Vanguard

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Vanguard Active Fixed Income Perspectives

KEY TAKEAWAYS

Performance:

March was a historically bad month for bonds because of the coronavirus pandemic; credit spreads widened the most on record amid indiscriminate selling. High-quality securities benefited from sharply falling interest rates.

Looking ahead:

We see three phases to the crisis. Markets are largely past the **liquidity crunch**, and now face **the economic fallout** from the global shutdown. Then investors will need to assess the shutdown's **long-term global impact**.

Approach:

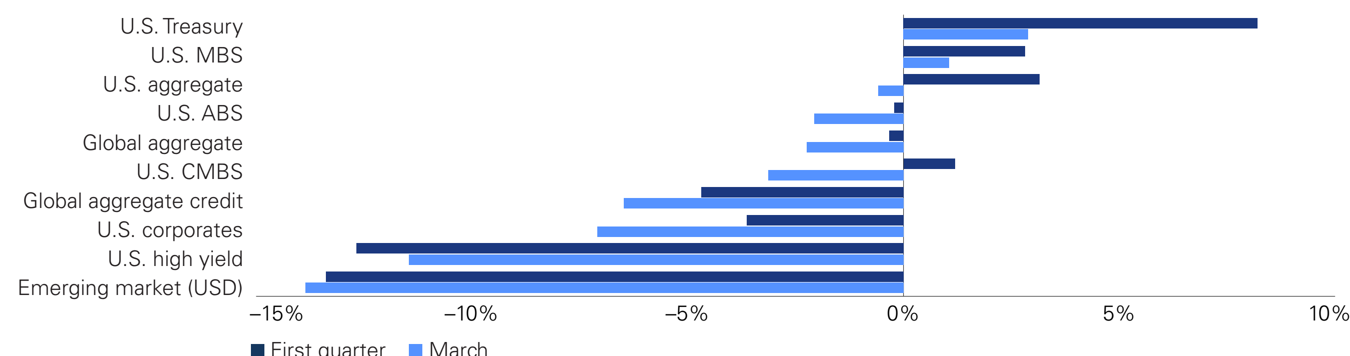
For active managers, timing and selection will be key in order to take advantage of investment opportunities in the face of rising downgrades and defaults.

It was the best of times, followed by the worst of times, within three months. The U.S. entered 2020 with record-low unemployment, and the U.S. stock market reached a record high on February 19, with low yields across the fixed income spectrum. By quarter-end, credit spreads had widened faster than any period on record and the Federal Reserve needed to pump $1 trillion into the U.S. fixed income market, more than all the quantitative easing unleashed during the global financial crisis (GFC). A recession is already underway.

We believe there will be three distinct phases of the coronavirus-induced economic crisis.

- The first, a **liquidity crunch**, has already occurred. We were well-prepared for this phase. Defensive portfolio positioning allowed us to act as a liquidity provider to the market, and we capitalized on investment opportunities. Because of the substantial global central bank response, pricing transparency has improved and there are now two-way markets, both positive signs.
- The next phase will involve navigating the **economic fallout** from a sustained global shutdown. This effect will depend on each geographic region's ability to curb the pace of infection while mitigating the real economic damage of increasing unemployment and higher rates of default. There will be a premium for investment managers who can get issuer and subsector selections right.
- The last phase is further out and more uncertain. Investors and policymakers will need to assess the **long-term global impact** of both the crisis and the attempts to deal with it. As the potential paths forward become clearer, we are optimistic that investment managers will have ample opportunities to identify attractive investments.

Bond market returns



Source: Bloomberg Barclays indexes, J.P. Morgan EMBI Global Diversified Index, periods ended March 31, 2020.

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A historical quarter

The first quarter proved to be one of the most volatile periods on record for global financial markets and certainly was the most significant since the 2008 GFC. COVID-19's rapid spread across the world sent shockwaves throughout the global economy as countries limited travel, closed nonessential businesses, and encouraged social distancing practices in a race to reduce the infection rate. In sharp contrast to the GFC, this scenario presents a shared global challenge with impacts that cut across the global economy. No one is spared from the reach of this crisis, and financial markets have reacted accordingly.

We entered this period with conservatively positioned portfolios, largely driven by late-cycle conditions and unattractive valuations. Many segments of the bond market offered limited upside potential, and the trade-off of higher risk for a modest increase in yield wasn't compelling. As the quarter progressed, our "up-in-quality" focus and ample liquidity levels proved to be immensely beneficial for our investors.

Midway through the quarter, both the rates and credit markets began to price in doubts about China's growth trajectory after the rise of coronavirus cases caused China to shut down large pieces of its economy. Investor concerns increased considerably as COVID-19 began to spread rapidly to other countries.

The Fed responds

In anticipation of the economic impact that the virus would cause, the Federal Reserve made an emergency cut of 50 basis points (bps) in the target federal funds rate on March 3, the largest single cut in more than a decade. Unprecedented stimulus measures from the European Central Bank, the Bank of England, and central banks in other major economies followed. Then came a breakdown in a potential agreement among OPEC+ alliance countries to cut oil supply amid slowing economic activity. The resulting price war between Saudi Arabia and Russia collapsed oil prices to an 18-year-low of $20 a barrel.

The escalating global pandemic combined with free-falling energy prices sparked the sharpest repricing of securities that financial markets have ever experienced. It was a liquidity sell-off rather than a repricing as a result of credit concerns. Given the uncertainty about the potential economic outcome of the shutdown, investors sought safety in the U.S. dollar, putting tremendous pressure on global bond market liquidity.

As total returns across asset classes turned sharply negative, the velocity of ETF and fund outflows increased to record levels. Many market participants were forced sellers of securities into a free-falling market, creating a vicious cycle that resulted in dramatically lower bond prices.

Central banks act globally

In contrast to the approach taken during the GFC, the policy response to this crisis has been bolder, faster, and more globally coordinated. What took nearly eight months to achieve in 2008 took eight days in March.

Central banks around the world expanded their quantitative easing programs, further cut interest rates, and either established or resurrected lending facilities used in the GFC to help shore up financial markets' plumbing, ease liquidity conditions, and keep credit flowing. These programs are supplying liquidity and financing in large segments of money markets, corporate bonds, asset-backed securities (ABS), commercial mortgage-backed securities (CMBS), and municipal markets.

Fiscal policymakers step up

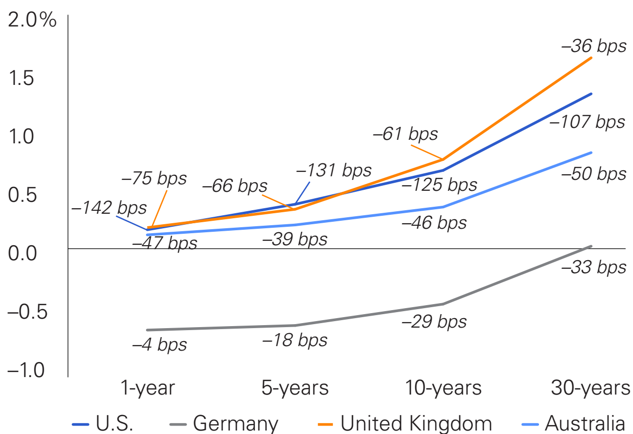
An unprecedented fiscal policy response quickly followed, with the aim to get direct aid to families and businesses at risk of financial hardship. In the U.S., the largest spending bill in history, the CARES (Coronavirus Aid, Relief, and Economic Security) Act, was signed into law, providing $2.2 trillion of support. In Europe, fiscal policy was implemented at the country level and temporary waivers of E.U. deficit limits were agreed on, but more may be required. Financial market conditions quickly improved in response to these efforts, but it will take time for them to fully take effect.

Rates and inflation outlook

U.S. Treasuries were the most sought-after asset class during the sell-off; the spike in activity from both buyers and sellers was so sharp that it caused pricing dislocations among bonds with nearly identical characteristics. The spread between older off-the-run bonds and recently issued on-the-run bonds widened substantially, creating different liquidity tiers within the world's most liquid security.

In the first quarter, the front end of the yield curve converged on the target federal funds rate; front-end rates were anchored, with 2- and 3-year yields trading inside of 30 bps. We don't expect the Fed to come off the near-zero target federal funds rate anytime in the near future. Even before the pandemic, the Fed signaled that it would keep rates lower for longer coming out of an economic crisis. Our outlook for duration is dependent on the trajectory of the virus's path and the potential implications for a recovery. The 10-year Treasury note is currently trading toward the lower end of the recent range. The potential risk of a deteriorating economic outlook could lead to declines in stock indexes and push 10-year rates downward despite already low levels.

Select government yield curves
(Change since December 31, 2019)



Source: Bloomberg, as of March 31, 2020.

Inflation expectations are recovering

After reaching historically depressed levels not seen since the GFC, market-based inflation expectations recovered a portion of their declines on the back of the extraordinary actions taken by global central bank policymakers and their fiscal counterparts. Despite the recovery, very deep dislocations persist in the front end of the inflation curve, where the market is still pricing in persistent deflationary outcomes for the next few years.

The collapse in oil prices certainly plays a role, but we also think a significant portion of this pricing is a by-product of the stressed environment and represents a high liquidity premium. In the near term, technical drivers are likely to play a bigger role in the performance of Treasury Inflation-Protected Securities (TIPS).

Quantitative easing on steroids

It's hard to imagine, but the Fed bought more Treasuries and MBS in the final three weeks of March—more than $1 trillion—than it did in all the GFC quantitative easing combined. While the Fed is buying back substantial amounts of securities, the Treasury is ramping up issuance to fund the CARES Act. The expected surge in supply is coming sooner than expected, as reflected by the expected issuance in the coming weeks. The question remains as to how the growing deficits will be financed longer term, but we should receive additional clarity about this at the May refunding meeting.

Since launching its unlimited quantitative easing program, the Fed has been allocating 8% of its Treasury purchases to TIPS, accumulating $68 billion across maturities through March. That sum so far is two times as much as the total net supply expected in 2020. If we assume the Fed buys a total of $2.5 trillion of Treasuries, at an 8% pace, that would equate to a staggering $200 billion in TIPS. That amount would represent a considerable technical tailwind, but we expect that there will continue to be a tug-of-war between that and the current weak and uncertain fundamental outlook for inflation. We anticipate that these factors will push and pull break-even inflation levels in a volatile fashion over the coming months, but longer term we see inflation expectations rising back toward the Fed's 2% target.

Mortgage-backed securities

Agency mortgage spread levels widened dramatically during the height of the market volatility in March. A dramatic decline in interest rates also led to a wave of prepayment activity, overwhelming lenders and pushing MBS spreads wider. Moreover, the sector, like all others, faced selling pressures from investors rushing to sell high-quality liquid assets to meet redemptions/margin calls.

The Fed's open-ended commitment to purchase securities, including a substantial amount of MBS, acted to quickly pull spreads back in line with recent ranges. Its involvement as a large noneconomic buyer will continue to be a significant driver of market movements, and this "demand" technical will compete with housing market fundamentals in the months ahead. We believe the Fed and the Treasury will act as needed to immunize the impact of the virus on the housing market. In our view, they do not have any intention of allowing the forbearance on mortgage payments to interrupt the payments to MBS investors.

Implications for Vanguard funds:

- Break-even inflation strategies using TIPS remain attractive. Near-term, inflation may drop, but over the medium and longer term, crisis policy measures and the resumption of economic activity could be inflationary.
- We continue to favor MBS exposure through prepayment-protected securities that offer more stability in volatile interest rate environments. That strategy proved to be beneficial for our portfolios during the first quarter as prepayments spiked. More broadly, we expect to maintain an overweight to the sector relative to Treasuries given the attractive yield difference and the opportunities that exist in today's market for security selection.

Credit markets

Credit sector spread levels in March widened the most of any month on record. While several sectors reached larger absolute spread levels in 2008, the speed of this repricing was unprecedented—a six-standard-deviation event.

During the initial sell-off, the higher-quality and more liquid securities across credit underperformed because investors seeking cash looked for the easiest securities to sell. Although spread levels were substantially wider across all sectors, market pricing penalized those securities with the strongest ties to energy, transportation, and travel and leisure.

Defensive credit positioning pays off

Our credit positioning was very defensive before the volatility, which allowed our portfolios to operate from a position of strength. Maintaining higher levels of liquidity in our portfolios in the form of higher-quality securities, Treasuries, and cash allowed us to meet elevated levels of redemptions while also redeploying capital toward attractively priced securities.

During the sell-off and subsequent rally, we saw opportunities to add credit exposure at attractive prices. That said, we are acutely aware of the fundamental impact of this crisis. Our focus is to preserve adequate portfolio liquidity while adding credit risk through attractively priced, high-quality securities from issuers that are well positioned to weather the challenging road ahead.

Investment-grade corporates

High-grade corporate bonds were at the epicenter of market activity in March with record levels of fund and ETF outflows, as well as new issuance and unprecedented levels of support from central banks. In a period of two weeks, investment-grade bond portfolios had more than $70 billion of outflows—almost nine times the prior $7.6 billion record for a single week. In response, the Fed expanded its bond buying to include corporate bonds for the first time.

This support was appropriately targeted at the front end of the yield curve, where the most acute pricing dislocations and liquidity challenges were concentrated.

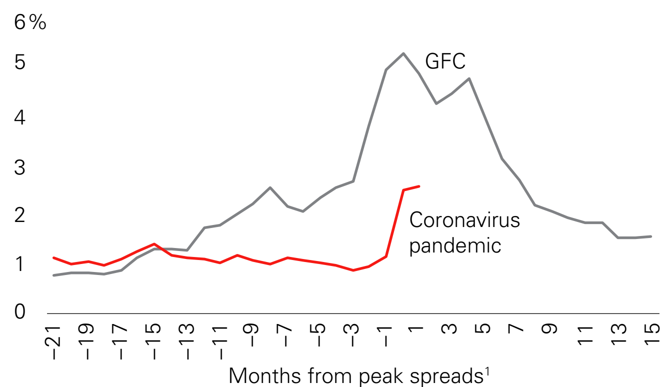
At the same time, higher-quality issuers came to the primary issuance market in record numbers, with more than $200 billion in newly issued bonds.

Our conservatively positioned portfolios allowed our fixed income team to manage the outflow activity and take advantage of the flood of primary issuance.

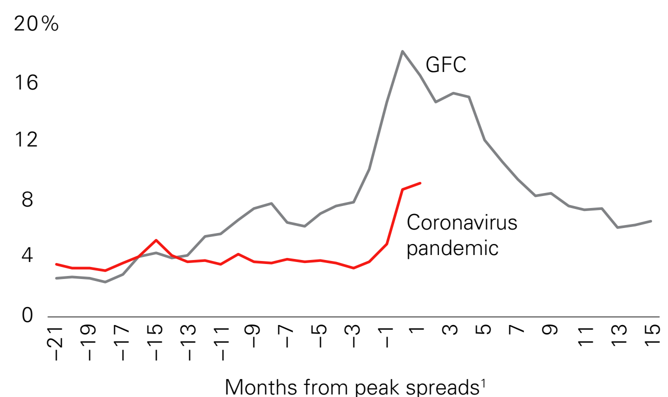
Opportunities in higher-quality bonds

We saw the best opportunities in bonds from higher-quality companies that, in several cases, were priced to yield more than 2% above levels seen just a few months earlier. Our positioning favors stronger, more resilient companies in sectors we feel are best-positioned for this environment. We see better prospects in high-quality telecom, media, and technology, as well as consumer products and pharma/health care companies. Liquidity conditions have improved, and we expect that, going forward, credit analysis will create the best opportunities for our portfolios to generate outperformance. Sector-by-sector impacts are likely to become more acute, and a wave of rating downgrades is already underway. We are reducing our exposure to issuers most at risk of losing their investment-grade rating. That said, we see strong appetite globally for high-quality investment-grade bonds that offer attractive yields. With the Fed as a new buyer in the market, we should see added support for shorter-maturity corporates, while higher yield levels have attracted pension and insurance companies at longer maturities. Strong demand, historically cheap valuations, and low-to-negative yields globally should continue to support the sector.

Pandemic vs. global financial crisis investment-grade credit spreads



Pandemic vs. global financial crisis high-yield corporate credit spreads



Source: Vanguard calculations, based on Bloomberg data as of March 31, 2020.
1 Start date is trough in spreads before GFC. For the global financial crisis, data begins on February 28, 2007. For the pandemic, data begins on June 29, 2018.
Note: Option-adjusted investment-grade spreads over Treasuries.

High-yield corporates

The high-yield sector was one of the few segments of the bond market not included in the Fed's myriad of initial support facilities, but recently, select portions became eligible helping to tighten spreads from the highs. Before the volatility in March, the 200-day moving average spread level for the Bloomberg Barclays U.S. Corporate High Yield Index was 375 bps above Treasuries. In just a matter of weeks, spread levels reached 1,100 bps before falling to below 800. While the spread level in 2008, at 1,600 bps, still represents the high-water mark for below-investment-grade spreads, the speed with which the sector repriced this time was unparalleled.

In March, liquidity conditions were stressed and bid-ask spreads were four-to-five times wider than in prior months. The primary market was essentially closed for the month as volatility remained high, investor demand faded, and borrowing costs were too great for potential issuers.

As expected, a large wave of rating downgrades occurred as several prominent issuers lost their investment-grade ratings, altering the complexion of the high-yield market.

For example, Ford Motor Co., Kraft Heinz, and Occidental Petroleum Corp. now represent three of the top five issuers in the broad high-yield index. Estimates of "fallen angel" downgrades for the balance of the year range from $115 billion to $350 billion, with the average estimate representing about 10% of outstanding BBB rated corporate bonds. Our high-yield team is working closely with their investment-grade peers to assess the risks and opportunities of issuers we expect will face ratings changes in the coming months.

Default rates on the horizon

We also expect the default rate will increase substantially this year, potentially reaching 10%. We expect the majority of this activity to be in sectors facing the greatest pressure, particularly commodity-sensitive sectors (energy and metals and mining) and retail.

While we always remain focused on the long-term prospects of each company, we are also assessing the near-term liquidity profiles of each of our holdings to ensure that each has the flexibility required to meet its obligations during this disruption.

Credit spread valuations (percentile rank)

	December 31, 2019	March 23, 2020[2]
U.S. corporates	**29%**	**98%**
U.S. credit	**32**	**98**
Euro corporates	**42**	**93**
High-yield corporates	**21**	**98**
Emerging markets investment grade	**9**	**96**
Emerging markets high-yield	**65**	**100**
U.S. ABS	**13**	**95**
U.S. CMBS	**23**	**82**

Source: Bloomberg Barclays Indexes, monthly data back to early 1990s.
2 Date of equity market lows and widest credit spread.

Emerging markets

Our strategy in emerging markets coming into the year was very conservative. Our team dismissed the consensus theme of a reacceleration of global growth and, instead, saw the potential for substantial headwinds for several emerging markets issuers. We felt it prudent to maintain a lower-beta exposure relative to the broad emerging markets while also preserving cash to invest if spreads were to widen. To achieve that, we held large underweights in the most challenged countries (Ecuador, Lebanon, and Argentina) and overweights in countries higher in credit quality.

Doing so benefited our portfolios as volatility increased. Investors selling shorter-maturity emerging markets securities to raise cash caused spread curves to invert, boosting the relative returns of longer-maturity bonds over shorter-maturity ones. Our larger cash position also helped us to:

- Meet redemptions without being a forced seller of securities in a stressed market.
- Purchase securities at deeply discounted prices.

The liquidity-driven sell-off in March presented a rare and short-lived opportunity to increase our risk exposures in the emerging markets sector. We look to add higher-quality issuers who are most resistant to a global recession while retaining selective exposure to higher-beta issuers whose recovery values remain above the purchase price of our holdings.

Structured products

Both the ABS and the CMBS sectors faced challenges similar to those of the broader credit universe during the first quarter. Each faced the same indiscriminate selling pressures as other shorter-maturity, high-quality segments of the bond market because investors sought to raise cash. Credit-spread levels widened substantially in March, and while the absolute performance of each index was considerably less negative than that of other credit sectors, monthly returns of –2% for ABS and –3% for CMBS (Bloomberg Barclays indexes) were notable for a universe of securities that are 90% AAA rated.

A quality-first approach

Our portfolios are focused on the higher-quality segments in structured products. We prefer to hold exposure to bonds with significant structural protections from issuers we have tracked over a long period of time. However, the sharp rise in unemployment and the contraction in consumer and commercial activity will put a strain on this asset class.

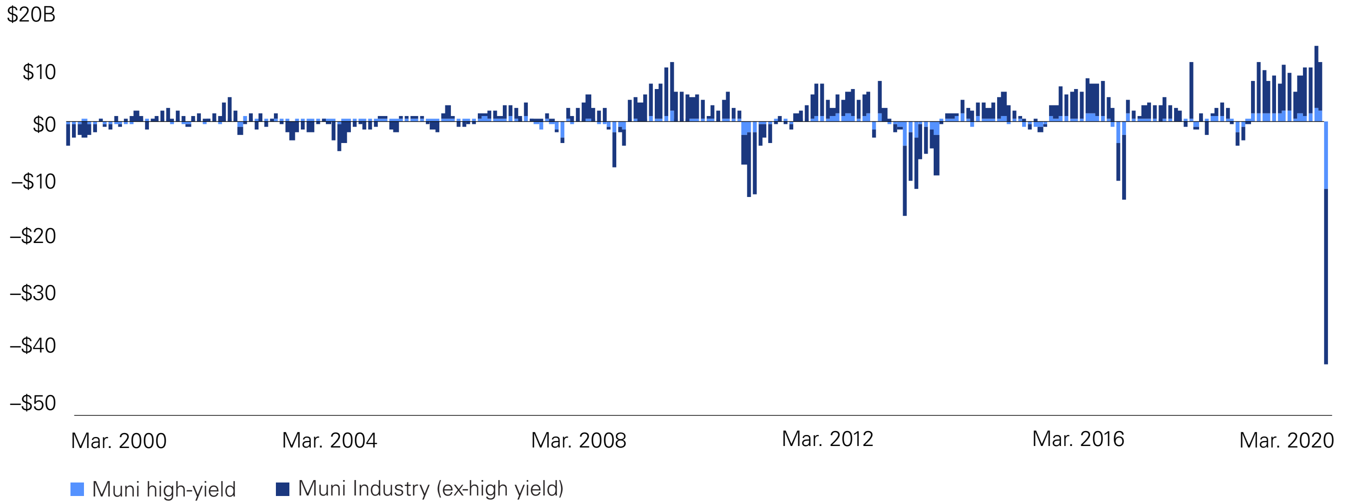
Importantly, a critical component of our research now focuses on stress testing the subsectors most impacted, such as retail and hotels, to gain insight into the potential performance of our holdings. It is important to note that during the GFC, conventional ABS (AAA rated credit cards and auto loans) and AAA rated CMBS proved to be quite resilient, though this is not a predictor of these securities' future performance. The credit enhancement levels of our holdings are strong, and we will continue to focus on diversified exposure to high-quality securities.

Implications for Vanguard funds:

- We are balancing the risk/reward trade-off of more compelling spread levels with the uncertain timeline for the resumption of economic activity.
- Broadly, we are adding risk in higher-quality issuers with lower earnings sensitivity that are well-positioned to weather the pandemic and economic downturn.
- Emerging markets and high-yield corporates offer ample opportunities for security selection with valuation levels that, in many cases, more than compensate investors for risk.

Municipal bonds

Municipal funds: Historical monthly cash flows



Source: Data from Morningstar, Inc.

Municipal yields

March was one for the record books for municipals. The month began with record-low yields, record-level rainy-day balances, and record-breaking investor demand for municipals. Mid-March brought an unprecedented repricing across the fixed income markets, driven by record-breaking outflows, causing muni yields to experience their most rapid and significant increase in history. Yet by month-end, muni prices rallied to regain much of the performance that was lost, providing a compact case study in the value of staying the course.

Demand for liquidity

In our view, the driver of the substantial yield increase was the intense demand for liquidity. More than $25 billion was pulled from muni funds during a two-week period, and the market was overwhelmed by those trying to sell assets. Market makers were hesitant to take on risk amid remote working conditions and extreme Treasury volatility (Market makers use Treasuries to hedge balance-sheet risk).

With retail investors in selling mode, muni yields had to rise high enough to draw in the next potential buyer. In this case, the market found equilibrium as crossover buyers like banks and insurance companies stepped in to obtain higher levels of tax-exempt income. An equally rapid and dramatic decrease in yields ensued. Although volatile, these rapid price adjustments are exactly how equilibrating market forces should work

The quarter finished with liquidity improving and outflows starting to temper. However, we expect further volatility in a very fragile market. Therefore, we encourage investors to maintain a disciplined, long-term approach to collecting tax-exempt income. Supply is likely to pick up after being on pause, a potential headwind if outflows accelerate and hard data begin to turn economic uncertainty into reality.

Close-to-home approach to duration

Environments like this provide strong evidence of the sizable, undiversified risk present in making large duration calls. Our funds purposefully maintain a close-to-home approach to duration, with license to make small active bets to add modest value. Consistent with this philosophy, our funds are currently positioned with a slight long-duration bias in order to benefit from a steeper curve and potential yield declines given the accommodative central bank policy.

As with the entire industry, our funds experienced considerable outflows in the first quarter. However, we were well-positioned to meet these redemptions because of our structural liquidity policy that maintains at least 8% of fund assets in cash, pre-refunded bonds, and high-quality short-term bonds. This liquidity buffer allows us to manage outflows without selling at distressed levels and enables us to capitalize when others are forced to sell.

Municipal credit

Undoubtedly this health and humanitarian crisis will coincide with widespread economic fallout. Every municipal sector will face credit pressure. But it's important for investors to distinguish between credit strain and credit default. The panic selling observed during March was suggestive of investors' belief that defaults would be widespread; we do not share this view.

We believe that the vast majority of municipal entities entered this crisis in a healthy financial state, nurtured by 11 years of economic growth. We remind investors that, historically, defaults of municipal issuers have been exceptionally low, stemming from the essential-service nature of municipal entities. This essentiality is underscored in times of crisis and was recognized through the CARES Act, with more than $300 billion in aid to municipal issuers, including states, localities, airports, mass transit, and not-for-profit hospitals.

Stress test analyses

Our team of more than 20 municipal credit analysts spent the past several weeks conducting stress test analyses on the issuers we hold. Even with extremely dire revenue assumptions, our analysts are confident in the debt-service abilities of the highly diversified issuers across our funds. A combination of healthy rainy-day funds, solid debt-coverage ratios, federal aid, and several other fiscal levers provide an adequate buffer for municipal issuers to weather this severe disruption.

Moving forward, we expect credit-rating downgrades and difficult budgetary decisions. This scenario will create a relative value environment that is well-suited to our selection-focused active process.

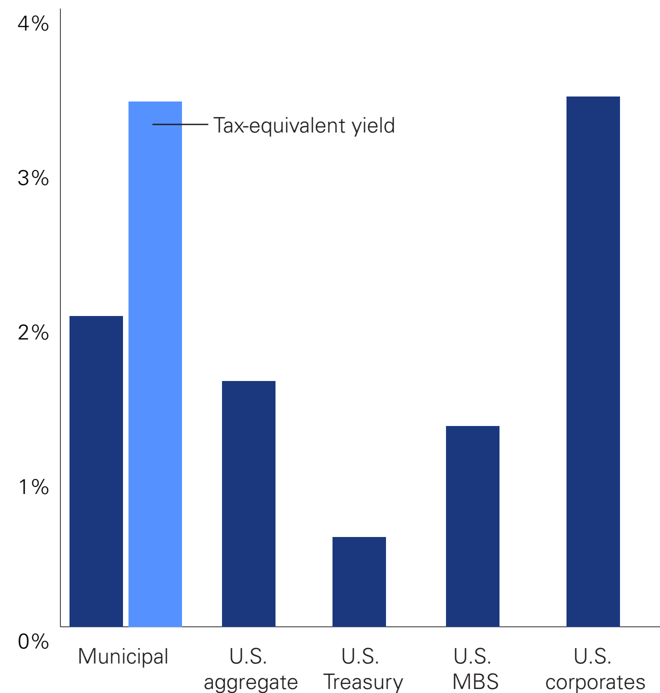
During the liquidity crunch, we deployed a modest amount of risk by adding to high-conviction positions in sectors that had sizable spread widening, such as airports and not-for-profit hospitals.

We view muni spreads as likely to stay elevated for some time, with any further widening being driven by outflows. We hold ample dry powder to continue adding credit risk if valuations remain attractive.

Implications for Vanguard funds:

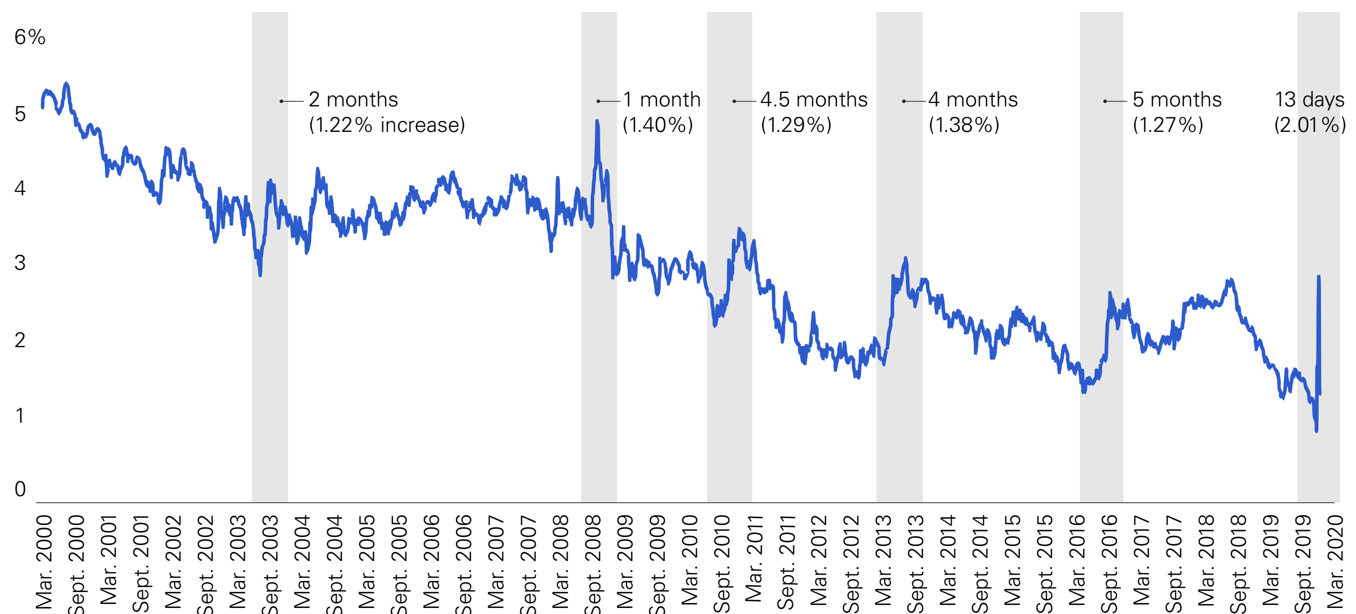
- The repricing in municipal bonds has increased their yields to levels not seen in many years. We believe munis are attractive from both an absolute and a relative value standpoint.
- Default rates should stay low as issuers will be buttressed by reserves, federal aid, and other fiscal levers. We expect spreads to remain elevated and will look to add incremental credit risk to the portfolios.

Municipal yields compared with those of other U.S. fixed income categories



Source: Bloomberg Barclays indexes, using yield-to-worst data as of March 31, 2020. Note: Tax-equivalent yield is calculated using a 40.8% tax bracket, which includes a 37.0% top federal marginal tax rate and a 3.8% net investment income tax to fund Medicare.

Historical 10-year yields on AAA rated municipal bonds



Source: Bloomberg.

Vanguard active bond funds

Vanguard fund	Investor Shares		Admiral™ Shares	
	Ticker symbol	Expense ratio[3]	Ticker symbol	Expense ratio[3]
Vanguard active taxable bond funds				
TREASURY/AGENCY				
GNMA[4]	VFIIX	0.21%	VFIJX	0.11%
Inflation-Protected Securities	VIPSX	0.20	VAIPX	0.10
Intermediate-Term Treasury	VFITX	0.20	VFIUX	0.10
Long-Term Treasury	VUSTX	0.20	VUSUX	0.10
Short-Term Federal	VSGBX	0.20	VSGDX	0.10
Short-Term Treasury	VFISX	0.20	VFIRX	0.10
INVESTMENT-GRADE CORPORATE				
Core Bond	VCORX	0.25%	VCOBX	0.10%
Intermediate-Term Investment-Grade	VFICX	0.20	VFIDX	0.10
Long-Term Investment-Grade[4]	VWESX	0.22	VWETX	0.12
Short-Term Investment-Grade	VFSTX	0.20	VFSUX	0.10
Ultra-Short-Term Bond	VUBFX	0.20	VUSFX	0.10
BELOW-INVESTMENT-GRADE				
High-Yield Corporate[4]	VWEHX	0.23%	VWEAX	0.13%
GLOBAL/INTERNATIONAL				
Emerging Markets Bond	VEMBX	0.60%	VEGBX	0.45%
Global Credit Bond	VGCIX	0.35	VGCAX	0.25
Vanguard active municipal bond funds				
NATIONAL MUNICIPAL				
Short-Term Tax-Exempt	VWSTX	0.17%	VWSUX	0.09%
Limited-Term Tax-Exempt	VMLTX	0.17	VMLUX	0.09
Intermediate-Term Tax-Exempt	VWITX	0.17	VWIUX	0.09
Long-Term Tax-Exempt	VWLTX	0.17	VWLUX	0.09
High-Yield Tax-Exempt	VWAHX	0.17	VWALX	0.09
STATE MUNICIPAL				
California Intermediate-Term Tax-Exempt	VCAIX	0.17%	VCADX	0.09%
California Long-Term Tax-Exempt	VCITX	0.17	VCLAX	0.09
Massachusetts Tax-Exempt[5]	VMATX	0.13	—	—
New Jersey Long-Term Tax-Exempt	VNJTX	0.17	VNJUX	0.09
New York Long-Term Tax-Exempt	VNYTX	0.17	VNYUX	0.09
Ohio Long-Term Tax-Exempt[5]	VOHIX	0.13	—	—
Pennsylvania Long-Term Tax-Exempt	VPAIX	0.17	VPALX	0.09

Active fixed income leadership team

Chris Alwine, CFA
Principal and Global Head of Credit
30 years' experience

Joe Davis, Ph.D.
Global Chief Economist
18 years' experience

Sara Devereux
Global Head of Rates
27 years' experience

John Hollyer, CFA
Global Head of Fixed Income Group
30 years' experience

Paul Malloy, CFA
Head of U.S. Municipals
15 years' experience

Anne Mathias, CFA
Global Rates and FX Strategist
23 years' experience

Manish Nagar
Global Head of Risk Management Group
20 years' experience

Active fixed income at Vanguard

Taxable bond
$218B AUM
*14 FUNDS**

Municipal bond
$181B AUM
5 NATIONAL FUNDS / 7 STATE-SPECIFIC FUNDS

25+ PORTFOLIO MANAGERS

35+ TRADERS

60+ CREDIT RESEARCH ANALYSTS

130+ DEDICATED TEAM MEMBERS

3 As reported in each fund's prospectus. A fund's current expense ratio may be higher or lower than the figure shown.
4 Investment advisor: Wellington Management Company LLP.
5 There is no minimum investment required for advised clients.
* Includes funds advised by Wellington Management Company LLP.
Note: Data as of March 31, 2020.

Vanguard®

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For more information about Vanguard funds, visit advisors.vanguard.com 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

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

Bonds of companies based in emerging markets are subject to national and regional political and economic risks and to the risk of currency fluctuations. These risks are especially high in emerging markets.

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.

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.

Investments in bonds issued by non-U.S. companies are subject to risks including country/regional risk and currency risk.

Although the income from a municipal bond fund is exempt from federal tax, you may owe taxes on any capital gains realized through the fund's trading or through your own redemption of shares. For some investors, a portion of the fund's income may be subject to state and local taxes, as well as to the federal Alternative Minimum Tax.

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