Vanguard®

ETF Perspectives

Vanguard insights for financial advisors™

Winter 2018

Hougan: ETFs still improving after 25 years

Matt Hougan
Inside ETFs

Matt Hougan is CEO of Inside ETFs, which produces the world's largest ETF conferences and webinars. Hougan began his career as a biotech analyst at MetaMarkets.com, a pioneering financial services firm that managed the world's first transparent mutual fund, the Open Fund. "I'm a reformed active manager; that's my dirty little secret," he said.

His career weaved through jobs in the biotech industry, a stint as a speechwriter, and a sojourn in Mexico before he ended up on the coast of Maine, living in a cabin with no heat.

In 2006, he connected with Jim Wiandt, the founder of IndexUniverse.com and then editor of the *Journal of Indexes*. Hougan joined IndexUniverse.com as a reporter making $50 per article. "What else was I going to do? I was selling shoes at the time." As ETFs grew, the team focused the *Journal* more on ETFs and acquired and repurposed the magazine *ETF Report*. IndexUniverse.com later became ETF.com, and Hougan was ultimately appointed its CEO.

This January marks the 25th anniversary of the launch of the first ETF. In this interview, Hougan examines the reasons that ETFs became a juggernaut, explains how they are transforming the fixed income market, and describes how they are changing the advice profession.

Vanguard: *What is the single biggest contribution ETFs have made to investing?*

Matt Hougan: ETFs are leveling the playing field between the big guys and small investors, and that's a wonderful thing.

Investors of all types can get institutional-quality portfolios at institutional prices. That's a phenomenal offer. ETFs have put pressure on the entire financial system—from active managers to advisors—to provide more value for service. ETFs help to make the system more transparent, and that can be a force for good in that it pressures people in the system to be more honest and trustworthy. There will always be con artists among us, but that game is getting harder. In many ways, ETFs are helping to change the culture of finance.

(continued on next page)

In this issue

What are some hurdles the ETF industry has overcome in the last 25 years?

MH: The biggest hurdle was that you had to educate people on what ETFs were and give them a convincing reason to change. It was not easy for the industry to get over that initial hump.

Trading and market-making have become more efficient than they were 25 years ago. You used to have to trade ETFs with one market maker, and the spreads would widen when that market maker went to lunch. Now there's a large ecosystem for ETFs. Even new ETFs tend to trade with tighter spreads because the market has become so efficient at arbitraging away price gaps.

What has been your biggest surprise in the development of ETFs?

MH: I would be lying if I said I expected ETFs to be what they are now, a $3.5 trillion industry in the United States. We thought they were exciting, but we didn't see that.

What has also surprised me is that, until the last two years, it took so long for fixed income ETFs to gain traction. ETFs are great for equities, but they are transformational for the fixed income market. There was no fundamental reason for the delay.

How are ETFs transforming fixed income?

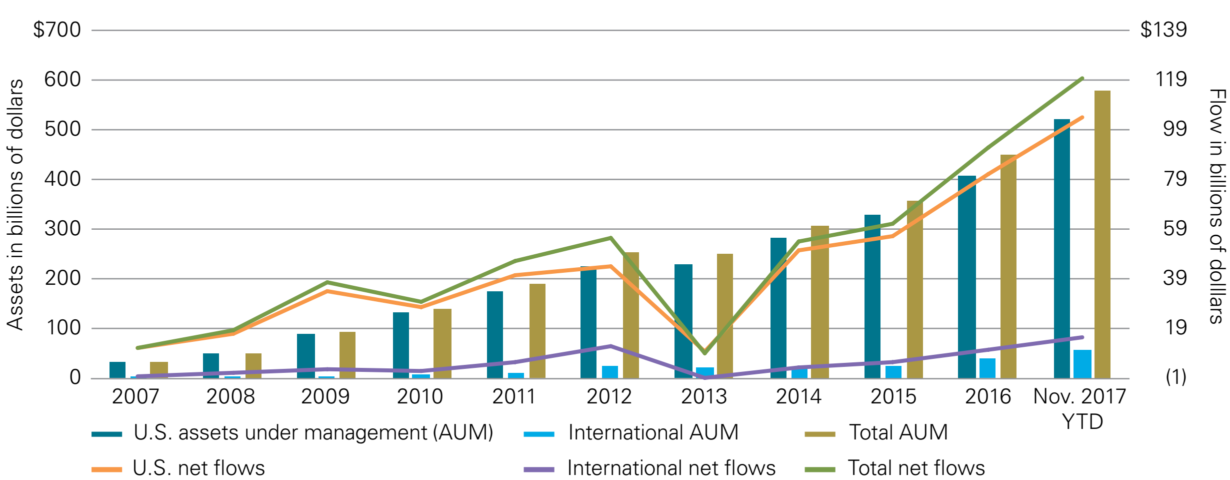
MH: The core benefits of ETFs are that they can be low-cost, tax-efficient, tradable, and liquid. Those are incremental advantages in equities since a broad-based equity ETF is quite similar to the institutional share class of a broad-based equity index mutual fund.

But ETFs do something magnificent in fixed income and particularly for corporate bonds. Corporate bonds are traded in a horrible market where evil things lie. There are still 1-percentage-point spreads on some individual bonds, and things trade on appointment. If you don't have the right relationships, you can get unfair pricing. ETFs take corporate bonds out of the darkness and into the light. Investment-grade[1] and high-yield bond ETFs trade on spreads that are a penny wide, while individual bonds are traded at spreads of 50 basis points or more. ETFs make it more fair for everyone. It's like turning lead into gold.

Bond ETFs bring all the same advantages as equity ETFs, plus they solve for the horrors of the market for individual bonds. It's amazing. That's being recognized now, and we're seeing accelerating and record flows into bond ETFs. But I'm surprised it's taken years to get there.

1 A bond whose credit quality is considered to be among the highest by independent bond-rating agencies.

Fixed income ETFs: Accelerating interest



Source: ETF.com.

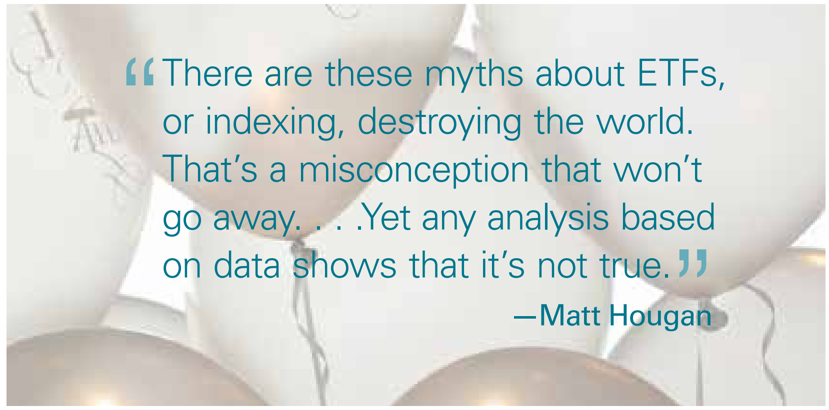
What are the most common misconceptions you encounter regarding ETFs?

MH: There are these myths about ETFs, or indexing, destroying the world. That's a misconception that won't go away; it seems as if it gains currency—and then is debunked—almost every three years, like clockwork. Yet any analysis based on data shows that it's not true.

For example, one assertion is that ETFs lead to the misallocation of capital because they destroy the ability of the market to reward well-run companies. But the actual data suggest otherwise. Index correlations are falling, and the dispersion of the S&P 500 Index is the greatest it's been in a long time. While the idea that only so much of the market can be in market-capitalization-based index products or price discovery will be subverted may work as a reductio ad absurdum argument, in the real world, using actual data, there is just no sign that this is the case.

The same thing is true of another anti-ETF assertion: the idea that the common ownership of securities leads to collusion in pricing. There is the famous paper[2] that suggests that this may be true, but that paper is overwhelmed by reams of serious research suggesting that it's not.

There is also a bit of misdirection in these arguments. To put these arguments forward but ignore the massive savings of index-based products for everyday investors is capricious and wrong. Lower costs help people secure their retirement and send their kids to college. That is a massive societal good.



There are now about 2,000 ETFs listed on U.S. markets, and more ETFs launch nearly every day. Can the market support this many products?

MH: I remember when the first story about ETFs covering the entire market came out, back in 2002. We're 1,800 ETFs later. So I don't want to shortchange the creativity of the ETF industry. Could there be 4,000 ETFs? Of course there could.

Eventually, we will get a significant number of active funds in an ETF wrapper. That evolution will take place in the next ten years. Many of the 6,000 mutual funds listed in the U.S. will migrate over to the ETF wrapper, so that should allow the absolute number of ETFs to rise substantially.

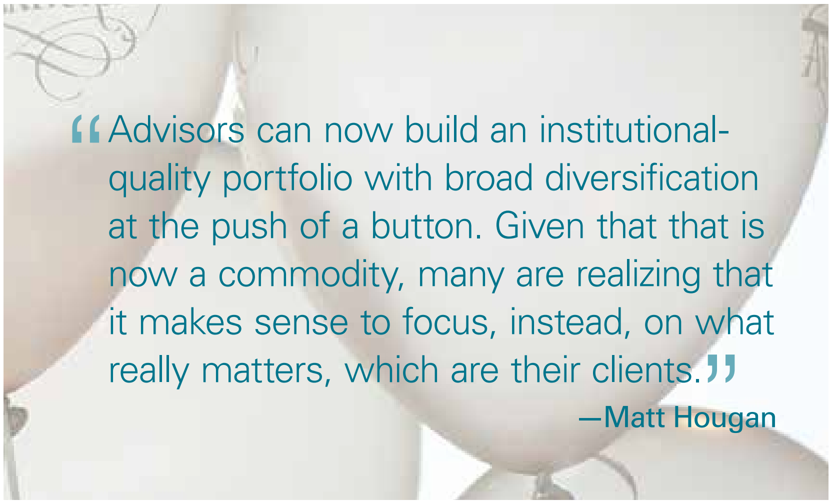
How are ETFs changing the advice profession?

MH: ETFs have brought two major trends to advice.

The first trend is that a large number of advisors have taken active management responsibility from active managers and put it in their own hands. They are building portfolios of ETFs and deciding what tilts to make and what factors to gain exposure to, as opposed to outsourcing these decisions to active managers.

(continued on next page)

2 José Azar, Martin C. Schmalz, and Isabel Tecu, 2017. Anti-competitive effects of common ownership. *Journal of Finance* (electronic copy available at https://ssrn.com/abstract=2427345).



The second trend is that ETFs have changed the focus of the advisory business from managing money to managing people’s behavior and lifestyle. ETFs are an investment vehicle, so it is odd to say that they’ve taken advisors away from money management. But they have.

Advisors can now build an institutional-quality portfolio with broad diversification at the push of a button. Given that that is now a commodity, many are realizing that it makes sense to focus, instead, on what really matters, which are their clients—to improve clients’ behavior, so they don’t sell at the wrong time, and do life planning to improve how clients are saving and spending. That’s not to mention more technical matters, such as taxes or retirement drawdowns, in which advisors can serve clients. ETFs are driving the shift to things that add more value.

Over the last three or four years, since robo-advisors have become big, the level of interest in our articles, conferences, and webinars that are focused on financial planning issues has increased significantly. This is not a majority paradigm yet, but it’s growing rapidly.

It sounds contradictory to say both of these trends are under way at the same time, but they are. The truth is that advisors can add more value through the second trend—managing people’s behavior and lifestyle. If I were entering the advice business today, I would anchor my practice around financial planning and behavioral coaching.

What’s your view on factor-based investing?

MH: The big picture—I like the idea that we are continually exposing the fact that high-priced active managers are mostly doing a beta service, and we’re giving investors a low-cost way to access those betas.

I’m concerned about factor investing, however, because I’m worried about investor behavior. Factor products may need to be held for long periods to deliver their promised returns. I worry a little bit that factors will drive investors to chase performance. The burden will be on asset managers and advisors to make sure investors know that when they buy this fund or ETF, they should plan on holding it for five, seven, or ten years. Or else they should just buy a broadly diversified index fund. Factors have good potential. There are some great product designs, but I worry about the gap between product return and investor return.

How often do advisors use model portfolios, and how similar are these portfolios?

MH: Model portfolio usage is fairly significant among RIAs, and they are gaining traction among the wire houses.

There are some model portfolios that whipsaw you from 2X leveraged emerging markets to negative 2X U.S. Treasuries and back. Some take really big bets with high turnover, and those are high risk. You can be as crazy as you want to be. But 99% of the assets are in competent, sane portfolios that take reasonable tilts and have reasonable tracking error versus the market.

How prevalent are ETF strategists, and do you see them as a growing practice or not?

MH: There was huge growth for ETF strategists a couple of years ago, but it's tapered off. There were a few scandals in that space, unfortunately, and it hasn't really recovered.

ETF strategists won't grow until there is another pullback in the market. Those businesses are built on outperforming when there is a significant down market, and we haven't had that in many years. Until then, you won't have an ETF strategist who can say, "I was down 5% when you were down 50%." I think a lot of them are biding their time. Meanwhile, there is huge fee pressure on strategists. There are a lot of platforms pushing them to offer their portfolios without fees. I don't think the ETF strategist market will look the same in a couple of years.

Where do you see the most competition in the ETF industry, and where is there good cooperation?

MH: It has gotten extremely cutthroat between liquidity providers. They've stopped fighting over nickels, dimes, and pennies, or even tenths of pennies, and now they're fighting over hundredths of pennies. That market is extremely competitive, which is great for investors.

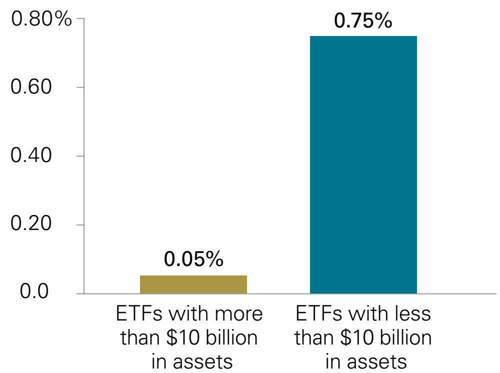
There's reasonably good cooperation in the ETF industry in speaking with regulators and in supporting investor education. Asset managers have put a lot of work into creating excellent materials for investors and advisors, as well as providing core education about products.

What will likely be the biggest catalyst moving forward?

MH: The biggest catalyst to future ETF growth is simply momentum.

Remember, unlike a mutual fund, a small ETF is a bad ETF in many ways. It trades at wide spreads and may have tracking difficulties, and it has a variety of other problems. But once ETFs get larger, particularly for broad-market equities, they just get better. A large ETF is more liquid and tax-efficient, and costs less,

Average spreads on large and small ETFs



Source: ETF.com. Data as of November 30, 2017.

than a small ETF. So now that we have had some success in ETFs, it's just going to snowball. In other words, a primary driver of continued growth will be the network effect in ETFs that makes them better as they get bigger.

The last shoe to drop may be retail. Retail investors remain a minor part of the ETF industry, in part because of transaction costs and fractional-share accounting. But those issues are slowly fading with the rise of commission-free trading programs and similar ideas. We'll know retail investors have arrived when you see an ETF ad on the Super Bowl broadcast. Anyone want to bet that won't happen in the next three years?

It's been an amazing 25 years, and the growth has been incredible, but I think we're just getting started. I think we'll double the assets in ETFs in the next five or six years. We're still in the early stages of growth.

Note: *Matt Hougan is not affiliated with Vanguard, and Vanguard does not make any representation regarding his views.*

ETF of ETFs: For a good wrap, it's about the ingredients

Chuck Thomas is head of Vanguard U.S. ETF Capital Markets Team. In this column, he writes about Vanguard's newest ETF, an ETF of ETFs, and discusses how that structure works.

ETF launches are an exciting time on the capital markets desk at Vanguard. Because our approach to product development is deliberate, we don't come to market with new ETFs all that often. When we do, many teams invest a lot of time and energy to help ensure they are as good as they can be. In November, we launched a particularly innovative product, Vanguard Total Corporate Bond ETF (VTC). It's our first ETF of ETFs, and as you'll see, it stays true to our low-cost approach. Let's shed some light on this newer structure.

What is an ETF of ETFs?

An ETF of ETFs is similar to any other fund-of-funds investment. The overall portfolio invests in some combination of underlying securities—in this case ETFs and not mutual funds—with a goal of achieving a specified investment mandate. This allocation could be static, with fixed percentages across the components, or it could be dynamic, with allocations that shift according to a strategy. The key difference between an ETF of ETFs structure and a conventional fund of funds is that the ETF of ETFs, just like its underlying ETFs, can be traded intraday, while the other cannot.

While this ETF of ETFs is a first for our U.S.-listed lineup, it's a common structure for Vanguard globally and in the U.S. ETF industry generally. It's so common that the process of creating an ETF of ETFs is known as "wrapping" the underlying funds into a new fund. At Vanguard, we "wrap" our U.S.-domiciled ETFs in Australia and Canada, effectively creating ETFs for trading on local exchanges, so our investment teams have extensive experience with the ETF of ETFs structure. According to Bloomberg data, about 5% of U.S.-listed ETFs, or about 100 ETFs, were structured as an ETF of ETFs, accounting for about $21 billion in assets as of November 2017.

It's what's inside that counts

Understanding the ETF of ETFs structure depends on first understanding a product's strategy. Some are intended to be balanced portfolios, combining equity ETFs with fixed income ETFs. Some are active, in that the portfolio may rotate across different ETFs with the goal of outperforming a benchmark. Others are passive products designed to track a diversified benchmark, which use ETFs instead of individual securities to achieve the desired exposure.

The key here is that the strategy of the ETF is the main driver of performance. Choosing among ETFs of ETFs is like ordering a wrap for lunch: The wrap is the exterior, and what's inside is what really matters.

Ingredients, fees, and hidden costs

As with any ETF, we encourage investors to focus on the total cost of ownership. Always pay attention to the expense ratio, trading costs, and other fees. Whether you are buying a turkey wrap at a deli for lunch or buying a wrapped ETF, different options have different costs, and there's always a chance for a surprise charge.

The main drivers of cost in the ETF of ETFs structure are the expense ratios of the underlying funds. These costs are simply passed through to the ETF wrapper and then to the end consumer. The asset-weighted average expense ratio for the overall ETF industry was 22 basis points (bps). However, the average ETF of ETFs chooses products with an asset-weighted average expense ratio of 41 bps.[1] This means the ingredients that most ETF of ETFs structures are choosing tend to be pricier than those for the typical product in the industry.

In addition, many of these products add an additional fee. The overall expense ratio across these wrapped structures is 56 bps, while the component ETFs cost only 41 bps, on average.[1] The difference is another layer of fees beyond the cost of the underlying funds. In other words, if investors took the "build your own wrap" option and directly invested in the component ETFs of these structures, they could save, on average, 14 bps (see figure on next page).

1 Bloomberg data, as of November 30, 2017.

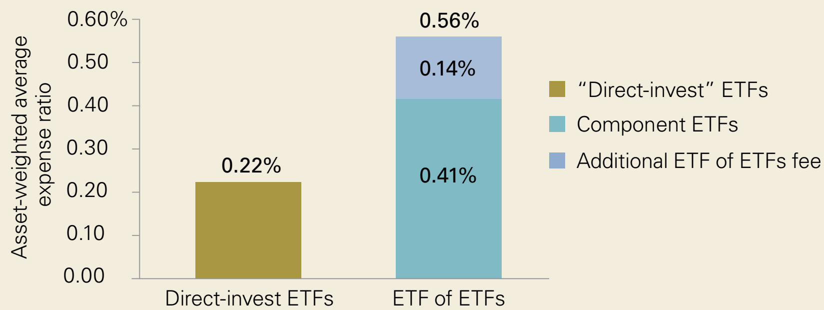
At Vanguard, we think the main benefit of this structure is its potential to deliver lower costs for investors. That's why we've offered our first ETF of ETFs at the cost of the underlying funds and why we don't charge an extra fee. After all, the vast majority of the costs of running the portfolio are related to the underlying ETFs. You're already paying for the ingredients, and the cost of the wrap itself—particularly with an index-based ETF of ETFs—is negligible. Not charging that extra fee is a good example of how Vanguard offers funds at cost.[2]

Volume and trading costs

Trading volume in an ETF can help drive transaction costs lower. For a well-established ETF, the width of the bid-ask spread (the main driver of an ETF investor's transaction costs) is the outcome of a product's volume. ETFs that trade more tend to have tighter spreads. For ETFs without much trading volume, the spread of the ETF tends to match the costs to buy and sell the entire portfolio that the ETF owns. An ETF investor will rarely do worse than the bid-ask spread of the underlying portfolio and, with a heavily traded ETF, can often do better.

2 Vanguard provides its services to the Vanguard funds and ETFs at cost.

The costs of ETF of ETFs can be high and multilayered



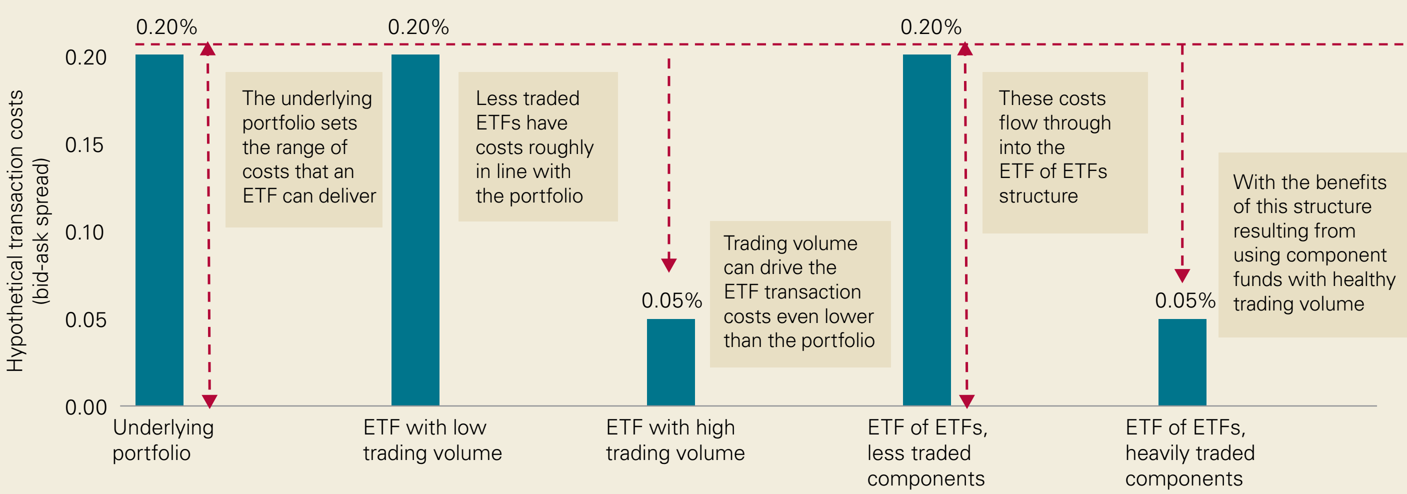
Note: We examined the U.S. ETF landscape as defined by Morningstar, Inc., as of November 2017. The expense ratios are summarized as the asset-weighted average across the different segments. Figures may not add up due to rounding.

Sources: Vanguard, based on data from Morningstar, Inc.

In an ETF of ETFs, this same concept applies, even to the next layer. When the underlying component ETFs are highly liquid, the ETF of ETFs' wrapper can trade with tight bid-ask spreads. When the component ETFs don't have much trading volume, the investor will experience costs that are in line with those of the underlying portfolio's holdings and won't realize any scale benefit from the structure. This is illustrated in the figure below. The liquidity

(continued on next page)

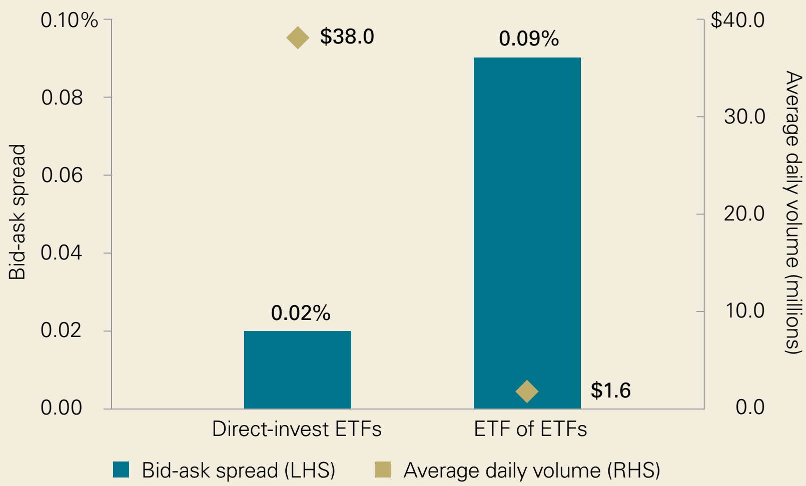
ETF of ETFs transaction costs flow through from the underlying portfolio and component funds



Notes: The precise trading costs for a given ETF will depend on the asset class of the underlying portfolio, the product's trading volume, and a variety of other factors that may vary from day to day. This hypothetical illustration does not represent the costs on any particular investment, and the costs are not guaranteed.

Source: Vanguard.

ETF of ETFs: Volume and trading costs



Note: We examined the U.S. ETF landscape as defined by Morningstar, Inc., as of November 2017. The bid-ask spread and average daily trading volume are averages for the month of November.

Sources: Vanguard, based on data from Bloomberg and Morningstar, Inc.

of the portfolio flows through to the liquidity of the component ETFs. And the liquidity of the component ETFs flows through to the overall wrapped structure. So choosing component ETFs with greater trading volume can help to reduce transaction costs.

To realize all the potential benefits of the ETF of ETFs structure, investors should look for funds that use component ETFs with scale and healthy volume. For a wrapped product with less scale, the liquidity of the component ETFs matters a lot. Many of the wrappers in the industry are relatively new, have limited scale, and trade with relatively light volume. The average ETF of ETFs trades $1.6 million per day versus the average direct-invest conventional ETF, which has a daily volume of $38.0 million, Bloomberg data show. As shown in the figure at left, this segment typically has lower volume and wider bid-ask spreads than ETFs in general. This means that for an ETF of ETFs, the component funds will have a significant impact on an investor's trading experience. Advisors should pay attention to the trading costs for both the underlying portfolio and the component ETFs. With these considerations in mind, we will always favor building our ETFs of ETFs using well-established component funds with healthy volume and low transaction costs.

Wrapping it all up

We're excited about this new ETF of ETFs structure and its potential to help investors achieve their goals in a way that minimizes their total cost of ownership. Investors considering this structure should:

- Focus on strategy first, since each product is unique.
- Keep in mind that costs have multiple layers.
- Remember that trading costs can be managed by considering products with liquid component funds.

A keen focus on these important factors can help investors take full advantage of the best characteristics of ETFs of ETFs.

If you are interested in speaking with someone on the U.S. ETF Capital Markets Team, please contact your Vanguard sales executive at **800-997-2798**.

The top five questions we hear from clients

Questions you have been asking. Here are the answers.

Rich Powers
Head of ETF
Product Management

In ETF Product Management, we love talking to advisors, institutional clients, and investors. Here are our top five questions for 2017 and our answers:

1. A fee war appears to be afoot in ETFs. How low can fees go?

The term *fee war* is seen in the press quite a lot, and though it's a bit inflammatory, it is true that several leading ETF providers are offering lower expense ratios on some of their more broadly diversified market-cap-weighted ETFs. Advisors often ask how low expense ratios can go and if management fees could even be 0%. We'll address that, but first, a couple of points to remember: (1) Lower-cost investing is, just about unequivocally, a good thing, and we're glad investors are seeking it out. (2) Vanguard's low expense ratios aren't a result of a competitive strategy (or "war") on our part but, rather, are part of our low-cost DNA, which is here to stay and is present across our product lineup. (3) A focus only on expense ratios can obscure other important parts of investment decision-making.

How low can fees go? In theory, an ETF provider could offer an ETF with a 0% expense ratio. The provider may seek to make up that lost revenue through securities lending, adding an element of risk for the investor, or to simply treat the ETF as a loss leader so the provider can promote higher-cost products or services. Such an expense ratio would, no doubt, make headlines, but an investor should remember the other tangible costs of investing in ETFs, such as brokerage commissions and the historical spread and volatility of premium to net asset value (NAV). Additionally, there are declining marginal returns to expense ratio cuts for the most competitive product categories. The difference between an expense ratio of 0.80% and an expense ratio of 0.08% is a lot over the long term. But the difference between 0.08% and 0.07% expense ratios can easily be swamped by other costs or tracking error.

2. How does Vanguard develop ETF products?

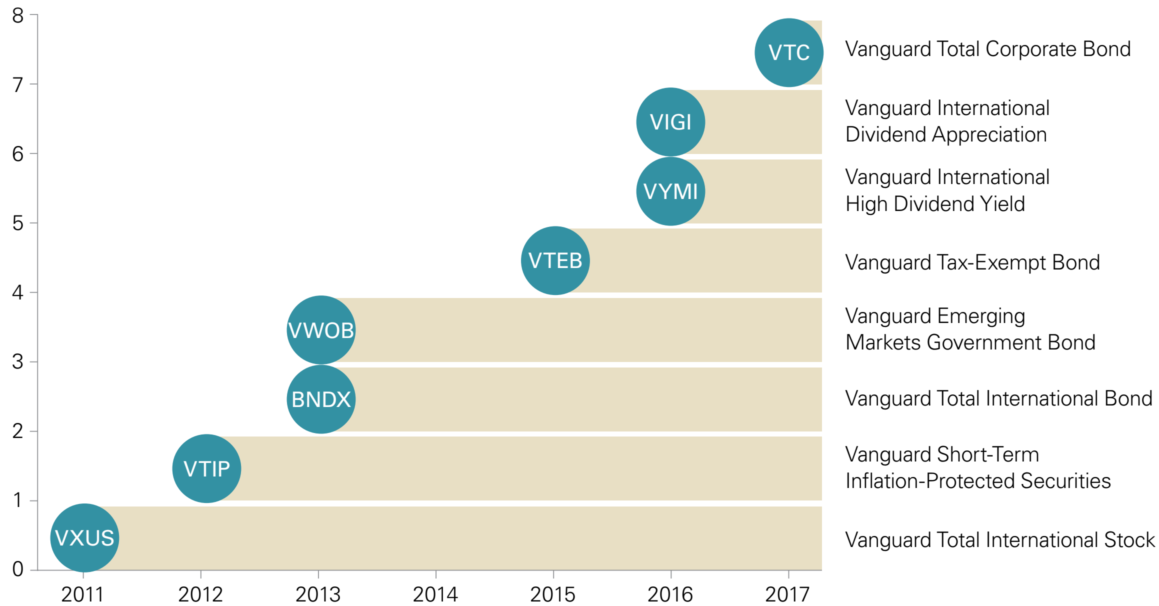
Unsurprisingly, Vanguard takes a deliberate and collaborative approach to product development. Our teams think about product development in the following manner: We aim to foster meaningful relationships with a broad array of clients since their feedback and input are critical to ensure we're appropriately capturing client demand in the marketplace. To complement this feedback, we have a talented in-house product research team that aims to identify and explore a broad range of products and investment trends that may prove worthwhile. The team filters ideas through a few key questions:

- Does this investment meet an enduring need for clients?
- Do we have, or can we acquire, the talent to make this product as good as it can be?
- Can we offer this product at a compelling cost?

The answers to these questions, coupled with internal and external feedback, determine how Vanguard prioritizes new products in a dynamic and growing marketplace. Product development, which includes review and approval from Vanguard's senior leadership team, serves a critical role in ensuring Vanguard stays tethered to our core mission of providing your clients with the best chance at investment success.

(continued on next page)

Vanguard's U.S. ETF product launches, 2011–2017



Source: Vanguard.

3. What are the potential benefits of the Vanguard ETF® share class structure?

Vanguard's unique and innovative share class structure has been instrumental in providing advisors with scalable, low-cost ETFs. Currently, 70 of Vanguard's 71 U.S. ETFs are structured as a share class of a portfolio that also includes conventional mutual fund shares. This patent-protected structure offers a variety of potentially sustainable benefits to shareholders.

Launching an ETF share class as part of an existing Vanguard mutual fund provides scale, along with an immediate track record. This scale can provide downward price pressure by helping to reduce the operating and trading costs of the pool of assets.

Vanguard's share class structure also offers enhanced portfolio management flexibility. Added cash flows from conventional share classes can allow some Vanguard funds to own more of the securities in the indexes they seek to track than they might otherwise, which can enhance diversification and tighten tracking. Additionally, multiple share classes of the same portfolio may be offered to different types of investors, including institutional 401(k) plans and advised assets. This can help smooth cash flows by netting inflows and outflows from different investor types.

Lastly, tax efficiencies may be gained through the multishare class structure. All ETF issuers can minimize potential capital gains by distributing their lowest-cost shares in the portfolio through the in-kind redemption process to meet redemption requests. Outside of this function, Vanguard ETFs® have the unique ability to offset portfolio gains with losses from sales of high-cost-basis shares in response to redemptions by investors in the mutual fund share classes. These realized losses can be used to offset future gains, which benefits both mutual fund and ETF shareholders. Vanguard's deep tax-lot structure allows for the selection of high-cost-basis shares in both good markets and bad, resulting in a high degree of tax efficiency.

4. Can you discuss Vanguard's relationship with the Center for Research in Security Prices (CRSP) and FTSE as index providers?

We work with multiple respected index providers across our ETF lineup. Regardless of brand, we place significant value on index providers who are on the cutting edge of index construction while prudently balancing market representativeness with tradability and costs. In 2012, we pursued these values by formalizing long-term licensing agreements with CRSP for many of our largest domestic equity index funds and with FTSE for most of our international equity index funds.

CRSP offered an opportunity to work with a celebrated team of academic and industry practitioners to help shape an approach to indexing that is differentiated and forward-looking. CRSP's methodology includes elements we believe are on the cutting edge of indexing's best practices.

FTSE, a well-established index provider, has proved to be a great partner for most of Vanguard's international ETF lineup. FTSE continues to expand the investable universe for its indexes while emerging as a thought leader on a variety of topics:

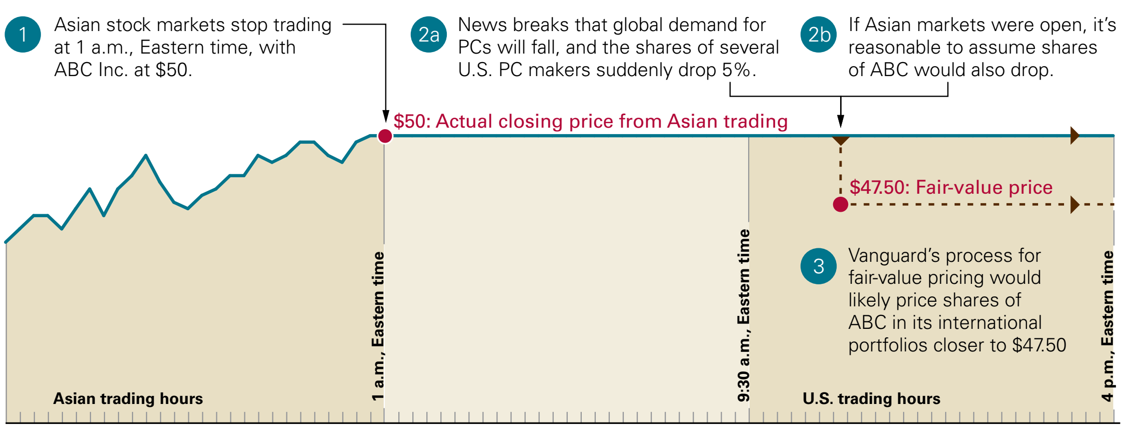
- The FTSE Developed All Cap ex US Index includes all countries that the majority of investors consider to be developed, including Canada and South Korea.
- Vanguard partnered with FTSE to design a custom emerging markets benchmark, the FTSE Emerging Markets All Cap China A Inclusion Index.

5. Explain why Vanguard uses fair-value pricing (FVP) with international funds. How does this affect reported performance?

It's critical that the underlying securities in an ETF or a mutual fund are accurately priced. However, there may be times when a price is not readily available, particularly with international securities. To help account for any pricing discrepancies, we leverage FVP. FVP is a mechanism by which the values of international securities in a U.S.-domiciled fund are adjusted to reflect information that could materially affect those securities when their respective exchanges are closed. Often, FVP causes the NAV of a fund to differ from the value of the index, if the index is not fair-value adjusted. These differences can lead to higher-than-expected tracking differences and tracking error, especially over short time periods.

Although FVP can create the illusion of poor tracking, we believe the fair-value adjustment provides investors with the purest representation of performance. In addition, adjusting prices drastically diminishes inherent arbitrage opportunities, minimizing the potential for short-term trading, which can drive up costs and lead to adverse tax consequences. The figure below shows a hypothetical example of how FVP works.

A hypothetical example of fair-value pricing



Source: Vanguard.

For some advisors, the answer is to combine ETFs with active funds

While it has been 25 years since the launch of the first ETF, many advisors use, and even prefer, active funds.

A recent Cerulli report found that one-quarter of advisors do not use ETFs, while an additional 60% use them lightly or moderately.[1] Many of the advisors who are not wholly using ETFs are combining active and passive in client portfolios, said Daniel Wallick of Vanguard Investment Strategy Group.

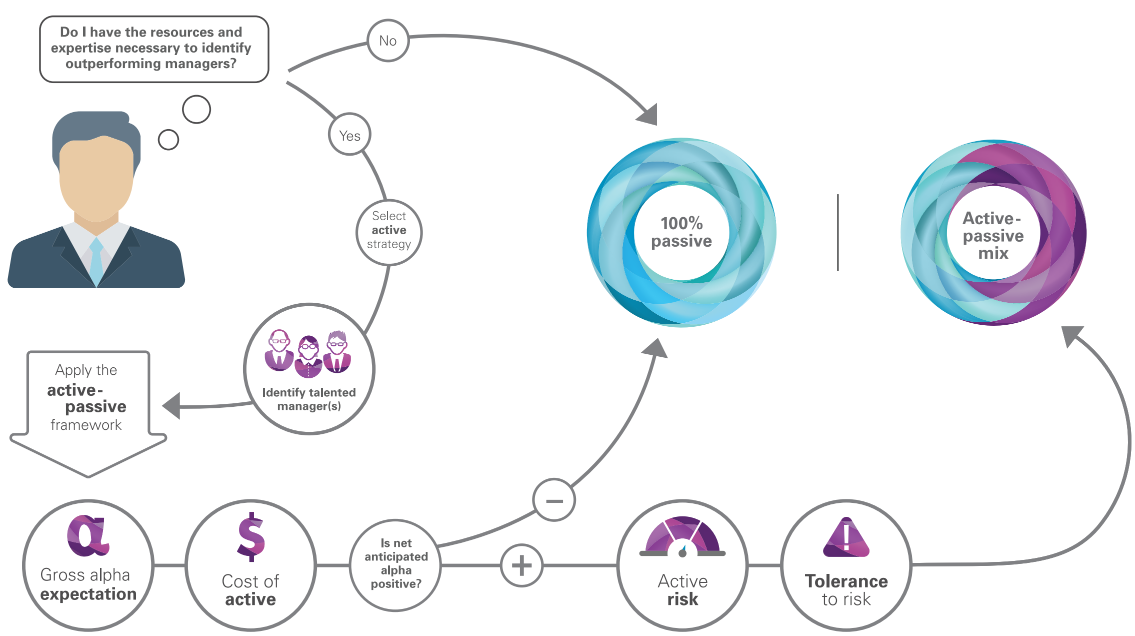
Using active funds with ETFs or index mutual funds can be a sound strategy, Wallick said. But when speaking with advisors, he often finds that the portfolio construction techniques being used may be more art than science. These "artful" advisors may well use their favorite active funds that have served them and their clients well in the past, then mix in some degree of passive investments.

Wallick coauthored the Vanguard research paper *Making the implicit explicit: A framework for the active-passive decision*,[2] which lays out a more scientific approach, using a mathematical model to make such a decision. Wallick said advisors can use more explicit decision-making by taking advantage of a more methodical process as they build or update client portfolios.

A four-step process

There are four steps in making an active-passive decision. The first is to look at the expected gross alpha of the active funds being used. That gross alpha is the average annual percentage by which an advisor expects the funds to outperform their respective benchmarks. The second step is to consider the costs, since costs take away from returns. Third, advisors need to think about the expected level of active risk, as represented by the fund's tracking error against its benchmark.

Having a clear, structured, explicit active-passive framework can lead to more concrete decisions



Source: Vanguard.

1 Cerulli Associates, 2017. *U.S. Exchange-Traded Fund Markets 2017: Differentiating Strategies for Sustained Growth*. Boston, Mass.: Cerulli Associates. (The Cerulli Report.)

2 Daniel W. Wallick, Brian R. Wimmer, Christos Tasopoulos, James Balsamo, and Joshua M. Hirt, 2017. *Making the implicit explicit: A framework for the active-passive decision*. Valley Forge, Pa.: The Vanguard Group.

Active management can have a wide dispersion of returns

Source: Vanguard calculations, using data from Morningstar, Inc.

Notes: Active mutual funds use U.S. data and include the following categories: small-cap growth, small-cap value, small-cap blend, mid-cap growth, mid-cap value, mid-cap blend, large-cap growth, large-cap value, and large-cap blend funds for the period from January 1, 1998, to October 30, 2015. Past performance is no guarantee of future results.

Wallick and his colleagues have developed specific metrics for each of these factors.

Finally, Wallick said advisors should also consider the risk tolerance of their clients. Specifically, how much variance from the market, or a particular benchmark, will a client tolerate before becoming uncomfortable?

After going through this process using each of the four elements, advisors can estimate how much of a portfolio should be allocated to active and how much to passive.

The bumpy road to active outperformance

While talented active managers have outperformed the markets at times, active management is, by its nature, inconsistent.[3] The figure above shows the wide dispersion of excess returns of active funds against their respective benchmarks.

"What many advisors may not know is that even highly successful active managers often underperform for significant stretches of time," Wallick said. "Frequent underperformance by successful active managers is not the exception; it's the rule. Thus, to be successful with active management, one needs to stay committed even if the manager has a bit of a losing streak."

The figure on the next page shows the performance of active funds over a 15-year period.

Active and passive can work well together

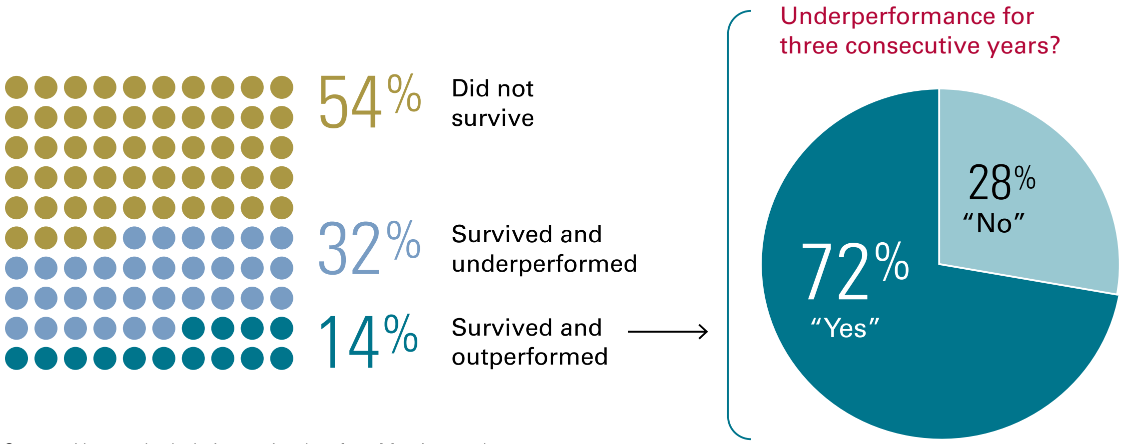
Active and passive investments can complement each other.

Index funds and ETFs can be a valuable starting point for all investors. ETFs may bring down the overall cost of a portfolio, while active and passive combinations can moderate the swings between extremes of relative performance.

(continued on next page)

3 Daniel W. Wallick, Brian R. Wimmer, and James Balsamo, 2015. *Keys to improving the odds of active management success.* Valley Forge, Pa.: The Vanguard Group.

Even outperforming funds experience lengthy underperformance

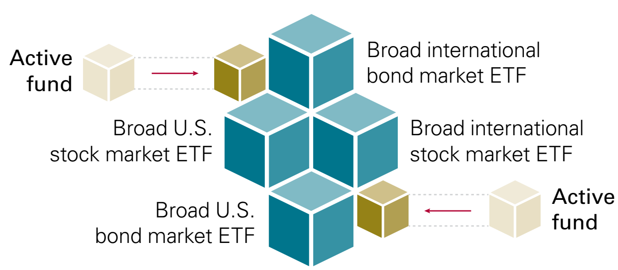


Sources: Vanguard calculations, using data from Morningstar, Inc.

Notes: Figure covers the 15-year period ended December 31, 2016, with 2,224 initial funds. Successful funds are those that survived for the 15 years and also outperformed their prospectus benchmarks. Our analysis used expenses and fund returns for U.S. active equity funds that were available to U.S. investors and in existence at the start of the analysis period. For a fund with multiple share classes, the oldest and lowest-cost single share class was used to represent it. The performance of a fund was compared with that of its prospectus benchmark. For this analysis, funds that were merged or liquidated were considered underperformers. The following fund categories were included: small-cap value, small-cap blend, small-cap growth, mid-cap value, mid-cap blend, mid-cap growth, large-cap value, large-cap blend, and large-cap growth.

That's because passive products can help portfolios more closely track a market by balancing the under- and outperformance of active managers.

Therefore, an active-passive framework can help lower a portfolio's overall volatility and lower the chance of a portfolio significantly underperforming its benchmark. Combining well-chosen active funds with indexing can offer a Goldilocks effect—not too hot, not too cold. While index funds and ETFs can be used in an attempt to track the entire market, active managers can be used where advisors believe they can add value.



The evolution of Vanguard Advisor's Alpha®

Looking for insights to help you grow and strengthen your advisory practice?

This new paper builds on the pioneering Vanguard Advisor's Alpha research, which has helped reshape industry attitudes about the value of advice. We use economic research, survey data, and our experience with advisors to identify the biggest opportunities to enhance client satisfaction and sustain strong practices.

The research demonstrates that relationship management, behavioral coaching, and the "uniquely human" elements of financial advice will become more important as regulation, technology, and fee pressure change the industry.

Call Vanguard Financial Advisor Services™ today at **800-997-2798** and ask for your copy of *The evolution of Vanguard Advisor's Alpha*.

Comments? Topics of interest?

Write to us at **ETFPerspectives@vanguard.com**

Connect with Vanguard® > advisors.vanguard.com

For more information about Vanguard funds or Vanguard ETFs, including at-cost services, visit advisors.vanguard.com or call 800-997-2798 to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.

Vanguard ETF Shares are not redeemable with the issuing Fund other than in very large aggregations worth millions of dollars. Instead, investors must buy and sell Vanguard ETF Shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.

Past performance is no guarantee of future results. All investing is subject to risk, including possible loss of principal.

Diversification does not ensure a profit or protect against a loss.

There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income. There may be other material differences between products that must be considered prior to investing.

Bond funds are subject to interest rate risk, which is the chance bond prices overall will decline because of rising interest rates, and credit risk, which is the chance a bond issuer will fail to pay interest and principal in a timely manner or that negative perceptions of the issuer's ability to make such payments will cause the price of that bond to decline.

Vanguard Financial
Advisor Services™

P.O. Box 2900
Valley Forge, PA 19482-2900

Vanguard Marketing Corporation, Distributor.
U.S. Patent Nos. 6,879,964; 7,337,138; 7,720,749; 7,925,573; 8,090,646; and 8,417,623.

FAETFPWN 012018