolios.
Fund of Hedge Funds Manager	A fund of hedge funds manager creates funds which invest in several different hadge funds to spread the risks. Funds of hedge funds select hedge fund managers and construct portfolios based upon those selections.
Hedge Fund Manager	A fund that uses derivative securities and is extremely risky. Typically, these companies are very secretive about their investments. Includes funds that use puts, calls, margins, and shorts, often as "hedges" to reduce risk.
Insurance Company	The insurer profits by investing the premiums it receives in securities. This firm type is used for the group within the insurance company responsible for managing its investment portfolio.
Investment Adviser	An Investment Advisor provides investment advice and manages a portfolio of securities. A firm will be coded investment advisor if the majority of its asset under management is not coming from the mutual funds they manage.
Mutual Fund Manager	An investment firm with the majority of the assets they manage coming from the mutual funds they manage. A mutual fund raises money from shareholders and reinvests the money in securities.
Pension Fund Manager	A fund established by a corporation or a government to pay the benefits of retired workers.
Private Banking/Wealth Mgmt	The area of the bank responsible for managing the investments of high net worth clients.
Sovereign Wealth Manager	Firm set up to manage the investments of a Sovereign Wealth Fund.

Source: FactSet

Institutional Ownership data definition

The ETF holder data used in this report has been sourced from FactSet's Ownership database called FactSet Global Ownership (formerly known as LionShares). This database is fed primarily with data from the 13F SEC filings. According to the SEC, Form 13F is a reporting form filed by "an institutional investment manager that uses the U.S. mail (or other means or instrumentality of interstate commerce) in the course of its business, and exercises investment discretion over $100 million or more in Section 13(f) securities". ETFs fall within Section 13(f) securities and hence need to be reported. The deadline for reporting each quarterly or annual period is 45 days after the end of the period. For example, the deadline for filing Form 13F for last year end holdings was February 17th, 2015. Our data has been downloaded after March 1st in order to include the most updated filings for Q4 2014.

FactSet also captures data for those institutional holders not required to file 13F forms through its own collection process.

Retail participation in ETFs is measured as the complement of the institutional participation within the total ETF assets. To put it simply, retail ownership is equal to the total amount of ETF assets minus the value of the ETF institutional assets as reported in FactSet.

We believe that the completeness, quality, and consistency of the ETF institutional data is satisfactory for the purpose of the current study, and we are not aware of any significant data issue which could affect the overall findings of the report.

Calculation of Institutional Ownership %

The institutional ownership % is calculated by dividing the institutional share holdings as reported for the last quarter of the calendar year by the total number of ETF shares outstanding at the end of the same year. For example, for last year we divided the institutional share holdings as reported for Q4 2014 by the total number of ETF shares outstanding as of December 31st, 2014. In our sample, we covered the full population of ETFs, both historically and as of the end of December 2014. The number of listed ETFs at the end of 2014 was 1,380, while the number of products at the end of year 2000 was 89.

Appendix 1

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Additional information available upon request

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Analyst Certification

The views expressed in this report accurately reflect the personal views of the undersigned lead analyst(s). In addition, the undersigned lead analyst(s) has not and will not receive any compensation for providing a specific recommendation or view in this report. Sebastian Mercado

Equity rating key

Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus pro-jected dividend yield) , we recommend that investors buy the stock.
Sell: Based on a current 12-month view of total share-holder return, we recommend that investors sell the stock
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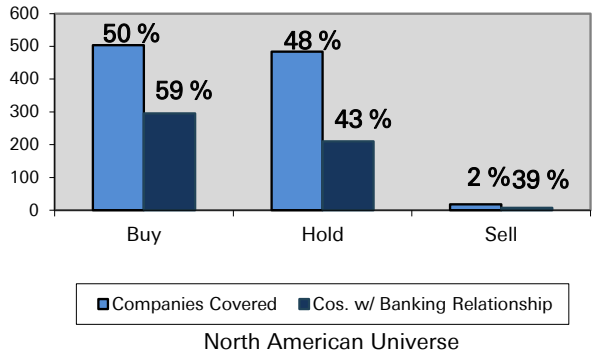
Hold: Expected total return (including dividends) between -10% and 10% over a 12-month period
Sell: Expected total return (including dividends) of -10% or worse over a 12-month period

Equity rating dispersion and banking relationships



North American Universe

Regulatory Disclosures

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