ETF Perspectives

Vanguard insights for financial advisors™

Summer 2018

Rosenbluth: Know what you hold

Avoid gaps and overlaps in ETF portfolios

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Rosenbluth was an advisor for Morgan Stanley for a year. It was there he discovered that his true passion was researching investments. He spent 16 years at S&P Global as a mutual fund, ETF, and stock analyst.

CFRA, an independent research company, purchased the S&P Global research division in October 2016, but Rosenbluth and his team have remained intact. CFRA's unique fund and ETF research is designed for the advisor community, including registered investment advisors, wire house advisors, broker-dealers, and institutional advisors. CFRA, with headquarters in New York City, is privately held. The firm covers 1,860 ETFs and 22,000 mutual funds.

CFRA performs individual security analyses for stocks and bonds. It then compiles the results of those analyses to inform its ratings on ETFs and mutual funds. The ratings also factor in trading costs, such as bid-ask spreads, and results from a technical analysis based on trading patterns. CFRA rates an ETF as overweight, marketweight, or underweight, depending on the ETF's costs and how CFRA believes the ETF will perform in the future.

CFRA offers free, 14-day introductory access to CFRA's research. To obtain access, *ETF Perspectives* readers can reach Rosenbluth at todd.rosenbluth@cfraresearch.com.

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Vanguard: *What are the differences between ETFs that some advisors may not be aware of?*

Todd Rosenbluth: You should understand what exposures and investments an ETF is offering and what it's not. That's not always as easy as it sounds, because ETFs with similar names and mandates can have important differences that can affect performance.

Take, for example, Vanguard FTSE Emerging Markets ETF (VWO) and BlackRock's iShares Core MSCI Emerging Markets ETF (IEMG). Both have emerging markets in the name and have the same expense ratio.[1] But year after year, there are differences in the performance record of these two ETFs. That's because of the countries that are in the respective ETFs and their weights.

Vanguard uses FTSE indexes for most of its international equity ETFs. BlackRock's iShares uses MSCI for most of its international equity ETFs.

FTSE Russell has declared South Korea to be a developed markets country, so VWO has no exposure. MSCI considers South Korea to be an emerging markets country, so South Korea is the country with the second-largest exposure in IEMG. However, iShares Core MSCI EAFE ETF (IEFA), which invests in developed markets, has no investments in South Korea-based companies, while Vanguard FTSE Developed Markets ETF (VEA) does.

Here's another example: Vanguard FTSE Europe ETF (VGK) has a roughly 40% weighting in stocks of companies based in Switzerland and the United Kingdom. But several other ETFs focused on the euro zone might have half or more in equities from Germany and France, with zero exposure to the United Kingdom and Switzerland. Many advisors may not understand the exposure they're getting in a euro-focused ETF.

Why is this important?

TR: If you're going to rely on more than one asset manager, and many advisors do, then understand what overlaps and gaps can result by using products from different companies or using different index providers.

Advisors need to remember that asset managers typically work with a finite number of index providers, each of which tends to be internally consistent in its rules implementation, but not consistent with one another.

You may, for example, be missing all of Canada. There will be risks to a portfolio if you don't understand what's happening inside. Know what you hold. It's sort of like the lyrics from the old country song: "You've got to know when to hold 'em . . . ." Except in this case, you choose what to hold and maybe what to never hold.

Vanguard FTSE Emerging Markets ETF (VWO)

Top ten markets as of May 31, 2018

Market	VWO
China	36.1%
Taiwan	14.7
India	10.8
South Africa	7.0
Brazil	6.9
Thailand	3.9
Russia	3.7
Malaysia	3.2
Mexico	3.0
Indonesia	2.2
Top ten equals (of net equities)	91.5%

Vanguard FTSE Developed Markets ETF (VEA)

Top ten markets as of May 31, 2018

Market	VEA
Japan	22.4%
United Kingdom	15.8
France	8.2
Canada	8.2
Germany	7.8
Switzerland	6.2
Australia	6.1
South Korea	4.8
Hong Kong	3.3
Netherlands	2.9
Top ten equals (of net equities)	85.7%

iShares Core MSCI Emerging Markets ETF (IEMG)

Top ten markets as of May 31, 2018

Market	IEMG
China	30.8%
South Korea	15.4
Taiwan	12.3
India	9.1
South Africa	6.2
Brazil	6.0
Russia	3.1
Mexico	2.6
Thailand	2.5
Malaysia	2.4
Top ten equals (of net equities)	90.4%

iShares Core MSCI EAFE ETF (IEFA)

Top ten markets as of May 31, 2018

Market	IEFA
Japan	25.2%
United Kingdom	17.9
France	9.8
Germany	8.9
Switzerland	7.1
Australia	6.7
Hong Kong	3.5
Netherlands	3.4
Spain	2.9
Sweden	2.9
Top ten equals (of net equities)	88.2%

Sources: Vanguard and BlackRock.

1 As stated in the 2018 prospectuses for both products. The current expense ratios may differ.

Because in this case, a three of a kind—by which I mean that holding ETFs with the same or similar exposure—probably isn't going to help you because gaps and overlaps are likely to occur, and that may negatively affect performance.

How common is it for indexes, and products that seek to track them, to have significant differences?

TR: Advisors are inclined to buy the largest and cheapest ETFs and then assume they are covering their bases. Yet because the asset management business is so competitive, you'll rarely see the same indexes used by competing products.

For the well-known equity indexes—such as the S&P 500 and Russell 1000 or, in the case of bonds, the Bloomberg Barclays U.S. Aggregate Float Adjusted Index—the products based on those indexes are similar and largely compete on price. Beyond those, there can often be ample differences, whether they're sectors, factors, or styles. The devil is in the details. If there is a couple hundred basis points difference in performance over three years on similar-sounding ETFs, then that's significant in helping, or not helping, your clients achieve their goals.

What other differences in products do advisors need to consider?

TR: Take value, for example. Vanguard value products may screen for value metrics on large-cap stocks. In another product, value is implemented on a relative basis. Apple might be considered a value technology stock, but it's a growth stock in comparison with the broader marketplace. It's easy for an investor to double dip on the same stocks, depending on the products selected and the rules.

Low volatility and minimum volatility sound exactly the same, but they're not. There is a suite of products out there. One low-vol ETF might have sector bands, so it could have more exposure to technology than an ETF that may not have such constraints and may have more exposure to traditionally defensive sectors.

With smart beta ETFs, the exposure may shift, depending on which companies meet the criteria being set. There will also be more turnover.

Let me use another Vanguard example. Vanguard Dividend Appreciation ETF (VIG) requires a ten-year period of dividend growth for stocks to be included in the portfolio. Companies may fall off of that, or may hit that, and the constituents will change. Shifts and tilts in many products will require ongoing due diligence even in a long-term portfolio.

What are your firm's preferences when evaluating ETFs?

TR: We have a value orientation in our model and a quality slant. We look at earnings and dividends. We use the S&P credit ratings, which are balance-sheet-oriented. We're trying to independently look at what's in the portfolio and then form an opinion on whether it makes sense.

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Component rankings

The CFRA Component Rankings are expressed as Overweight, Marketweight, or Underweight indicators, following a normalized distribution curve.

▲ Overweight component rankings are assigned to funds whose weighted-average score is in approximately the top quartile of its asset category's universe, applying a normalized distribution curve.

■ Marketweight component rankings are assigned to funds whose weighted-average score is in about the second or third quartile of its asset category's universe, applying a normalized distribution curve.

▼ Underweight component rankings are assigned to funds whose weighted-average score is in approximately the bottom quartile of its asset category's universe, applying a normalized distribution curve.

Source: CFRA.

The result is that we will favor ETFs with a risk-avoidance characteristic. We're likely to offer better recommendations for funds that take on less risk. For funds that take, say, a momentum approach, the bar is a bit higher if they're choosing nondividend-paying, riskier stocks. Our overall ranking encompasses ten data points, and we compare ETFs with ETFs.

For us to put a rating on an ETF, we need to cover stocks that represent 50% of the market capitalization of the assets in its portfolio for at least one of two valuation metrics, a human-based STARS (Stock Appreciation Ranking System) rating, and a quantitative fair-value metric. Because most ETFs are market-cap-weighted, or have market-cap weighting as part of their structure, we can rate most ETFs. That's because we cover most large-cap international stocks and most large- and mid-cap U.S. stocks.

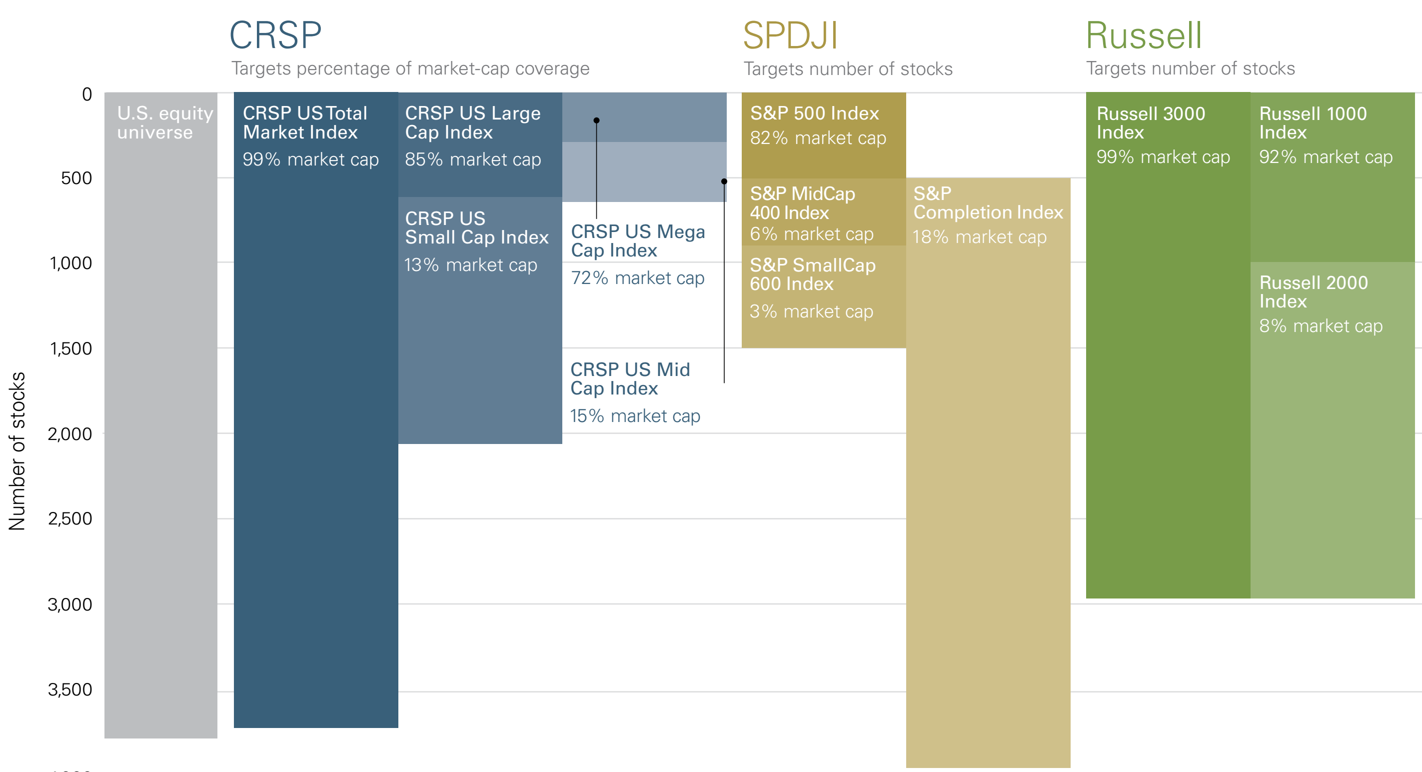
Some ETFs are heavily concentrated in some stocks. We currently have a favorable rating on Apple. ETFs, therefore, that are heavily concentrated in Apple will benefit from that. If the analyst were to downgrade Apple to a hold, a sector-oriented ETF with a heavy weighting in Apple would likely be affected.

Our research can be used for tactical decision-making. For someone using a long-term asset allocation model, our research is simply used to compare and contrast ETFs and keep up to date with the model's exposure.

What new trends do you see in ETFs?

TR: What's becoming more popular are more thematic ETFs. We've seen a whole suite of ETFs that have come to market focusing on blockchain, artificial intelligence, robotics, etc. Those themes may have long-term investment merit, but let me offer a couple of thoughts.

The narrower you get in a portfolio, the greater the risk that the theme doesn't play out as expected or expectations are so high that it's hard for stocks to continue to deliver, especially if the prices on those stocks are based on ten-year projections. We cover thematic-oriented ETFs. We like some; we don't like others. But it could be easy to look at a strong performance record tied to a thematic ETF. You may believe that theme has long-term merit. But anything that significantly outperforms is at risk of significantly underperforming going forward.



Sources: FactSet, CRSP, S&P Dow Jones Indices, and Russell Investments.

Notes: Russell and S&P market-cap ranges calculated by FactSet as of December 31, 2017. Market-cap percentages are subject to rounding.

My concern is that because the ETF wrapper is conducive to virtually any investment, almost any strategy can be shoved into an ETF and purchased by or for end clients. Some of these products may offer little long-term strategic sense.

Again, you might want to look for potential overlap. You may already be well-exposed to stocks in a theme through, for example, a traditional growth-oriented technology sector ETF.

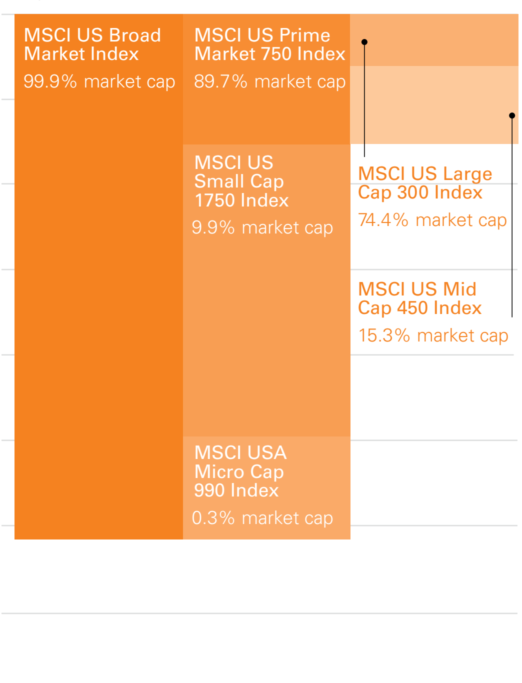
What are some popular metrics you don't look at when judging an ETF's performance?

TR: There are several common metrics out there focused on how well an ETF tracks its benchmark. We do not look at those closely.

Most ETFs track a unique benchmark, and as such, our research focuses on index construction rather than tracking ability. Vanguard Value ETF (VTV) is the only strategy tracking a CRSP index, whereas similar products are tied to indexes such as S&P, Russell, and MSCI.

MSCI

Targets number of stocks



> "Because the ETF wrapper is conducive to virtually any investment, almost any strategy can be shoved into an ETF and purchased by or for end clients. Some of these products may offer little long-term strategic sense."
>
> —Todd Rosenbluth

An advisor is more likely to get fired by a client for choosing products that are inappropriate for the client's portfolio, so think through your strategy. The first question to answer is: Do you and/or your client believe in efficient markets, and do you want to largely track the markets? Or do you want to take a long-term strategic tilt? Or are you attempting to tactically time the markets or economic trends? After you answer these questions, you can narrow down your choices.

How important and popular are model portfolios?

TR: Many advisors who use ETFs are increasingly adopting model portfolios because they want to save time on portfolio construction. Advisors who use model portfolios are typically comfortable working with one firm, outsourcing portfolio construction to someone else, and letting their focus stay on their clients.

That can be a good thing. That's a way to let asset managers do what they do best and advisors do what they do best, which is to advise clients. It's important for advisors to understand if they're getting the coverage they intend, and if there are tilts, to be conscious of those tilts.

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What's important to keep in mind in choosing a model portfolio?

TR: It's important to look at the individual ETFs in the portfolio. Is there a tilt? Why were these ETFs chosen? Does the portfolio take a certain approach to the marketplace? Does the approach taken line up with what the client expects?

Portfolios tend to be constructed from a risk-allocation perspective: conservative, moderate, aggressive. Even within those, you should make sure the exposures are appropriate. Maybe there's a hole in a portfolio that you may want to supplement elsewhere.

What, then, is the future of active management?

TR: There is still a benefit and an audience for active management. The research shows that lower-cost active management does relatively well from a performance standpoint.[2] There's a strong suite of lower-cost mutual funds out there. And now firms are increasingly embracing the ETF wrapper for active management.

I don't think we should give up on active management just because the flows say investors are not putting much money in. We believe there will be more interest in active ETFs. As firms become more focused on developing active ETFs, we think there will be success.

We do think advisors focus too much on cost when picking products. But for those active managers who are charging a significant premium for active management—money is only going to flow out. It will cause some firms to bring pricing down and cause others to shutter or consolidate.

What about concerns that have been raised about ETFs?

TR: Most of these concerns are based on unwarranted fear. Every day, ETFs are passing the test that no one is quantifying, per se, but that can clearly be seen. They are delivering the investor experience that is expected. When there are times of market uncertainty or volatility, there are greater flows into ETFs.

Investors are increasingly embracing ETFs, and a lot of these arguments have cycled through before. There's more money in index-based mutual funds than there is in ETFs. For years now, there's been a fear that index-based funds would bring down markets, and now some say ETFs may do that. But the data don't support those fears. Day after day after day, money flows in, money flows out, and trades are executed without a challenge. We only see continued growth for ETFs.

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

2 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.

Why international ETFs cost more to trade

David R. Sharp is an ETF capital markets specialist on the Vanguard U.S. ETF Capital Markets Team. In this column, he discusses the idiosyncrasies of trading international ETFs.

International ETFs are low cost, but specific aspects to international trading—such as currency exchange rates and foreign taxes—make trading them more expensive for market makers.

The fact that the world's first mutual fund—founded almost 250 years ago—was an international strategy is a great example for modern ETF investors in more ways than one.[1] That fund focused on Europe and the American colonies, and it illustrates that international investing was as sensible then as it is now because it expands opportunities and helps diversify risk.

These days, a single click of a mouse can give investors instant ownership of Vanguard Total International Stock ETF (VXUS)—a liquid portfolio of international equities with about 6,400 stocks of companies around the world. But just as that 18th-century fund could, at times, trade at discounts or premiums to its net asset value (NAV), international ETFs have distinct characteristics, not least regarding costs, that require special attention.

The unique open-ended structure of ETFs, which relies on the creation-redemption mechanism, helps ensure that ETFs generally trade very close to the NAVs of their underlying assets. But, again, trading international ETFs differs from trading U.S. ETFs in a number of ways that cause them to deviate from NAV or potentially trade with larger bid-ask spreads than those of domestic ETFs. That means they can be more expensive to trade than domestic ETFs.

All ETFs should be traded with careful forethought (see sidebar on page 10), and best practices—or at least expectations—should be slightly different when you trade international ETFs. So let's have a closer look at trading international ETFs.

Pricing securities in closed markets

One potentially challenging aspect of buying and selling international ETFs is that many of the underlying stocks in international ETFs don't trade when the ETF itself is trading during U.S. market hours.

For example, in an Asian-Pacific strategy, such as Vanguard FTSE Pacific ETF (VPL), the individual underlying stocks typically trade on exchanges in different countries that aren't open during U.S. market hours. That means that throughout the U.S. trading day, the value of the ETF will be used as a proxy for the value of the underlying securities in closed markets in Asia. In other words, the ETF becomes the price-discovery mechanism rather than the other way around, as is usually the case for domestic ETFs, whose collective price of all the underlying stocks is usually the input for the price of the ETF.

A similar challenge exists when U.S. investors must buy an international ETF on a day when local foreign markets might be closed because of a holiday such as the Lunar New Year, which is celebrated in many countries outside of the United States.

Given these sorts of challenges, the value of a given international ETF is estimated to be the closing prices on the fund constituents' local markets, plus a fair-value calculation to help determine what those prices might be the following day.

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1 In 1774, with the purpose of diversifying risk, Dutch merchant Adriaan van Ketwich started a pooled investment vehicle that he named Eendragt Maakt Magt (Unity Creates Strength). Ketwich's fund invested in companies across Europe and the American colonies. It was available in 2,000 units, and once they were purchased, they would trade on the open market. It gave investors a diversified portfolio of companies in one packaged product. (Source: The Investment Funds Institute of Canada, 2018. *The History of Mutual Funds*. Accessed June 6, 2018, at https://www.ific.ca/en/articles/who-we-are-history-of-mutual-funds/)

Getting more visibility in Europe

Another consideration: The trading times of some Western European markets overlap those of the U.S. market. Trading when there is an overlap of trading hours in two markets allows liquidity providers for an ETF with European holdings to price the European holdings much tighter because they know the cost in the foreign market. (See figure below.)

But when European markets are closed, trading international ETFs that contain European-listed stocks can be quite a lot like trying to price Asian-focused ETFs. That means a fair-value calculation might be necessary to determine what those prices might be the next day.

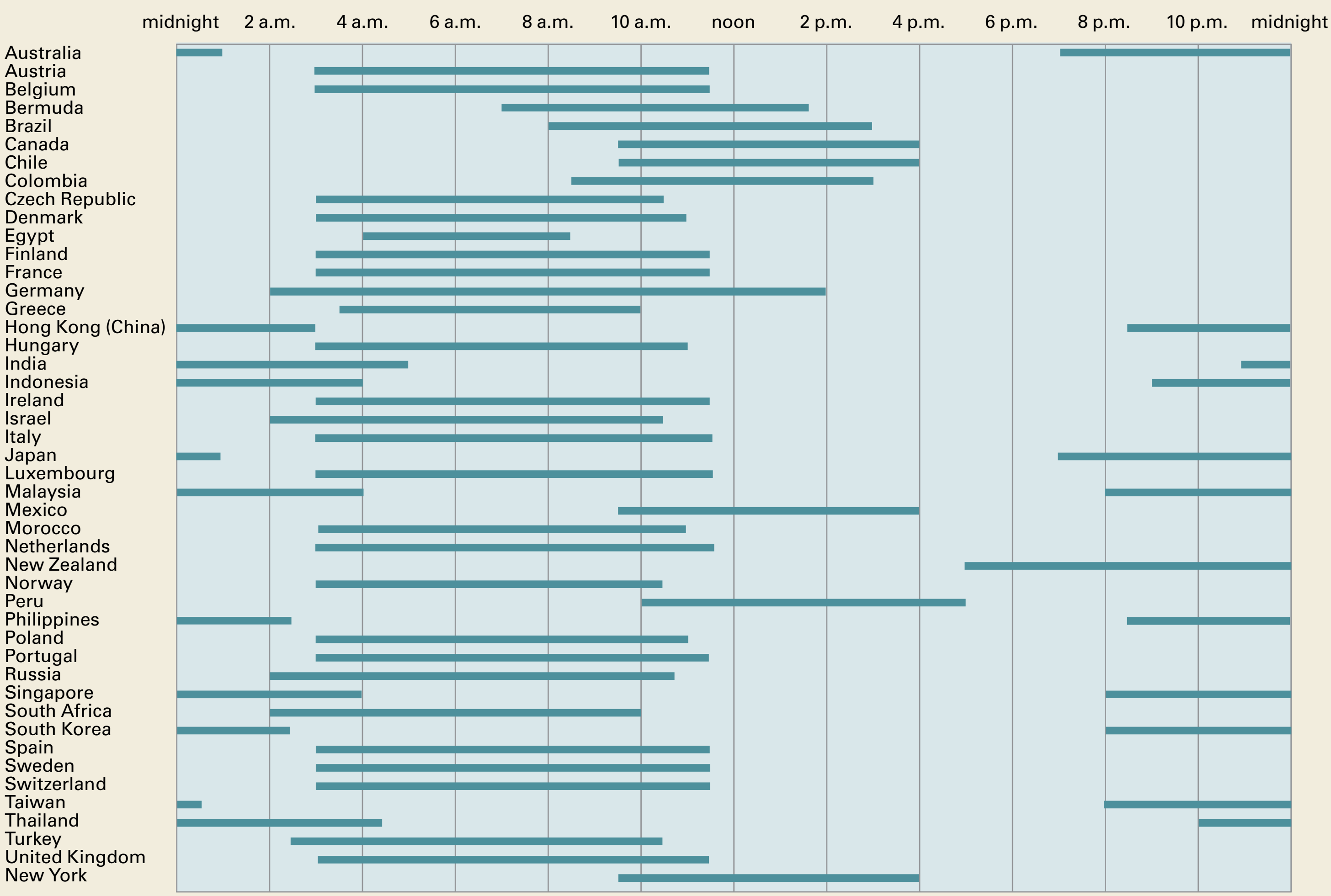
Providing access to the world at a fair value

Fair-value pricing is a strategy used to align the prices of the underlying securities with their true value.

Although not all international ETFs benefit from a fair-value adjustment, we believe that fair-value pricing helps investors receive a more accurate and fair price for an international ETF.

When applicable, we apply a fair-value factor to each stock in a fund to align the 4 p.m., Eastern time, NAV with the estimated value in local markets. The application of this factor can, however, lead some data vendors (e.g., Bloomberg, Morningstar, and FactSet) to show

Global overlap in market hours*



* Eastern time.

Source: Vanguard.

a higher tracking error for an ETF relative to its benchmark index, which does not apply the same fair-value factor in its calculation.

Understanding why international trading costs are higher

Discrepancies between market price and NAV on international ETFs manifest as premiums or discounts to NAV, a phenomenon that rarely happens on domestic equity ETFs. To be clear, when we analyze total ownership costs of an ETF, we look at many factors besides premiums and discounts, including expense ratios, bid-ask spreads, commissions, creation and redemption costs, and even taxes.

So let's unpack some of the costs market makers incur when trading ETFs—and international ETFs in particular. If market makers are trading a domestic ETF, they know exactly what the underlying basket is trading for, they know what prices they can trade shares at, they know how much they will pay in commissions, and they know the fee to create the basket.

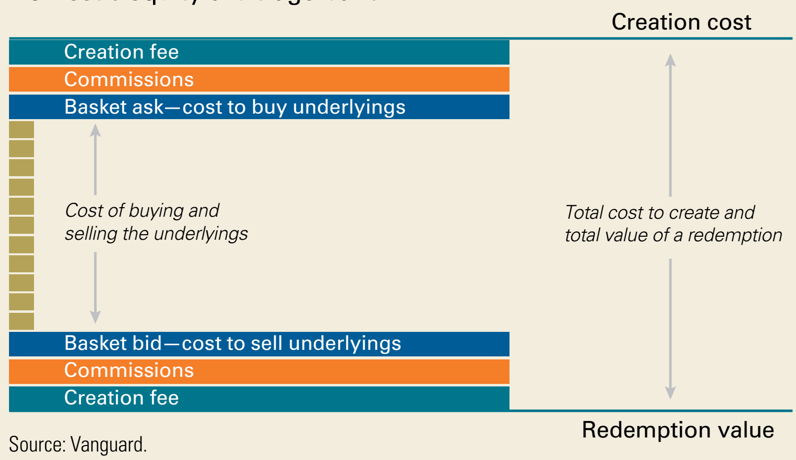
A note about creation and redemption fees

Almost every ETF has a creation fee, which an issuer charges during the creation or redemption of an ETF to cover the costs to settle and clear the underlying basket of securities. In the United States, those costs are very low. But in foreign markets, whether developed or emerging, those costs can add up quickly.

The graphic to the upper right shows what some of those factors look like when market makers are considering the costs to create or the values they receive if they redeem domestic ETFs. The difference between the creation cost and redemption value is referred to as the arbitrage band.

If market makers sell an ETF for more than the creation cost, they can arbitrage the values to create the ETF at the value at which they sold the ETF, arbitraging the price between the secondary and primary markets.

Domestic equity arbitrage band



Source: Vanguard.

Fees and more fees

In addition to fixed fees that are generally higher in international markets than for domestic ETFs, market makers often have less clarity (depending on the time of day and the market) regarding what the actual cost of the underlying basket might be.

Also, market makers in some cases might face higher settlement charges, and they often have to pay higher commissions to trade in the global markets.

Moreover, they might even have to pay some taxes in certain international markets that they don't have to pay in the U.S. market. Add to these costs foreign currency exchange rates, and the costs to create or redeem in international markets are easily higher than those for domestic ETFs.

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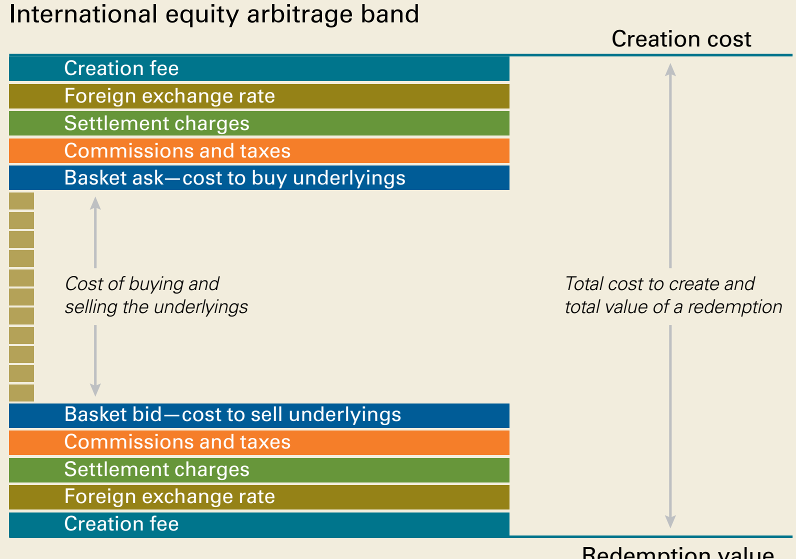
International equity arbitrage band



Source: Vanguard.

Best practices when trading ETFs

1. **Use limit orders.** Place a limit order to help protect the price of your order. Placing a market or stop order could result in a dislocation from the fair market value of the ETF in volatile trading environments.
2. **Avoid trading around the open.** Spreads are wider on average in the first 15 minutes of the trading day. There is potential for more volatility and less accurate price discovery at the start of the business day and, therefore, market makers will tend to show wider bid-ask spreads until the market settles in.
3. **For large trades, avoid trading near the close.** There is a lot of liquidity at the end of the trading day, but there is the potential for ETFs to dislocate from a fair price if there is a large imbalance at the closing auction. Also, if a liquidity provider takes a trade too late in the day to create or redeem, it might charge for the extra risk it could carry overnight.
4. **Avoid volatile markets.** If the market is more volatile than normal, spreads are likely to be wider because of the extra risk a liquidity provider takes buying and selling shares. If you don't need to buy or sell during these times, you should look to avoid trading in roiled markets.
5. **Use a block desk for large orders.** If you are planning a trade that will outsize the market, you should consult with the block desk at your executing broker. Block desks are trained to find liquidity in a product at the best cost to investors and help them trade ETFs with the lowest impact on the price.

Beware of roiled markets

A general cautionary note about trading ETFs—both in domestic and in international markets in particular—is that they could be more costly to trade on highly volatile trading days.

Because costs to create and redeem are higher for international ETFs than domestic ETFs on any day, it's doubly important to understand that premiums and discounts can be significantly affected in international markets on volatile days.

This is another reason to be careful on volatile days, and to stay loyal to your strategic asset allocation, even if premiums and discounts will usually end up averaging about flat over time.

Conclusion

Making international ETFs part of your clients' strategic asset allocations makes a lot of sense to the extent that shedding home-market bias and casting a wider net in investment markets can be reliable ways to increase diversification and possibly raise risk-adjusted returns.

That said, it's imperative to understand that trading and holding international ETFs is frequently more expensive than trading and holding a portfolio of U.S.-focused ETFs. But if all that is clear and your clients' expectations are properly set up, they can reap the advantages of integrating international ETFs into their portfolios while minimizing easy-to-avoid misunderstandings about costs.

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**.

Diversify exposure with international equity ETFs

International equities have a higher projected return over the next ten years than U.S. equities.[1] That means now is a good time to review your choices among international equity ETFs.

Rich Powers
Head of ETF
Product Management

International equity investing has grown sharply in recent decades as investors increasingly grasp that owning international stocks can be a reliable way to diversify risk. While ETFs have helped spawn many new ways to incorporate international equities into a portfolio, we find that ETF investors still hew to a legacy approach that splits exposure into distinct developed- and emerging-markets buckets.

To begin, we believe low-cost ETFs have helped popularize international investing and diminish home bias for U.S. investors. Assets in international equity ETFs now account for about 30% of all equity ETF assets. In 2000, that figure stood at 3%, as the graph below shows. For perspective, consider that in 2005, mutual funds had almost a quarter of their assets in international equity and that today mutual fund assets in international stocks are about on par with those in ETFs.

Investors can gain exposure to international stocks either actively or passively, using ETFs and/or mutual funds. Many employ a combination of active and passive. Either approach is viable, though if active management is the method you choose to employ, it's imperative that you choose a low-cost active option. Let's examine why it is especially important right now to be diversified in international equities and then consider the ETF options you have to meet client needs.

Diversify risks with international stocks

International equity exposure provides the opportunity to capitalize on markets outside of the United States and further diversify client portfolios. Looking ahead, Vanguard projects the ten-year expected annualized international equity

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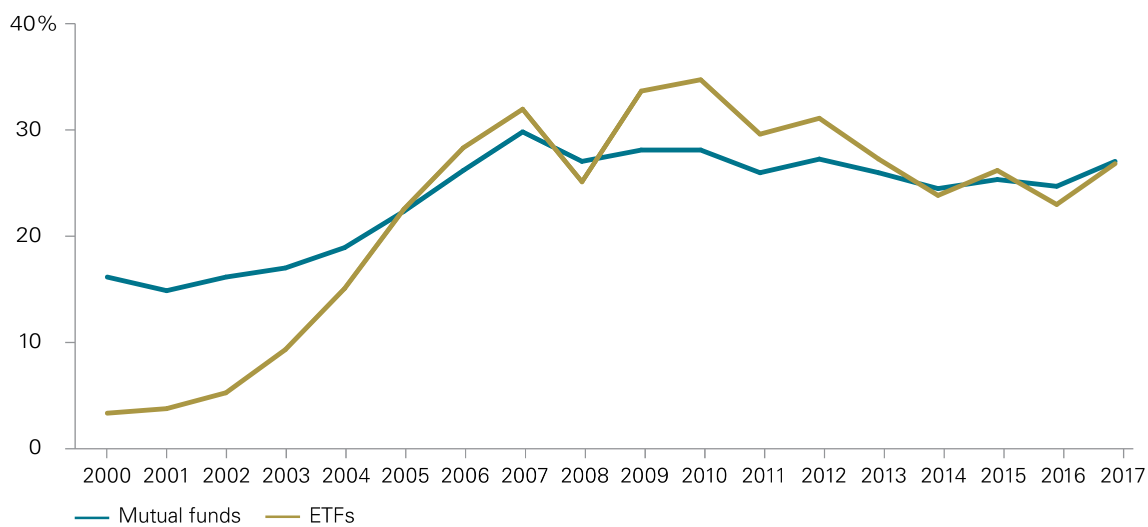
International equity assets



Source: Morningstar, Inc.

1 Vanguard Global Economics and Capital Markets Outlook Team, 2018. *Vanguard economic and market outlook for 2018: Rising risks to the status quo.* Valley Forge, Pa.: The Vanguard Group.

return will be between 5.5% and 7.5%. That compares with projected annualized returns of 3.0%–5.0% for U.S. equities in the next ten years.[1]

Perhaps more important, international equity can provide risk mitigation for a total portfolio through diversification. The lower the correlation between assets in a portfolio, the lower its overall standard deviation. Despite increasing globalization, international and U.S. equities remain uncorrelated enough for international to provide a solid diversification benefit. Again, the same diversification benefits can be achieved through either an indexed or an actively managed approach.

Unpacking the weight of history

Although there are about 500 international equity ETFs available[2] covering a huge range of exposures, the most popular ETF portfolio-construction methodology is for investors to divide their exposure between developed (DM) and emerging (EM) markets. More than half of international equity ETF assets are invested in a relative handful of funds providing such exposures.

This is likely due to legacy performance-benchmarking conventions and also to the simple fact that some of the first international ETFs launched in the space were DM and EM funds, which have now become the most liquid and low cost (and the resting spot of many investors' embedded capital gains).

While there's nothing wrong with this approach, it's instructive to remember that investors who construct a portfolio with dedicated DM and EM ETFs must either continually rebalance to market weights or be able to justify (and continually revisit) a conviction to overweight one or the other.

If you're building an international equity ETF portfolio from scratch, or looking for a different approach, it's important to remember that there are other ways to access these markets with similar degrees of low-cost, liquid funds that deliver portfolio diversification.

1

Globalize

Investors can eliminate home bias entirely by globalizing a portfolio with one ETF that invests in U.S. and international stocks in their benchmark weights.

This approach requires less rebalancing and less need for an investor to spend time developing a conviction about developed versus emerging (or, for that matter, U.S. versus non-U.S.) investments.

Vanguard Total World Stock ETF (VT), which has been on the market for about ten years, offers access to about 8,000 holdings in more than 40 countries, including the U.S., covering the full market-capitalization spectrum.

2

Simplify

An investor can use just one ETF to gain exposure to all non-U.S. stocks and still retain the ability to overweight or underweight the U.S. versus the rest of the world. Similar to a globalized approach, this straightforward portfolio-construction approach requires less rebalancing.

Vanguard FTSE All-World ex-US ETF (VEU) and Vanguard Total International Stock ETF (VXUS) cover 90% to 99% of international markets.

2 Source: Morningstar, as of June 14, 2018.

3 Regionalize

Investors who develop convictions on investing in one part of the world versus another, to a greater or lesser degree, can find ETF options that distinguish exposures along regional lines. For instance, they can split the developed world into distinct regions, such as the Pacific or Europe, perhaps tilting one way or the other, and then combining those exposures with emerging markets exposure.

4 Sector- and country-specific allocations

Investors can focus their equity exposures even more by investing in sector- or country-specific ETFs. This method calls for strong analysis and conviction, an ability to disaggregate your outlook on the markets, and, possibly, frequent rebalancing. Crucially, this sort of targeted approach should only be used by investors who are comfortable with returns that may deviate significantly from those of the broad international market.

Key takeaways

No matter what approach you favor, there's no doubt that strategically investing in international equities is a viable way to enhance portfolio diversification. If you use ETFs to build an international allocation, you shouldn't be afraid to step outside the bounds of convention to build portfolios that you're comfortable managing and that can best serve the needs of your clients.

Liquidity: Get underneath the surface

Is there a premium to be gained from investing in less liquid stocks? Research seems to say yes.

What do commercial real estate, private equity, works of art, and rare gems have in common?

All of them, and other similar investments, are difficult to buy and sell. Purchasing commercial property could take years of complex negotiations. Private equity typically requires years of commitment and potential capital calls. Art and gems must be found and appraised.

One reason that such investments could offer a premium over time is simply because investors bear the risk and cost of difficult transactions. Perhaps oddly, the premium is called liquidity, and it is a premium that, according to research by Vanguard and others, can be found in the public markets as well.[1,2]

To give investors access to that premium, Vanguard offers Vanguard U.S. Liquidity Factor ETF (VFLQ) as part of its new suite of factor products. It is the first of its kind to specifically target the liquidity factor, so it has caused advisors to take an in-depth look, said Matt Jiannino, head of Vanguard Quantitative Equity Product Management.

A lesser-known factor

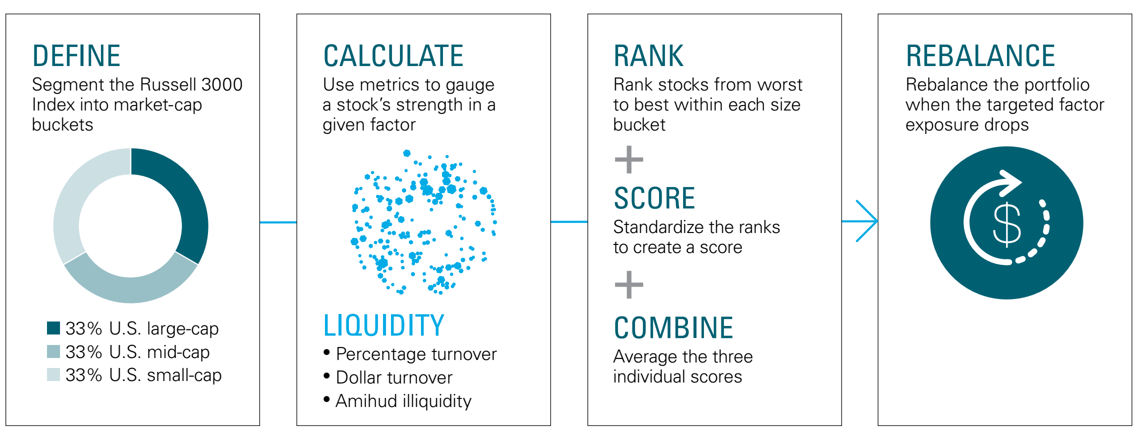
"Advisors have read a lot about value and momentum in the press. We feel liquidity is just as enduring as the others, and it's a factor you can only find by diving under the surface," Jiannino said. "It takes a while for some advisors to grasp it, maybe because the name is a bit of a misnomer, because the premium comes from *illiquidity* and because few asset managers have tried to systematically access that premium in the stock market."

The U.S. Liquidity Factor ETF uses a model that begins the selection process with stocks in the Russell 3000® Index, and then targets those stocks that are relatively less liquid.

The U.S. Liquidity Factor ETF has a three-part selection screen:

- **Turnover**—measured on an average daily basis over the last year in terms of percentage of shares outstanding that are trading for each stock.
- **Trading**—measured by the one-year average daily dollar amounts.

Four-step portfolio construction process



1 Vanguard, 2018. *Drawing systematic value from the public equity liquidity premium.* Valley Forge, Pa.: The Vanguard Group.

2 Robert Novy-Marx and Mihail Velikov, 2016. A taxonomy of anomalies and their trading costs. *The Review of Financial Studies* 29(1):104–147.

- **Amihud illiquidity score**[3]—measured by one-year absolute value of stock returns divided by the dollar volume. A larger number suggests that turnover is affecting the stock price, indicating it is less liquid.

The model then offers a combined score for each stock, which helps determine portfolio selection.

Testing the hypothesis

The liquidity premium may be seen by looking at returns for the Russell 3000 Index. In 2017, Vanguard analysts examined three layers of stocks in the Russell 3000 for the years between 1991 and 2016: the top 200 by market cap, the next 800, and the bottom 2,000. For each layer, they subtracted the equal-weighted average return and subtracted the most liquid one-third of stocks from the least liquid one-third. Within each tier, the more illiquid stocks posted an average annual return premium of at least 2 percentage points. Full results can be seen below.

Jiannino acknowledged that trying to tap a liquidity premium in a liquid market may seem a little out of place, but research[1] indicates it can be found, even in large-cap stocks. Which means the premium may be accessed much more affordably than the premiums for many other alternative investments.

Vanguard U.S. Liquidity Factor ETF has an estimated expense ratio of 0.13%, as of February 13, 2018. "Most investors can't access this premium elsewhere in a diversified portfolio because of the difficulties involved in the transactions. What are the closing and maintenance costs on commercial real estate? How much does it cost to appraise and insure antiques, jewelry, or collectibles? What about the fees in private equity?" he asked.

"If this is an alternative that can be successfully mined from the easy-to-access U.S. stock market, it will be a gem indeed," Jiannino said. "We believe the factor exists, is potentially enduring, and can be added to a long-term portfolio."

Composite liquidity matrix

The data suggest that a liquidity premium exists across the size spectrum

Liquidity	Most (Tier 1)	Middle (Tier 2)	Least (Tier 3)	Liquidity premium (Tier 3–Tier 1)
Large-cap	8.5%	11.2%	10.8%	2.4
Mid-cap	11.5%	11.9%	13.5%	2.0
Small-cap	9.3%	12.4%	14.3%	5.0

Source: Vanguard calculations of average annual returns using Russell data from 1991 to 2016. Figures are subject to rounding. Liquidity premium given in percentage points. Historical premiums do not include the costs to implement a liquidity-based strategy.

Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

3 Yakov Amihud, 2002. Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets* 5(1):31–56.

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

Investments in stocks or bonds issued by non-U.S. companies are subject to risks, including country/regional risk and currency risk. These risks are especially high in emerging markets.

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Factor funds are subject to investment style risk, which is the chance that returns from the types of stocks in which the fund invests will trail returns from the stock market. Factor funds are subject to manager risk, which is the chance that poor security selection will cause the fund to underperform relevant benchmarks or other funds with a similar investment objective.

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.

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The VCMM projections are based on a statistical analysis of historical data. Future returns may behave differently from the historical patterns captured in the VCMM. More important, the VCMM may be underestimating extreme negative scenarios unobserved in the historical period on which the model estimation is based.

The Vanguard Capital Markets Model is a proprietary financial simulation tool developed and maintained by Vanguard's primary investment research and advice teams. The model forecasts distributions of future returns for a wide array of broad asset classes. Those asset classes include U.S. and international equity markets, several maturities of the U.S. Treasury and corporate fixed income markets, international fixed income markets, U.S. money markets, commodities, and certain alternative investment strategies. The theoretical and empirical foundation for the Vanguard Capital Markets Model is that the returns of various asset classes reflect the compensation investors require for bearing different types of systematic risk (beta). At the core of the model are estimates of the dynamic statistical relationship between risk factors and asset returns, obtained from statistical analysis based on available monthly financial and economic data from as early as 1960. Using a system of estimated equations, the model then applies a Monte Carlo simulation method to project the estimated interrelationships among risk factors and asset classes as well as uncertainty and randomness over time. The model generates a large set of simulated outcomes for each asset class over several time horizons. Forecasts are obtained by computing measures of central tendency in these simulations. Results produced by the tool will vary with each use and over time.

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