

In The Vanguard®

Spring 2016

Special Fixed Income Issue



Greg Davis

Vanguard's global head of fixed income discusses bonds, rising rates, and liquidity

It's been a challenging time for bond investors. Bonds haven't been generating much income. Further rate hikes by the Federal Reserve could push prices down. And some fear a possible liquidity crunch. What can investors anticipate? *In The Vanguard* asked Greg Davis, global head of Vanguard's Fixed Income Group.

Vanguard's latest economic and investment outlook says the outlook for fixed income returns remains positive but muted. What's the thinking behind that expectation?

Mr. Davis: If you want an idea of what bond returns are going to be like, a really good indicator is starting valuations.

The yield of the Barclays U.S. Aggregate Float Adjusted Index is about 2.2% [as of the end of February]. So the best estimate of what the returns will be for a broadly diversified fixed income investor over the next ten years or so is around that level. If you think back ten or 15 years ago, starting yields were much higher—upward of 5% for that index—and, as a result, you saw much higher returns from your investment in bonds in the years that followed than you're likely to see for a while.

So starting valuations absolutely matter when it comes to return expectations for bonds, just as they do for stocks.

Do you expect bonds to produce negative returns in the short term?

Mr. Davis: Not necessarily. Although the Fed has started to raise rates, which pushes bond prices down, concerns about global growth and the collapse in commodity prices—especially for oil—are likely to make further rate increases very gradual. And as we've said, yields are low, but they may provide enough of a cushion if rates rise slowly enough over this tightening cycle to keep returns in positive territory.

Keep in mind that rising rates are not a bad thing for long-term investors. Coupons and maturities get reinvested at higher yields, resulting in higher long-term returns.

Should such low yields influence investors' allocation to bonds?

Mr. Davis: Bonds play a key role as a diversifier for the riskier assets in your portfolio, so you first need to be clear about the overall level of risk you're comfortable

Bond terms you'll find in this issue

Credit risk. The possibility a bond issuer will fail to repay in a timely manner.

Duration. A measure of the sensitivity of bond—and bond mutual fund—prices to interest rate movements.

High-yield bonds. "Junk bonds" usually rated below BBB/Baa and considered speculative compared with investment-grade bonds.

Interest rate risk. The possibility that a security or mutual fund will decline in value because of an interest rate increase.

Liquidity. The degree of a security's marketability, or how quickly the security can be sold at a fair price and converted to cash.

Yield curve. A plotted line depicting yields of bonds of varied maturities. Its shape shows the relation between short- and long-term rates.



See Q&A WITH GREG DAVIS on page 6

Fund face-off: Core Bond Fund vs. Total Bond Market Index Fund



Gemma Wright-Casparius



Brian Quigley



Gregory Nassour

Vanguard believes that a properly diversified investment portfolio should contain broad exposure to the fixed income market. The passively managed Vanguard Total Bond Market Index Fund has met this objective since 1986. Recently, Vanguard began offering an actively managed option as well.

Vanguard Core Bond Fund arrived as low interest rates highlighted the need for low-cost active bond funds. Announced in December, it opened to investors on March 10, 2016. Three portfolio managers from Vanguard Fixed Income Group will manage the fund: Brian Quigley, Gregory Nassour, and Gemma Wright-Casparius.

“We believe the Core Bond Fund could be well-suited for investors seeking an actively managed, high-quality, and broadly diversified bond fund,” said Ms. Wright-Casparius.

Passive versus active

The Total Bond Market Index Fund and the Core Bond Fund are more similar than different. Both provide low-cost exposure to high-quality bonds across the investment-grade market—including corporate, U.S. Treasury, mortgage-backed, and asset-backed securities—with varying yields and maturities, resulting in a portfolio of intermediate duration.



Both funds are managed by our Fixed Income Group. They even share a benchmark—the Barclays U.S. Aggregate Float Adjusted Index, which represents the broad U.S. bond market.

The main distinctions are the funds’ management styles and objectives. The passive Total Bond Market Index Fund seeks to track the performance of the benchmark, whereas the active Core Bond Fund strives to outperform it.

“With active management, the fund has the ability to vary its exposures in comparison to the index through security selection, sector allocation, and, to a lesser extent, duration decisions,” Mr. Quigley said.

Other notable differences between the two funds are ones that commonly distinguish index strategies from actively managed strategies:

- The index fund tends to hold more securities; the active fund is more concentrated, as the portfolio managers focus on what they consider the best investment opportunities.
- The index fund has a lower expense ratio; the active fund costs more because the advisors are compensated for added resources required in their efforts to outperform the index.*

Which fund to choose?

So, if you’re interested in a low-cost, broadly diversified bond fund, which fund might be right for you?

“The choice is ultimately a question of an investor’s preference and tolerance for risk,” Mr. Nassour said. “Does the potential to outperform the broad fixed income market compensate for the possibility of underperforming it? That’s what an investor should consider.” ■

* As of March 31, 2016, the expense ratios for Vanguard Total Bond Market Index Fund are 0.20% for Investor Shares and 0.07% for Admiral and ETF Shares; for Vanguard Core Bond Fund, they are 0.25% for Investor Shares and 0.15% for Admiral Shares. The average expense ratio for U.S. mutual fund industry core bond funds is 0.80%, as of December 31, 2015 (Source: Lipper, a Thomson Reuters Company).

All investing is subject to risk, including the possible loss of the money you invest. Past performance is no guarantee of future results. Diversification does not ensure a profit or protect against a loss.

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.

It's no joke: High-quality bonds deserve respect

The late comedian Rodney Dangerfield used to joke about getting no respect. Fran Kinniry, a principal in Vanguard's Investment Strategy Group, wonders whether traditional bonds sometimes suffer the same fate.

"For a number of years, I've talked to investors and financial advisors about portfolio construction and how to increase diversification," Mr. Kinniry said. "Whether it's real estate investment trusts, commodities, hedge funds—you name it, I've been asked about them. But I always wonder why bonds are so often overlooked."

Bond prices have generally risen and yields have fallen over the past 30 years, so returns in the future are projected to be less generous. But this doesn't fundamentally change the valuable role bonds play in a diversified portfolio.

Mr. Kinniry pointed to Vanguard research that shows that bonds of high credit quality (as rated by independent credit-rating agencies) can be effective diversifiers during periods of stock market turbulence.

The chart at the right shows how various investments did during the worst 33 months of U.S. stock market performance over the past 28 years.

"The track record of high-quality bonds serving as a buffer to stock volatility is pretty impressive, especially compared with the other asset classes that I get asked about," Mr. Kinniry said. "None of the others has provided downside protection when investors arguably needed it the most."

This ability to act as a buffer when stocks are volatile, as they have been in recent months, can help prevent investors from overreacting to stock downdrafts. But two factors, Mr. Kinniry believes, may be working against highly rated bonds issued by federal, state, or local governments; government agencies; or healthy corporations: investors' search for higher

yields, and expectations that interest rates will rise soon, leading bond prices to fall.

(Higher yields, when reinvested, eventually compensate for bond fund price declines; you can read more about that in the article on page 4.)

For now, rates remain quite low. Nonetheless, regardless of how rates move in the future, Mr. Kinniry thinks bonds should remain part of any investor's long-term portfolio.

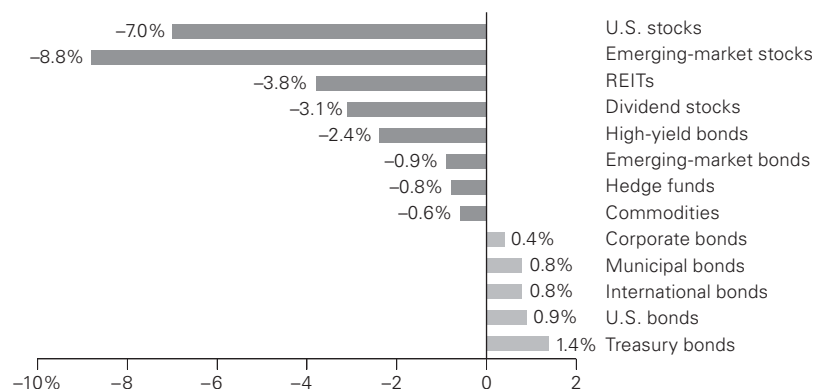
"The message to me is as clear as it ever was," he said. "High-quality bonds remain effective diversifiers, especially during sharp equity market declines."

He added with a smile: "Like Rodney Dangerfield, bonds deserve more respect."



Fran Kinniry

How various asset classes did during the worst months for U.S. stocks since 1988



Notes: Figure shows median returns for the worst 10% of months (33 in all) for U.S. stock performance from January 1988 to January 2016. U.S. stocks represented by the Dow Jones U.S. Total Stock Market Index, emerging-market stocks by the MSCI Emerging Markets Index, REITs by the FTSE NAREIT Equity REITs Index, dividend stocks by the Dow Jones U.S. Select Dividend™ Total Return Index, commodities by the Bloomberg Commodity Index, high-yield bonds by the Barclays U.S. Corporate High Yield Index, emerging-market bonds by the Barclays Emerging Markets USD Sovereign Bond Index, hedge funds by the HFRX Global Hedge Fund Index, U.S. bonds by the Barclays U.S. Aggregate Bond Index, corporate bonds by the Barclays U.S. Corporate Investment Grade Index, Treasury bonds by the Barclays U.S. Treasury Index, municipal bonds by the Barclays Municipal Bond Index, and non-U.S. bonds by the Barclays Global Aggregate Index ex USD (hedged).

Sources: Vanguard calculations, using data from FactSet; Morningstar, Inc.; and Barclays.

For bondholders, rising interest rates can have an upside



Joshua Barrickman

Conventional wisdom holds that interest rate increases are bad for bond portfolios. But in fact, depending on your time horizon, you can benefit from rising rates.

Three sources of return

A bond's total return comes from interest income, changes in price, and interest earned on reinvested interest payments. "Compound interest is a significant boost to bond performance in the long run," said Joshua Barrickman, Vanguard's head of fixed income indexing for the Americas.

Still, bond prices seem to get the most attention, and they move in the opposite direction of yields. You can estimate a bond's price change by using duration—a measure of the sensitivity of bond, and bond mutual fund, prices to interest rate movements.

A chance for gain, if you can wait

Although a rate increase can initially pinch your portfolio, the opportunity to reinvest interest income (and the proceeds of maturing bonds) into higher-yielding bonds can work to your advantage over time.

Here's an example: Take an intermediate-term, investment-grade bond fund with a duration of 5.5 years and an initial yield of 2.25%. Assume rates rose by a quarter percentage point every January and July from 2016 through 2019, ending at 4.25%. The cumulative total return would be negative through the first quarter of 2018. But, as you can see in the chart, by the end of the second quarter of 2023, it would be higher than if rates hadn't changed.

In part, that result reflects the power of compounding, as cash flow is reinvested at higher rates. This example is just one of many possible paths that rates could take. It's important to note that the pace and magnitude of rate increases would affect the time until breakeven.

As our example illustrates, if you can wait, rising rates can lift your return. "A helpful rule of thumb is that if your time horizon is longer than the duration of your bond fund, you stand to benefit," Mr. Barrickman said.

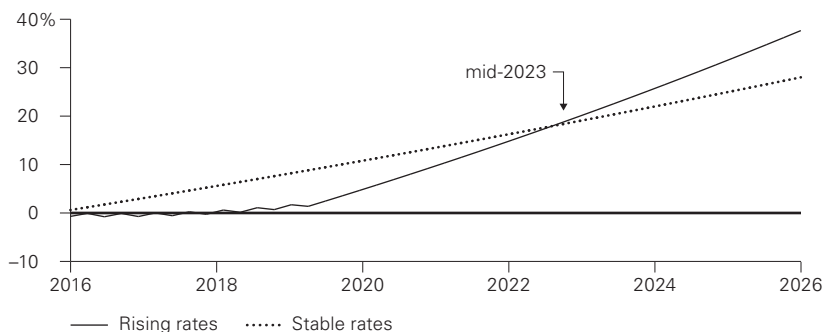
Bond bears growl less

Keep in mind, too, that bond bear markets historically have been marked by shallower valleys than those for stocks. A stock bear market is generally defined as a decline of 20% or more lasting at least two months. But a bond bear market usually means a period of any negative return, as happened in 2015. With yields so low, a small increase in interest rates led to a total return of -0.16% for the broad U.S. bond market (as measured by the Barclays U.S. Aggregate Bond Index).

The Federal Reserve has indicated, and Vanguard's economists anticipate, that the pace of future rate increases will be gradual. This is a more benign environment than one in which rates rise quickly, sharply, or both. Whether rates are expected to rise or fall, we recommend that you develop and stick with an asset allocation plan that fits your goals and time horizon. ■

The silver lining of higher yields

Cumulative rate of return



Notes: This hypothetical example shows the impact for a generic intermediate-term bond fund if the Federal Reserve raised short-term interest rates by a quarter percentage point every January and July from 2016 through 2019. Intermediate-term rates are assumed to rise by the same amount.

Source: Vanguard.

High-yield bonds can serve a purpose, but proceed with caution

Bonds are often described as an investment portfolio's ballast. But not all bonds are the same. They behave in different ways depending on their type, maturity, and quality, among other factors.

High-yield bonds can survive, thrive—and also dive—as an altogether separate species from investment-grade bonds. Vanguard believes that high-yield bonds can play a complementary role in an already diversified portfolio. But investors should be aware of their inherent volatility.

"The high-yield bond market has an asymmetric risk profile. Investors can lose a significant portion of their investment if an issuer defaults," said Wellington Management Company's Michael Hong, the portfolio manager for Vanguard High-Yield Corporate Fund since 2008. "In our experience, the market often underestimates the probability of a negative outcome."

Vanguard High-Yield Corporate Fund is managed differently from most of its industry peers. Whereas many funds invest in the highest-yielding, lower-quality segment of the market, Mr. Hong and his team focus on high-yield bonds with higher credit-quality ratings. "We believe that over time, this part of the market offers the best risk/reward profile," Mr. Hong said.

Albatross and opportunity

Although high-yield bonds and bond funds can play an important role in an investment portfolio, they generally don't provide the same cushion as U.S. Treasury securities or investment-grade corporate bonds. This point was underscored in late 2015, when the high-yield market experienced disruption and sharp declines.

Much of the weakness was related to the drop in oil prices. Their decline punished energy-sector companies, which represent about 10% of the high-yield bond market—down from 15% in 2014, according to Mr. Hong.

High-yield bonds generally have medium- and lower-range credit-quality ratings and are therefore subject to a higher level of credit risk than bonds with higher credit-quality ratings.

The High-Yield Corporate Fund has been cautious about the energy sector. Mr. Hong said he favored issuers with strong balance sheets and lower production costs "that we believe would be long-term survivors."

"Lower oil prices also create opportunities," Mr. Hong said. "In the current market, for example, we have found compelling opportunities in the technology, cable, and health care industries that have more exposure to U.S. domestic growth. Some of these issuers are offering robust yields as a result of the general market weakness, but they continue to have stable or improving credit fundamentals."

Similarities and differences

Investors may hear that high-yield bonds behave more like stocks than bonds, but there are major differences.

"High-yield bonds are risk assets," Mr. Hong said. "Therefore, they often move more like stocks than bonds in the sense that they are more sensitive to credit conditions than to interest rate changes. However, they have a higher claim on the assets of a company in a default or restructuring. This means that, unlike stocks, high-yield bonds can often provide protection in sharply negative markets.

"In addition, high-yield bonds generate income for investors. They pay coupons that are high relative to the dividends paid by stocks, and historically, they've offered attractive returns with less volatility.

"Finally, high-yield bonds are still fixed income instruments, and investors will get paid back at par when a bond matures unless there is a credit impairment. This gives managers the opportunity to improve returns for investors by avoiding issuers that may default, and it highlights why we focus on the higher-quality portion of the high-yield market and emphasize fundamental credit research in this fund." ■



Michael Hong

Q&A WITH GREG DAVIS, from page 1 >

with. Then look at all the asset classes you hold—stocks, bonds, and cash—and make sure your bond allocation puts you at the risk level you set for yourself. [For insights into how the performance of high-quality bonds helps offset stock market downturns, see page 3.]

There's been a lot of speculation in the financial media that rising rates could lead to a wave of investors wanting to sell, but with no buyers. Are you worried about liquidity in the bond market?

Mr. Davis: First, I'm not convinced that rising rates will send bondholders rushing for the exits. Unlike some stock market participants, bond investors tend to follow a buy-and-hold strategy because they hold bonds for safety, diversification, or income. And those qualities don't disappear if interest rates rise.

And, as I mentioned, higher rates will mean higher returns down the road for bond investors. Keep in mind, too, that individuals who stick to a set asset allocation as well as investors in target-date funds and balanced funds will all become bond buyers if prices drop. So we would expect portfolio rebalancing to act as a stabilizing force in case of a sharp sell-off in bonds—an event that history would tell us is unlikely to happen.

We've been discussing the U.S. bond market, but what about the outlook for international bonds and their role in a portfolio?

Mr. Davis: Diversification is a good thing. That's true in domestic bonds, certainly. Having at least some exposure across U.S. Treasury securities and the various segments of the corporate bond market makes sense for a couple of reasons: It ensures that you're not left out when a part of the market does well, and also that you don't find yourself having all your holdings in a segment that significantly underperforms.

The same premise holds true for investing in bonds outside the United States. International bond markets operate under monetary policy set by central banks in response to those countries' economic growth levels and local expectations for inflation. Those factors influence the shapes of the yield curves in those markets and how they move. So international bonds won't necessarily be on the same path as U.S. bonds, and that's where the diversification advantage comes in.

How much international bond exposure is enough? Typically, what we've seen is that you get the most diversification benefit by going up to about 30% of your total allocation to bonds.

Keep in mind, however, that your international bond exposure should be hedged. That's because the currency risk associated with bonds that are not denominated in U.S. dollars can easily overwhelm the returns they produce.

Vanguard offers bond index funds as well as actively managed bond funds. How should an investor choose between them?

Mr. Davis: As with stocks, index funds could be a good choice as core holdings in a portfolio. And actively managed funds can be a nice complement if an investor wants to overweight a certain market sector or is looking to add value relative to a benchmark. Active funds give investors an opportunity to outperform, whereas the pure indexing model is simply about trying to capture the performance of the benchmark.

So we don't view it as either/or—you could actually use both.

We sometimes talk about bonds as if they're all the same. Can you talk in general terms about the trade-off between yield and risk?

Mr. Davis: The key risk factors for bonds are interest rate risk, credit risk, and what we call convexity risk.

Interest rate risk is the risk that a bond's value will change because of a rise or fall in interest rates. Bonds with longer durations have greater interest rate sensitivity, meaning their prices are affected more by a given change in rates than bonds with shorter durations.

It's more intuitive than you might think: If you're lending money to the U.S. government for a five-year period, you might demand a certain level of payment; but if you plan on lending it money for ten or 30 years, you'd expect to be paid more, because you're in essence locking your money up for a long period. So duration really reflects how long you're lending your money out, and that ultimately points to how sensitive those securities are to price movements.

With credit risk, you're in essence taking on the risk that the issuer might default. There's really no credit risk if you're investing in Treasuries; they're considered risk-free because they're backed by the full guarantee of the U.S. government. But when it comes to bonds of corporations or governments outside the United States, there's some probability they might not be able to pay you back on time or at all, so they carry some credit risk.

As you go down the credit-quality spectrum from companies or countries with AAA credit ratings to those with ratings of A or BBB, you're taking on increasingly more credit risk. If you go even lower than that, you get to non-investment-grade bonds, also known as high-yield or junk bonds.

In the marketplace, investors expect to be compensated for the degree of credit risk they take on. So you'd typically see higher yields from lower-rated bonds, because you're taking on a greater risk that the issuer might not be able to meet its obligation of paying coupon and principal payments on time or at all.

The last factor, convexity risk, is primarily associated with mortgage-backed securities. Borrowers who take out mortgages can repay them early, and they tend to do that most often at precisely the time you don't want your money back—when interest rates are falling. So if you might be repaid your principal in an environment where you're able to reinvest it only at a lower rate, you want to be compensated for taking on that risk.

Basically, what you need to keep in mind as an investor is that there's no free lunch: Bonds offering higher yields generally carry more risk in one form or another.

Do investors have misconceptions about the role bonds play that can lead to unintended outcomes, or even hurt the performance of their portfolios?

Mr. Davis: One mistake some retirees make is thinking they have to live off the income their portfolios generate. That can lead them to rejigger their portfolios to produce more income without regard to the added risk involved. When interest rates dropped during the financial crisis, some retirees who saw the income from their portfolios dropping tried to compensate by moving out of shorter-duration bonds into longer-duration bonds with higher yields. Others moved into lower-quality bonds, or even migrated out of bonds into high-dividend-yielding stocks and REITs [real estate investment trusts].

With all those moves, investors were—maybe unwittingly—taking on more risk. I would caution against letting your need for income dictate your bond strategy. Selling some of your assets can be a better way to get extra income if it helps your portfolio maintain a risk level that lets you sleep well at night. ■

To read *Vanguard's Economic and Investment Outlook* for 2016, please visit vanguard.com/research.

There are additional risks when investing outside the United States, including the possibility that returns will be hurt by a decline in the value of foreign currencies or by unfavorable developments in a particular country or region.

At Vanguard, our focus on keeping costs low is relentless

Increasingly, the investing world is recognizing something that Vanguard has known for a long time: Costs matter when it comes to achieving long-term investment success.

According to a 2015 report by Morningstar, Inc., 95% of mutual fund cash flows over the past decade have gone into funds ranked in the lowest 20% in terms of expenses. This means investors are keeping more of their returns and giving themselves a better chance of reaching their goals.

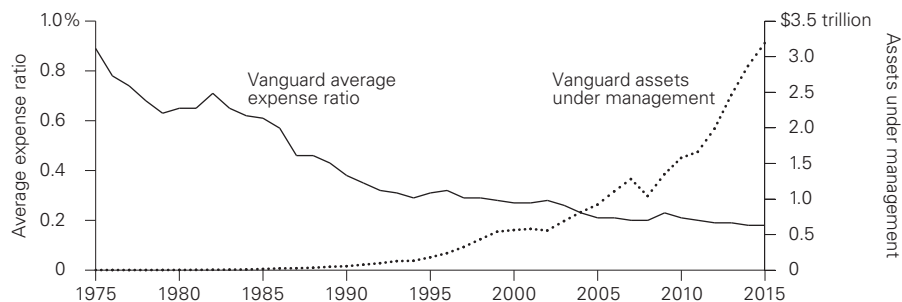
Vanguard sets the pace

It helps to think of costs as a percentage of your return that you give away. If your fund returns 4% but charges 1% in expenses, you lose 25% of that return to fees. Every dollar you save in fees is a dollar that you keep. Over time, this can have a big impact.

As you know, low costs are nothing new for Vanguard. We've been lowering the cost of investing for more than 40 years.

More recently, other mutual fund companies have begun lowering their own prices to compete with Vanguard. The media have dubbed this "The Vanguard Effect." This trend is good news for investors. Today, the U.S. mutual fund industry's average expense ratio is 1.01%,* compared with 1.30% in 2005.*

The benefit of economies of scale



Note: Data are for U.S.-based Vanguard funds only.

Source: Vanguard.

Low costs are in our DNA

Vanguard's average expense ratio—which currently stands at 0.18%*—is consistently among the lowest in the industry.

As we've lowered costs, some commentators have said we're engaging in a "price war" with competitors. In reality, our push to reduce expenses has less to do with the competitive marketplace than with how we're structured.

We're built differently from other mutual fund companies. We don't have stockholders or outside owners. Instead, we're owned by our funds, which in turn are owned by you.

This client-owned structure is what allows us to run our funds at cost.[^] When we announce that expenses have declined—as we did recently for dozens of our funds—it's not a marketing ploy. It's an outcome of our structure.

We continuously work to enhance Vanguard's service and investment capabilities. At the same time, as you can see below, we've been able to keep lowering costs as our assets under management have grown. ■

* As of December 31, 2015. Sources: Vanguard and Lipper, a Thomson Reuters Company.

[^] Vanguard is client-owned. As a client-owner, you own the funds that own Vanguard.

For information about Vanguard funds, Vanguard Brokerage Services®, or your account, call us Monday through Friday from 8 a.m. to 10 p.m., Eastern time. For general information and account services: 800-662-7447 (Flagship clients, 800-345-1344; Voyager Select clients, 800-284-7245; Asset Management Services clients, 800-567-5163).

Comments?

Topics of interest?

Write to us at

itveditor@vanguard.com.



P.O. Box 2600
Valley Forge, PA 19482-2600

For more information about Vanguard funds and ETFs, visit vanguard.com or call 800-662-7447 to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information about a fund are contained in the prospectus; read and consider it carefully before investing.

© 2016 The Vanguard Group, Inc.
All rights reserved. Vanguard Marketing Corporation, Distributor.

ITV 042016