

REPORT OF THE COVID-19  
MARKET IMPACT WORKING GROUP

# Experiences of US Exchange-Traded Funds During the COVID-19 Crisis

OCTOBER 2020

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# Contents

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<b>1</b>	Key Points
<b>2</b>	ETFs Were Resilient During Market Stress in March 2020
<b>2</b>	<i>Overview</i>
<b>3</b>	<i>ETF Trading in the Secondary Market Functioned Smoothly</i>
<b>14</b>	<i>ETF Primary Market Remained Robust</i>
<b>23</b>	Summary
<b>24</b>	Notes
<b>26</b>	References

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## About the Report of the COVID-19 Market Impact Working Group

The *Report of the COVID-19 Market Impact Working Group* is being issued under the auspices of the Investment Company Institute's COVID-19 Market Impact Working Group. This group of senior industry executives is examining the causes of the 2020 market turmoil and the experiences of regulated funds. The report is intended to provide a sound, data-based foundation for any future regulatory discussions or other responses that could affect regulated funds and their investors. The report was written by a team from ICI's Research, Law, Industry Operations, and ICI Global groups.

## Members of the COVID-19 Market Impact Working Group

**George C. W. Gatch**, Chair  
Chairman, Investment Company Institute  
Chief Executive Officer  
J.P. Morgan Asset Management

**Barbara Novick**  
Vice Chairman and Cofounder  
BlackRock, Inc.

**James L. "J. J." Johnson Jr.**  
Chief Communications Officer,  
Executive Vice President Public Affairs and Policy  
Fidelity Investments

**James A. McNamara**  
President  
Goldman Sachs Mutual Funds

**Glenn Brightman**  
Chief Financial Officer  
Nuveen, LLC

**Mortimer J. Buckley**  
Chairman and CEO  
The Vanguard Group

**Paul Schott Stevens**  
President and CEO  
Investment Company Institute

## Advisers to the COVID-19 Market Impact Working Group

**Thomas F. Callahan**  
Managing Director, Head of Global Cash  
Management Business  
BlackRock, Inc.

**Kevin Gaffney**  
Chief Investment Officer, Money Markets  
Fidelity Investments

**David Fishman**  
Managing Director, Head of GSAM Liquidity Solutions  
Goldman Sachs Asset Management

**John T. Donohue**  
CEO of Asset Management Americas, Head of the  
Global Liquidity Business  
J.P. Morgan Asset Management

**John Hollyer**  
Principal, Global Head of Fixed Income Group  
Vanguard

## Report of the COVID-19 Market Impact Working Group Series

### Available

- » "The Impact of COVID-19 on Economies and Financial Markets"

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- » "Experiences of European Markets, UCITS, and European ETFs During the COVID-19 Crisis"
- » "Experiences of US Bond Mutual Funds During the COVID-19 Crisis"

# Experiences of US Exchange-Traded Funds During the COVID-19 Crisis

## Key Points

- » Exchange-traded funds (ETFs)—whose shares trade on an exchange like a stock—are highly regulated investment products under the federal securities laws.
- » Despite unprecedented market volatility in March 2020 caused by the COVID-19 crisis, the ETF ecosystem—generally thought of as ETF issuers, authorized participants (APs), and ETF liquidity providers—proved its resilience.
- » ETF shares traded smoothly and efficiently on the stock exchanges, with dealers (market makers and other liquidity providers) continuing to make two-sided markets in ETF shares.
- » ETFs acted as a price discovery tool for investors, particularly in the fixed-income market, where market participants faced challenges in finding liquidity and establishing pricing for individual bonds.
- » APs stepped up and facilitated a significantly higher level of creations and redemptions of ETF shares in March 2020 than during a comparable “normal” period in March 2019.
- » The actual experiences of ETFs during the COVID-19 crisis shows that—contrary to predictions by some policymakers and other observers—the ETF ecosystem remained strong and functioned well.
- » Evidence from the events of March 2020 should help ease concerns that ETFs would put additional pressure on the financial system during a crisis.

ETFs are innovative hybrid investment products that have been available for more than 25 years in the United States.<sup>1</sup> Their shares trade on an exchange like a stock or closed-end fund, but governing regulations also allow large institutions (called authorized participants or APs<sup>2</sup>) to transact directly with the fund.<sup>3</sup> Investors may buy or sell ETF shares through a broker or in a brokerage account, just as they would the shares of any publicly traded company. Most ETFs are structured as open-end investment companies, like mutual funds, and are governed by the same federal securities laws.<sup>4</sup> Other ETFs, which are not registered under the Investment Company Act and are not discussed in this paper—primarily those investing in commodities, currencies, and futures—have different structures and are subject to different regulatory requirements.

# ETFs Were Resilient During Market Stress in March 2020

## Overview

Despite unprecedented market volatility in March 2020 caused by the COVID-19 crisis, the ETF ecosystem—generally thought of as ETF issuers, APs, and ETF liquidity providers—proved its resilience. ETF shares traded smoothly and efficiently on the stock exchanges, with dealers (market makers and other liquidity providers) continuing to make two-sided markets in ETF shares. In addition, ETFs acted as a price discovery tool for investors. This was particularly true in the fixed-income market, where market participants faced challenges in finding liquidity and establishing pricing for individual bonds.<sup>5</sup> APs also stepped up and facilitated a significantly higher level of creations and redemptions of ETF shares in March 2020 than during a comparable period in March 2019.

These results contradicted the predictions that some policymakers and other observers had made about ETFs' performance in times of market stress.<sup>6</sup> As ETF assets grew—from \$992 billion at year-end 2010 to \$4.4 trillion as of mid-year 2020—and trading of ETF shares came to account for at least one-fifth of stock market trading activity on a “normal” day, some argued that the ETF ecosystem could contribute to volatility or amplify shocks during periods of market stress.

According to these speculations, the most common hypothetical scenario was that investors faced with a negative external event would rush to sell ETF shares in the secondary market, only to find few buyers. Liquidity providers (registered market makers and other traders that regularly offer two-sided quotes) would curtail making markets in ETF shares, and they, along with other institutional investors, would heavily redeem ETF shares through APs. In turn, APs would sell the securities in the ETF redemption baskets, triggering further losses in the markets for underlying securities. A vicious cycle of ETF redemptions and asset sales would cause a downward spiral in asset prices. Another theory posited that APs would step away from creating and redeeming ETF shares, putting further stress on financial markets.

The actual experiences of ETFs during the recent height of financial market stress show that—contrary to these negative predictions—the ETF ecosystem remained strong and functioned well. Indeed, evidence from the events of March 2020 should help ease the concerns that ETFs would put additional pressure on the financial system during a crisis.

## ETF Trading in the Secondary Market Functioned Smoothly

Shares of an ETF trade throughout the day on the secondary market (e.g., on a stock exchange) at market-determined prices. To transact in the secondary market, investors buy or sell ETF shares through a broker or in a brokerage account just as they would shares of any publicly traded company.<sup>7</sup> Indeed, most investors who trade ETF shares in the secondary market do not interact directly with the ETF or its sponsor—nor do they directly trigger activity in the ETF’s underlying securities.

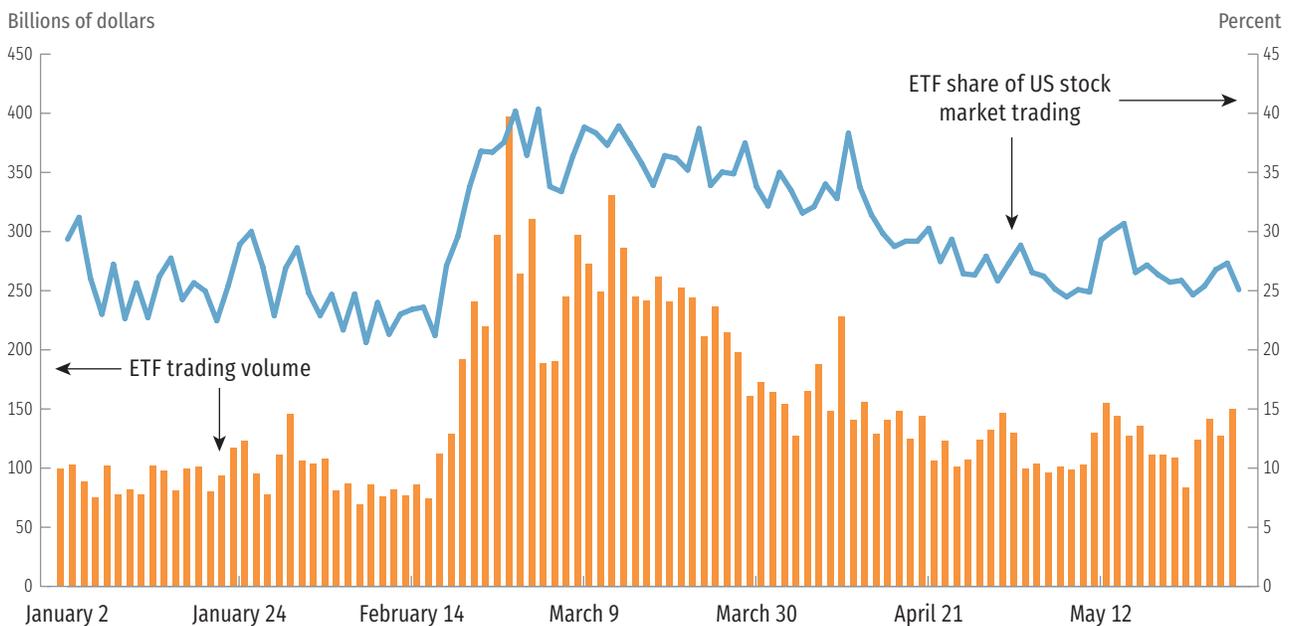
Investors use ETFs for a variety of reasons, such as acquiring or shedding exposure to specific asset classes and investment strategies, diversifying their portfolios, and hedging investment risks. It is, therefore, not surprising that ETF secondary market trading volumes (as measured by the value of shares traded) are a substantial share of total trading on US stock exchanges and other venues. Early in 2020, before COVID-19 spread across the globe, ETF trading volume accounted for between 20 and 30 percent of total stock market trading on a daily basis—the fairly typical range in normal times (Figure 2.1).

During periods of market turbulence, ETF secondary market trading volumes rise—both in absolute terms and as a share of total stock market trading—as investors, especially institutional investors, turn to ETFs to quickly and efficiently transfer and hedge risks. The market volatility this spring was no exception. Figure 2.1 shows that ETFs’ share of total stock market trading rose rapidly in late February and reached about 40 percent in early March. While markets continued to roil from the uncertainty caused by the rapid global onset of COVID-19,<sup>8</sup> ETFs’ share of trading remained elevated for most of March. As market participants’ fears were calmed by the spate of federal programs put in place to support the US economy broadly,<sup>9</sup> the ETF share of trading moved down to its normal range.

FIGURE 2.1

### Investors Turn to ETFs to Quickly and Efficiently Transfer and Hedge Risks in Stressed Markets

Total ETF trading volume and ETF share of US stock market trading volume, daily, January 2–May 29, 2020



Source: ICI calculations of Bloomberg and Cboe Exchange, Inc. data

## ETF Bid-Ask Spreads Widened, but Often by Less Than Those on Underlying Securities

ETFs and other securities that trade on secondary markets have two market prices—the bid price (the highest price a buyer will pay to buy a specified quantity of the asset) and the ask price (the lowest price a seller will accept to sell a specified quantity of the asset). The bid price will be lower than the ask price and the difference between the two prices is called the bid-ask spread. Bid-ask spreads are influenced by the forces of supply and demand and adjust continuously in response to changes in conditions in the secondary market. During periods of stress, bid-ask spreads tend to increase or widen as dealers demand additional compensation for accepting the risk that market prices will move significantly before they can find another party to take the other side of the trade or, in the absence of any counterparties, that they will have to carry the position on their balance sheets.

In normal markets, bid-ask spreads on some ETFs are often narrower than the average bid-ask spread on the underlying securities represented in their portfolios. This is because as ETFs increase in assets under management (AUM), trading volume in their shares grows, and often, multiple dealers are competitively quoting bid and ask prices on ETF shares. As a result, bid-ask spreads on ETFs can compress and be narrower than those on securities in the underlying markets. This is one of the reasons that ETFs are often cited as being more efficient and cost-effective to own than holding the underlying securities directly.

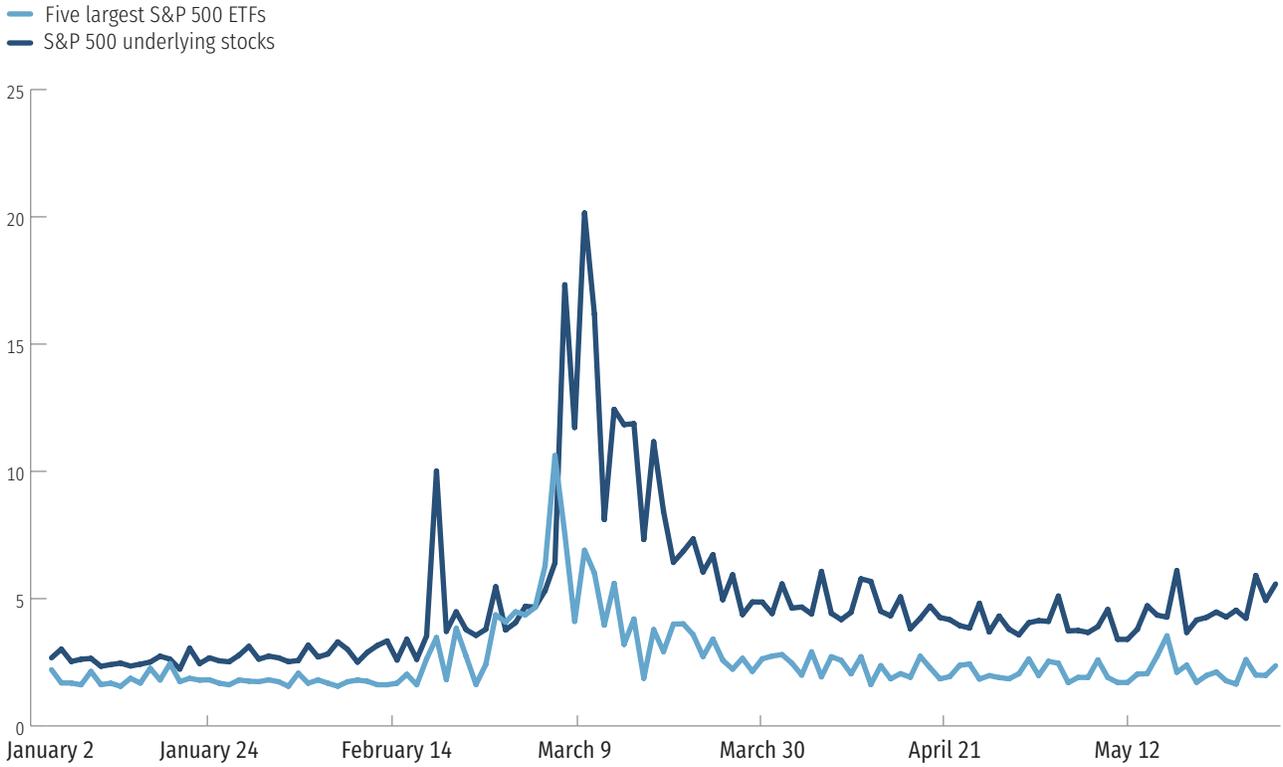
During stressed markets, when selling pressure is intensified and volatility is elevated, bid-ask spreads on both ETFs and their underlying securities widen. Whether ETF bid-ask spreads remain narrower than those on their underlying securities during these times of stress will depend, in part, on the willingness of dealers to remain in the secondary market and provide competitive two-sided quotes for ETF shares relative to their underlying securities.

During the market turmoil in March 2020, bid-ask spreads on large ETFs widened, but often remained narrower than those on their underlying securities. Even the most liquid part of the secondary market, large-cap stocks, experienced a widening of bid-ask spreads in March. As shown in Figure 2.2, the average bid-ask spread on stocks in the S&P 500 index spiked to about 20 basis points in mid-March and then drifted down as volatility in the stock market fell. At the same time, the average bid-ask spread on the five largest S&P 500 ETFs also rose, reaching 10 basis points at its peak; it then declined to slightly above its mid-February level.

FIGURE 2.2

### Average Bid-Ask Spread on S&P 500 ETFs Remained Below That on Underlying Stocks

Basis points, daily, January 2–May 29, 2020



Note: Bid-ask spread is calculated using the closing bid and ask prices on the security's primary exchange.

Source: ICI calculations of Bloomberg data

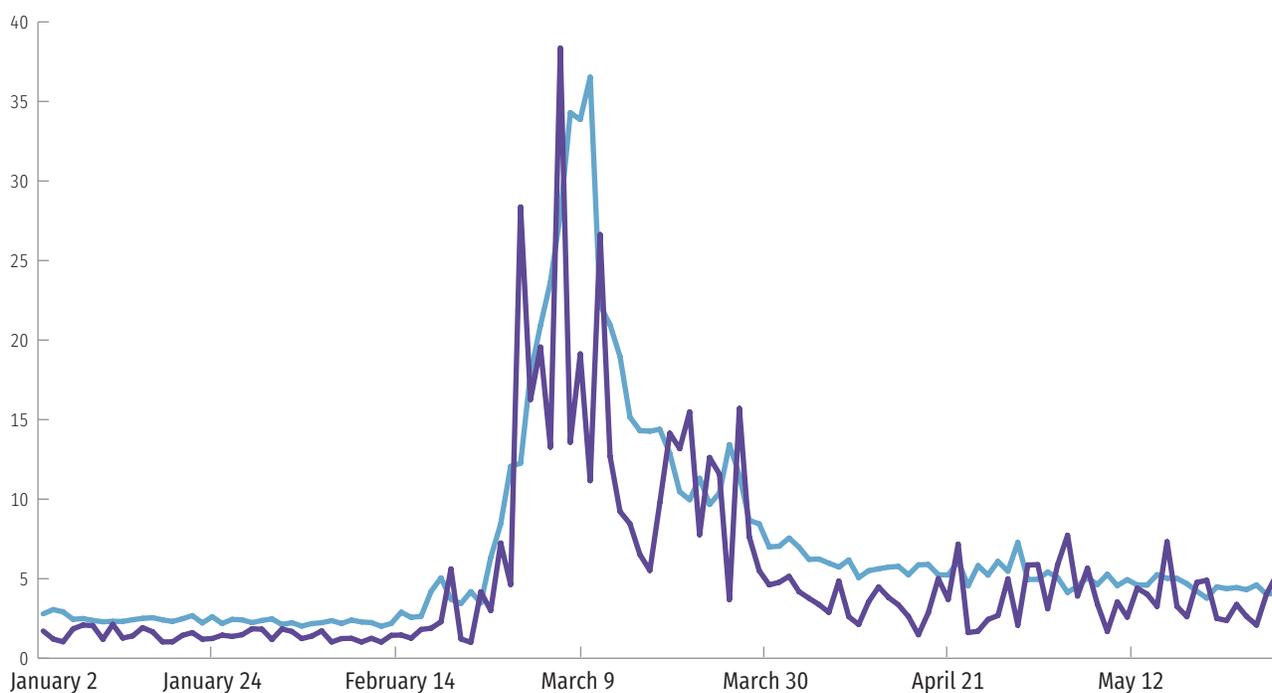
Investment grade bond ETFs accounted for the bulk of net outflows from bond ETFs in March 2020 (this is discussed in more detail on page 15). This naturally raises the question of whether selling pressure on investment grade bond ETFs was greater than on investment grade bonds. Looking at the average bid-ask spread for the five largest investment grade bond ETFs, this does not appear to have been the case (Figure 2.3). Bid-ask spreads on these ETFs did increase during March 2020—reaching 38 basis points on March 18—but they were very close to the bid-ask spreads on investment grade bonds as reported by MarketAxess US Investment Grade Bid-Ask Index.

FIGURE 2.3

### Average Bid-Ask Spreads on Investment Grade Bond ETFs Rose in Line with Those on Investment Grade Bonds

Basis points, daily, January 2–May 29, 2020

- Five largest investment grade bond ETFs<sup>1</sup>
- Investment grade bonds<sup>2</sup>



<sup>1</sup> Bid-ask spread is calculated using the closing bid and ask prices on the ETF's primary exchange.

<sup>2</sup> Bid-ask spread is calculated using the weighted average of the bonds' outstanding amounts.

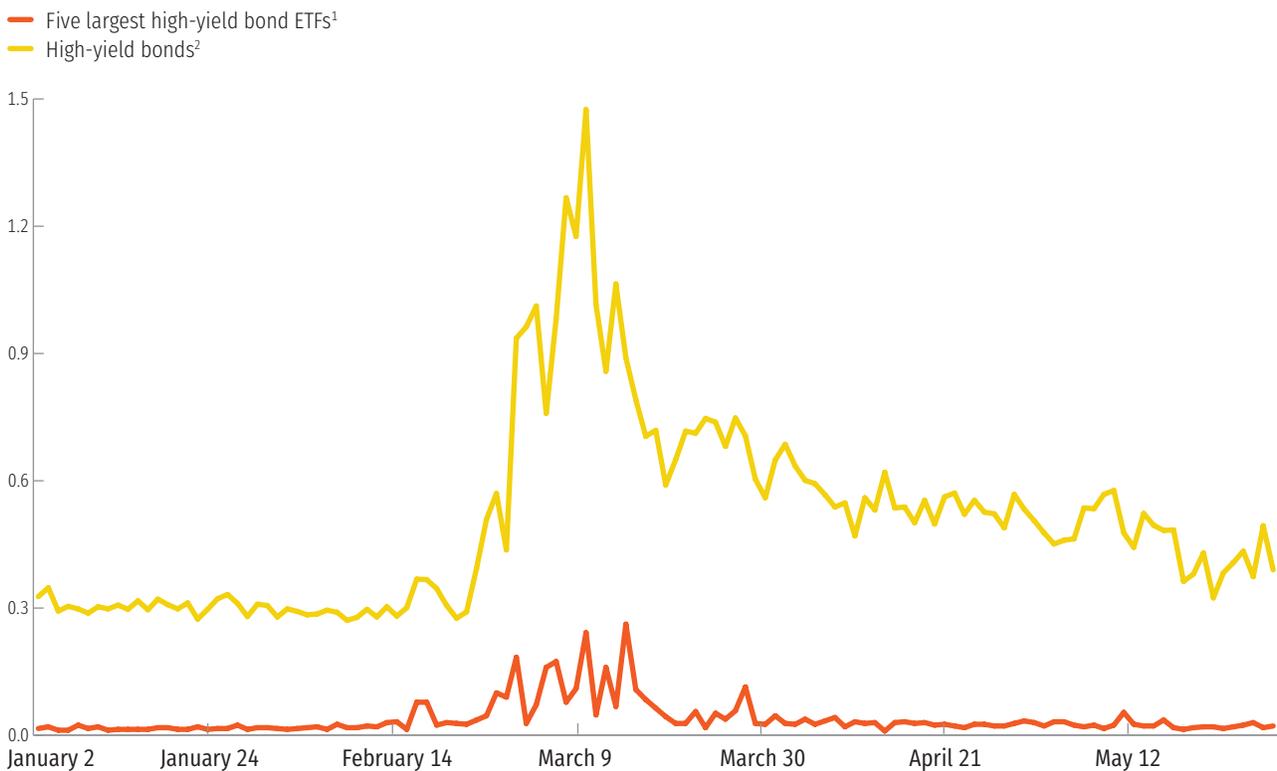
Sources: ICI calculations of Bloomberg data and MarketAxess

Bid-ask spreads on high-yield bond ETFs normally are substantially narrower than those on high-yield bonds. This difference largely reflects the lower liquidity of the high-yield bond market where, even in normal times, individual bonds may lack liquidity for days. During the crisis in March 2020, while the average spreads on the five largest high-yield bond ETFs increased in dollar terms, they rose far less than those on high-yield bonds (Figure 2.4). For example, on March 23, the MarketAxess US High-Yield Bid-Ask Index was \$1.48 per \$100 of face value, while the average bid-ask spread of the five largest high-yield bond ETFs was \$0.24 per share.<sup>10</sup>

FIGURE 2.4

### Average Bid-Ask Spreads on High-Yield Bond ETFs Remained Substantially Below Those on High-Yield Bonds

Dollars, daily, January 2–May 29, 2020



<sup>1</sup> Bid-ask spread is calculated using the closing bid and ask prices on the ETF's primary exchange.

<sup>2</sup> Bid-ask spread is calculated using the weighted average of the bonds' outstanding amounts.

Sources: ICI calculations of Bloomberg data and MarketAxess

## Registered Market Makers and Other Liquidity Providers Continued to Facilitate Trading of ETF Shares in the Secondary Market

Some observers also have argued that dealers would step away from facilitating trading of ETF shares in the secondary market during a crisis. Although a comparison of bid-ask spreads on ETFs versus underlying securities in March indicates that this measure of liquidity was no worse (and sometimes better) for ETFs than for underlying securities, that analysis does not provide any insight into whether dealers stepped away from providing two-sided quotes in ETF shares. To help address this concern, ICI reviewed and analyzed data<sup>11</sup> related to the number of registered market makers and other liquidity providers that posted two-sided quotes<sup>12</sup> in ETF shares each day from March 9 to March 27, 2020 (March 2020 stress period) and during a more normal period from March 11 to March 29, 2019 (March 2019 normal period) on BZX—CGM’s largest US equities exchange.

Generally speaking, registered market makers on BZX continued to provide two-sided quotes for ETFs during the extreme market volatility in March 2020. As shown in Figure 2.5, the daily average number of registered market makers that were actively quoting per ETF during the March 2020 stress period exceeded the average number during the same period in 2019. For the entire three-week period in March 2020, the daily average number of registered market makers per ETF was 6.9—up from 6.2 in the March 2019 period.

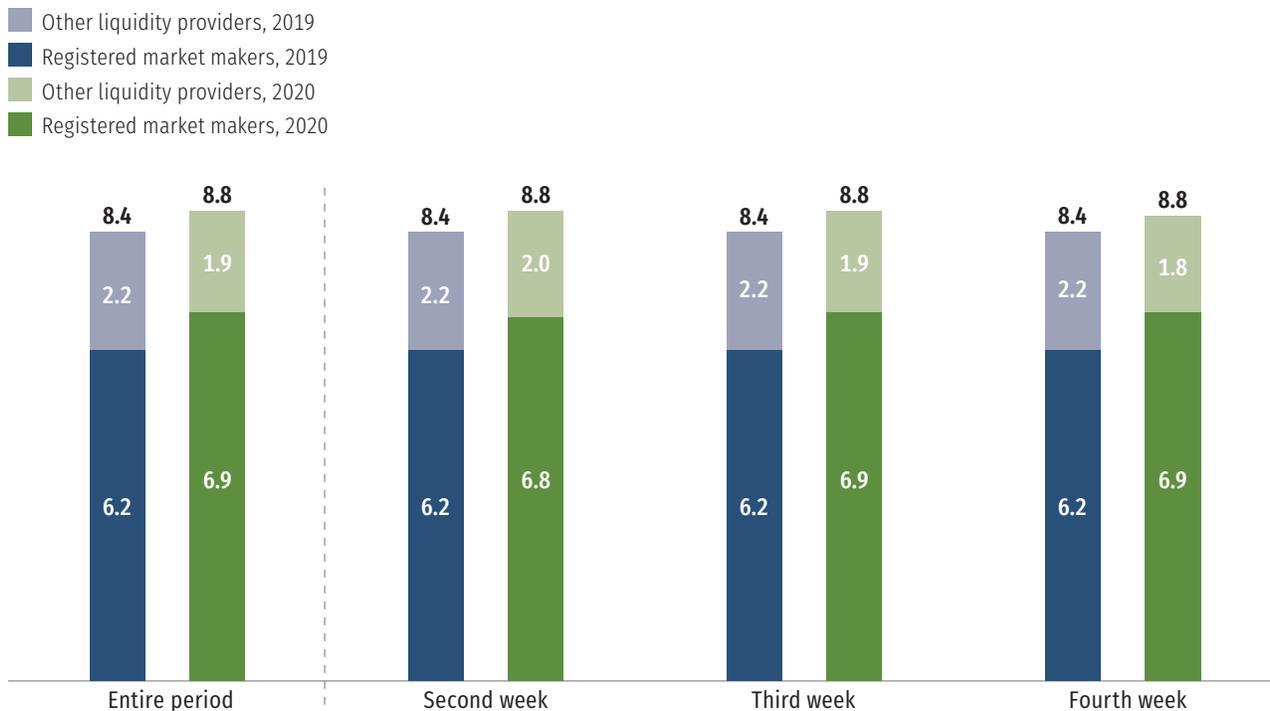
The engagement of other liquidity providers, which may act like market makers but do not have the continuous, two-sided quote obligations of registered market makers, also added to ETF liquidity. Although the daily average number of other liquidity providers per ETF on BZX was smaller in March 2020 (1.9) compared to March 2019 (2.2), the decline was very small—not the wholesale pullback that policymakers and others have predicted and feared.

Also, ETF registered market makers and other liquidity providers consistently posted two-sided quotes throughout the three-week period in March 2020 on BZX. The daily average number of registered market makers per ETF was little changed, increasing slightly from 6.8 in the second week to 6.9 in the third and fourth weeks of March 2020. The daily average number of other liquidity providers declined only marginally over the same three-week period, from 2.0 in the second week to 1.8 in the fourth week.

FIGURE 2.5

### ETF Liquidity Providers Consistently Participated During Height of Market Turbulence in March 2020

Daily average per ETF, March 11–March 29, 2019, and March 9–March 27, 2020



Note: Components may not add to total because of rounding.

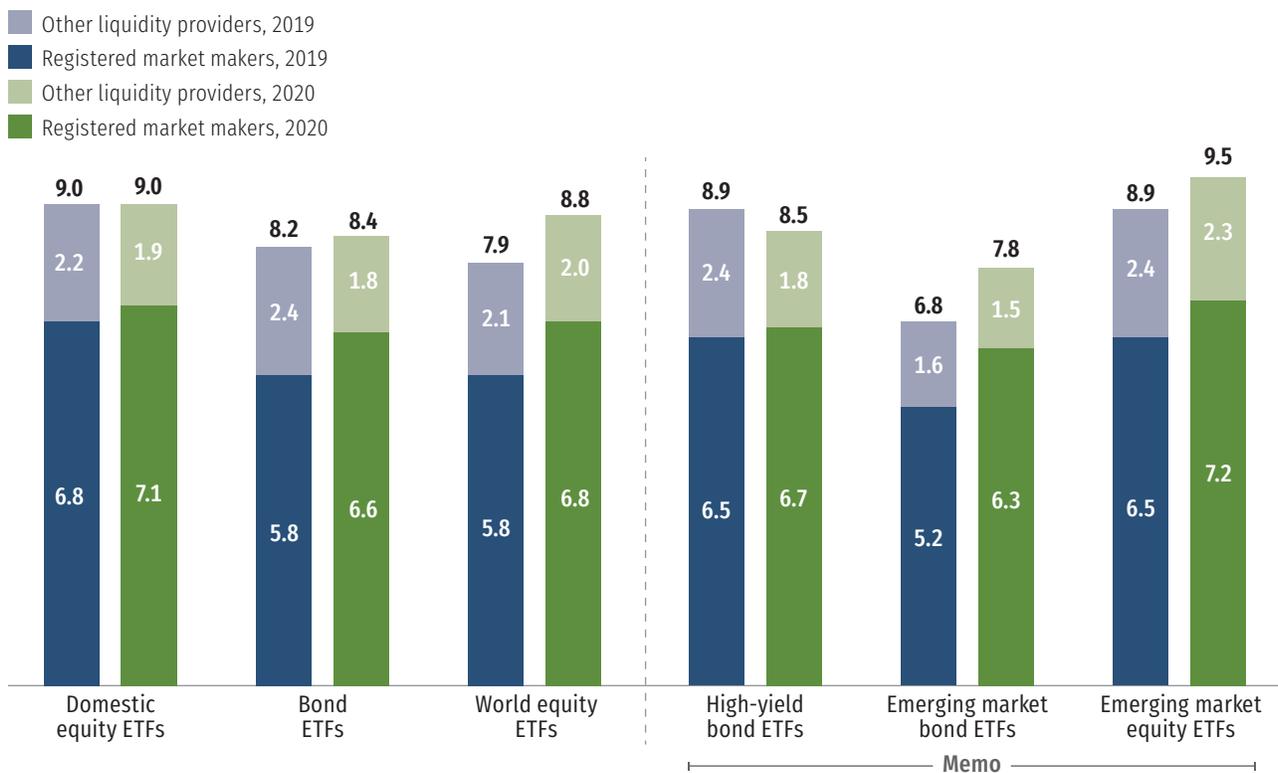
Source: ICI calculations based on CGM data for the BZX Exchange

Engagement by registered market makers and other liquidity providers on BZX occurred across a broad range of ETF asset classes during the March 2020 stress period. In addition, the average number of liquidity providers for nearly all ETF asset classes in the March 2020 period was at or above levels in the March 2019 normal period. Emerging market equity ETFs had the highest average daily number of total liquidity providers at 9.5 in the March 2020 stress period, up from 8.9 in the March 2019 normal period (Figure 2.6). These ETFs also saw only a negligible downtick in the average daily number of other liquidity providers in March 2020 compared with March 2019.

Overall, bond ETFs saw a small increase in the average daily number of total liquidity providers in the March 2020 stress period from the March 2019 normal period, as an increase in the number of registered market makers more than offset a decline in the number of other liquidity providers. In more narrow segments of the bond ETF category, emerging market bond ETFs saw a significant step up in total liquidity providers in the March 2020 stress period from the March 2019 normal period, due to an increase in registered market makers. These ETFs had only a slight decline in the number of other liquidity providers in the March 2020 stress period. High-yield bond ETFs were the only category to experience a small reduction in the daily average total number of liquidity providers from the March 2019 normal period to the March 2020 stress period—8.9 to 8.5—stemming from a decline in the number of other liquidity providers.

**FIGURE 2.6**  
**Liquidity Providers Participated Across a Broad Range of ETF Asset Classes in March 2020**

Daily average per ETF, March 11–March 29, 2019, and March 9–March 27, 2020



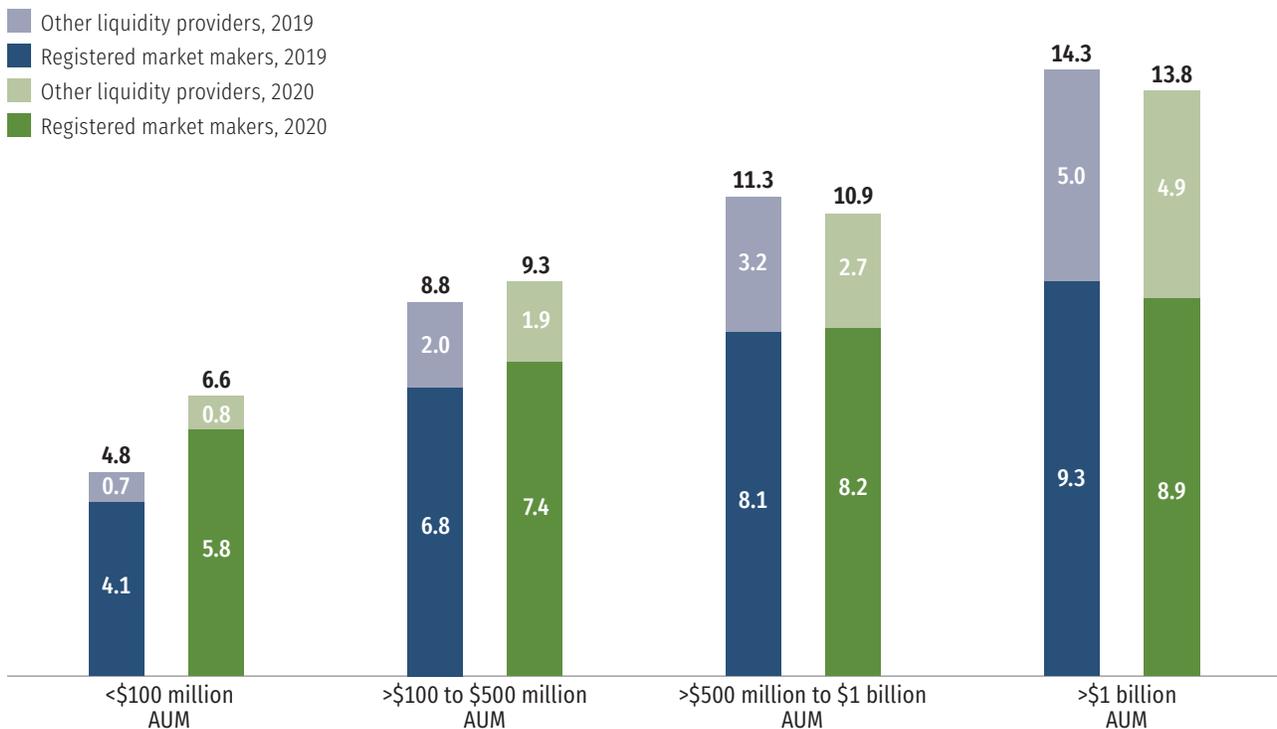
Source: ICI calculations based on CGM data for the BZX exchange

Liquidity providers on BZX posted two-sided quotes for ETFs of all sizes. Smaller ETFs—those with \$500 million or less in AUM—saw a step up in the average daily number of total liquidity providers in the March 2020 stress period from the March 2019 normal period, largely due to an increase in the number of registered market makers (Figure 2.7). Although participation by other liquidity providers typically rises with the asset size of the ETF, these providers continued to post two-sided quotes in smaller ETFs in March 2020. Larger ETFs—those with more than \$500 million in AUM—experienced only a small decline in the daily average total number of liquidity providers in the March 2020 stress period from their levels in the March 2019 normal period. For example, for ETFs with more than \$1 billion in AUM, the average total number of liquidity providers declined from 14.3 in March 2019 to 13.8 in March 2020—registered market makers fell from 9.3 to 8.9 and other liquidity providers declined slightly from 5.0 to 4.9.

FIGURE 2.7

### Liquidity Providers Posted Two-Sided Quotes for ETFs of All Sizes

Daily average per ETF, March 11–March 29, 2019, and March 9–March 27, 2020



Source: ICI calculations based on CGM data for the BZX exchange

## Discounts on Bond ETFs Largely Reflected Price Discovery

At points during March 2020, market prices of many bond ETFs differed from those funds' end-of-day net asset values (NAVs). For example, on March 12 and again on March 19, closing prices on investment grade bond ETFs were about 365 basis points below their NAVs on an asset-weighted basis (Figure 2.8). Around the same time, prices of high-yield bond ETFs were about 220 basis points below NAV. Even government bond ETFs, which usually trade at prices extremely close to their NAVs, had discounts in excess of 100 basis points on March 11 and March 12. Some observers argued that discounts were indicative of a problem with the structure of bond ETFs,<sup>13</sup> but ICI believes that bond ETF prices during these times reflected the increased liquidity costs in the underlying bond markets. Indeed, a recent SEC staff report also concluded that the "liquidity and potential price discovery characteristics [of bond ETFs] were evident in March 2020 when the information environment was changing rapidly and volatility and stress more generally were high."<sup>14</sup> The staff went on to say that "[d]uring that period, ETFs generally functioned as expected, allowing investors to transfer diversified bond risk on the secondary market without transacting directly in the underlying bonds."<sup>15</sup>

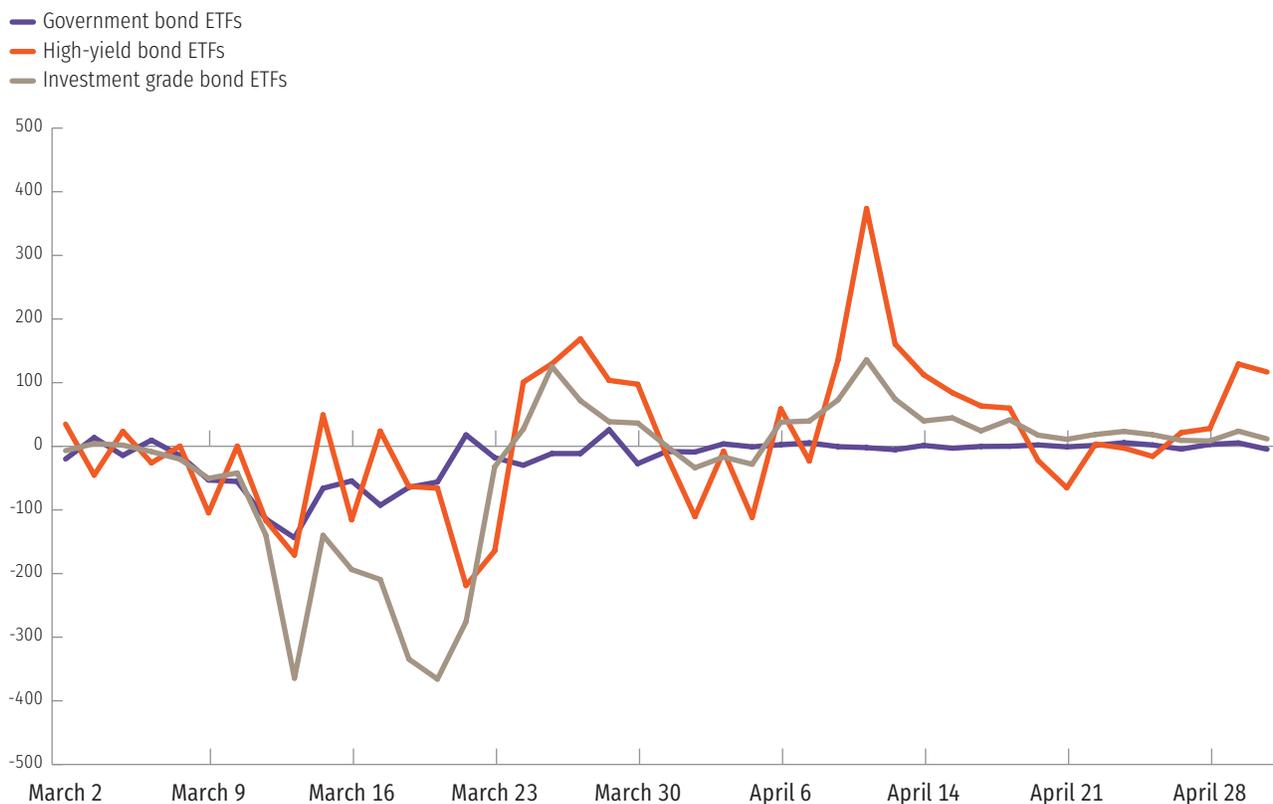
Because bond ETF shares are traded on the secondary market, their market prices are continually updated and incorporate market participants' real-time, evolving views on the values of the underlying bonds held in ETFs' portfolios. Bond ETF share prices also incorporate estimations of transaction costs—including the latest bid-ask spread of the underlying securities and any premium to offset the risk that actual trading costs will be greater than expected. In contrast, individual bond valuations used to determine NAVs are a combination of prices for bonds that traded at some point during the day, estimated prices for bonds that did not trade that day, and other factors.<sup>16</sup>

In fast-moving markets, prices for bonds that traded earlier in the day may not always fully reflect market sentiment at the market close. In addition, price estimates for bonds that did not trade are generally based on observed trades and other variables, such as dealer quotes and interest rate movements. Bond ETF prices, which adjust quickly in rapidly changing markets, can and did act as an important source of price discovery by providing a window into investors' real-time views on the value of the underlying bonds. As a result, bond ETF NAVs may diverge from their market prices because NAVs and market prices inherently reflect different inputs.

FIGURE 2.8

### Bond ETF Discounts Reflected the Costs of Liquidating the Underlying Bonds

Asset-weighted average premium/discount, basis points, daily, March 2–April 30, 2020



Sources: ICI calculations of Bloomberg data

## ETF Primary Market Remained Robust

The creation or redemption of ETF shares—activity directly involving the ETF’s underlying securities—is categorized as primary market activity. APs that enter into legal contracts with an ETF’s distributor are the only entities that can transact with the funds to create and redeem ETF shares.<sup>17</sup> Generally, creation or redemption activity occurs when there is excess demand or excess supply for ETF shares in the secondary market.<sup>18</sup> Net primary market activity (creations less redemptions) in ETF shares is often referred to as *net flows*; net creations of ETF shares (when creations are larger than redemptions) as *net inflows*; and net redemptions of ETF shares (when redemptions are larger than creations) as *net outflows*.

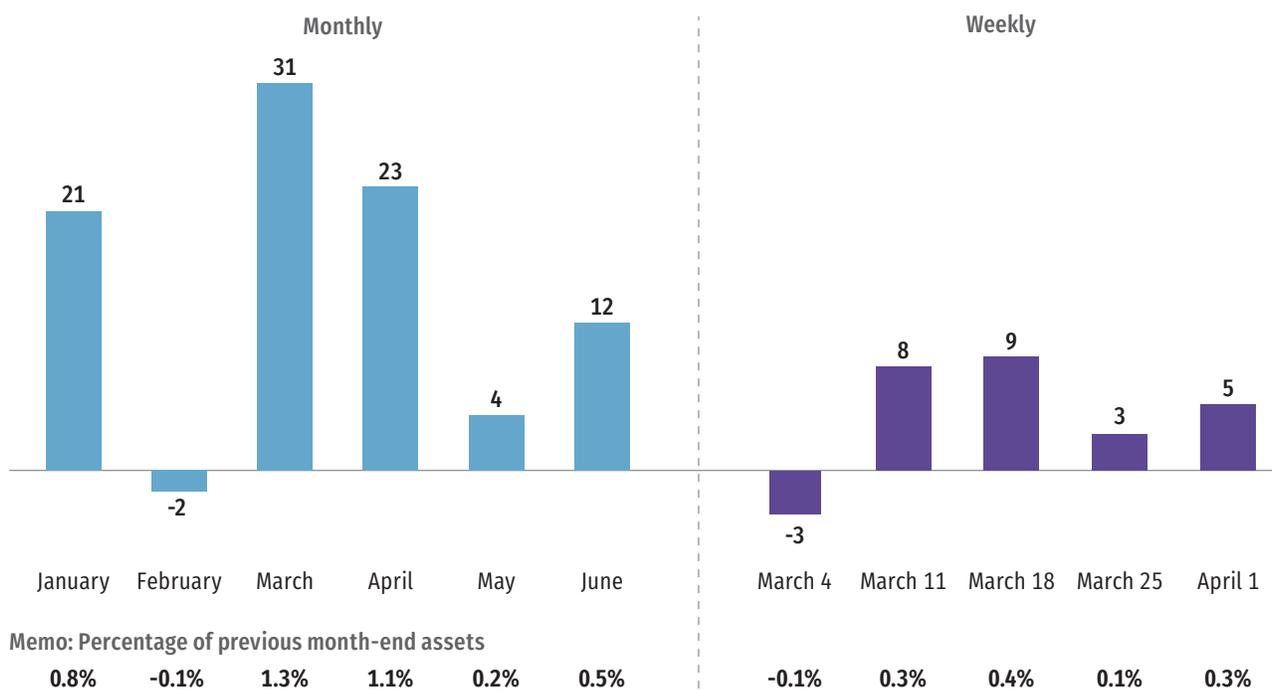
### Net Flows of ETFs Were Modest

ETFs did not experience mass net outflows in March 2020. For the month, ETFs had total net inflows of \$8 billion or 0.2 percent of their February assets. As shown in Figure 2.9, demand for domestic equity ETFs was very strong in March—the largest month of net inflow in the first half of 2020—despite the swift and severe contraction in the S&P 500 and spikes in volatility to levels unseen since the global financial crisis of 2007–2009. Moreover, net inflows to domestic equity ETFs were strongest during the weeks ended March 11 and March 18 when the S&P 500 was dropping fastest—falling more than 12 percent each week.

FIGURE 2.9

### Domestic Equity ETFs Had Strong Net Inflows in March 2020

Billions of dollars, 2020



Source: Investment Company Institute

Some of the inflow to domestic equity ETFs during these two weeks may reflect create-to-lead activity<sup>19</sup>—the creation of new ETF shares by an AP for the purpose of an intermediary lending them to market participants seeking to obtain a short position. ETFs are often used as a hedge during periods of volatility, and as such, investors with long US equity positions may want to short a domestic equity ETF to offset potential losses. Because of regulatory requirements, investors other than market makers generally must locate the ETF shares before selling short, which usually can be easily satisfied by borrowing the ETF shares at a minimal cost.<sup>20</sup> When ETF shares become scarce, however, costs to borrow them generally rise—creating a financial incentive for intermediaries to satisfy the “locate” requirement by creating additional ETF shares.<sup>21</sup>

When ETF share creations are bolstered by create-to-lead activity, ETFs typically experience net redemptions when the market recovers and demand for short positions lessens. Thus, while create-to-lead activity may have boosted net share issuance of domestic equity ETFs in March, it does not appear to have been the primary driver of demand. Domestic equity ETFs continued to receive net inflows in April, May, and June when the value of the US stock market was rising strongly.

In contrast, bond ETFs in March had net outflows at modest levels, totaling \$18 billion, or 2.1 percent of their February assets (Figure 2.10). Likely reflecting investors’ desires to shore up their cash positions by selling high-quality assets, net outflows were concentrated in investment grade bond ETFs, which invest either solely in investment grade corporate bonds or in a combination of investment grade corporate and US government bonds. The bulk of the net outflows from these ETFs occurred in the weeks ended March 18 and March 25 and were moderate, amounting to an estimated \$23 billion or 5.3 percent of their February assets of \$434 billion.

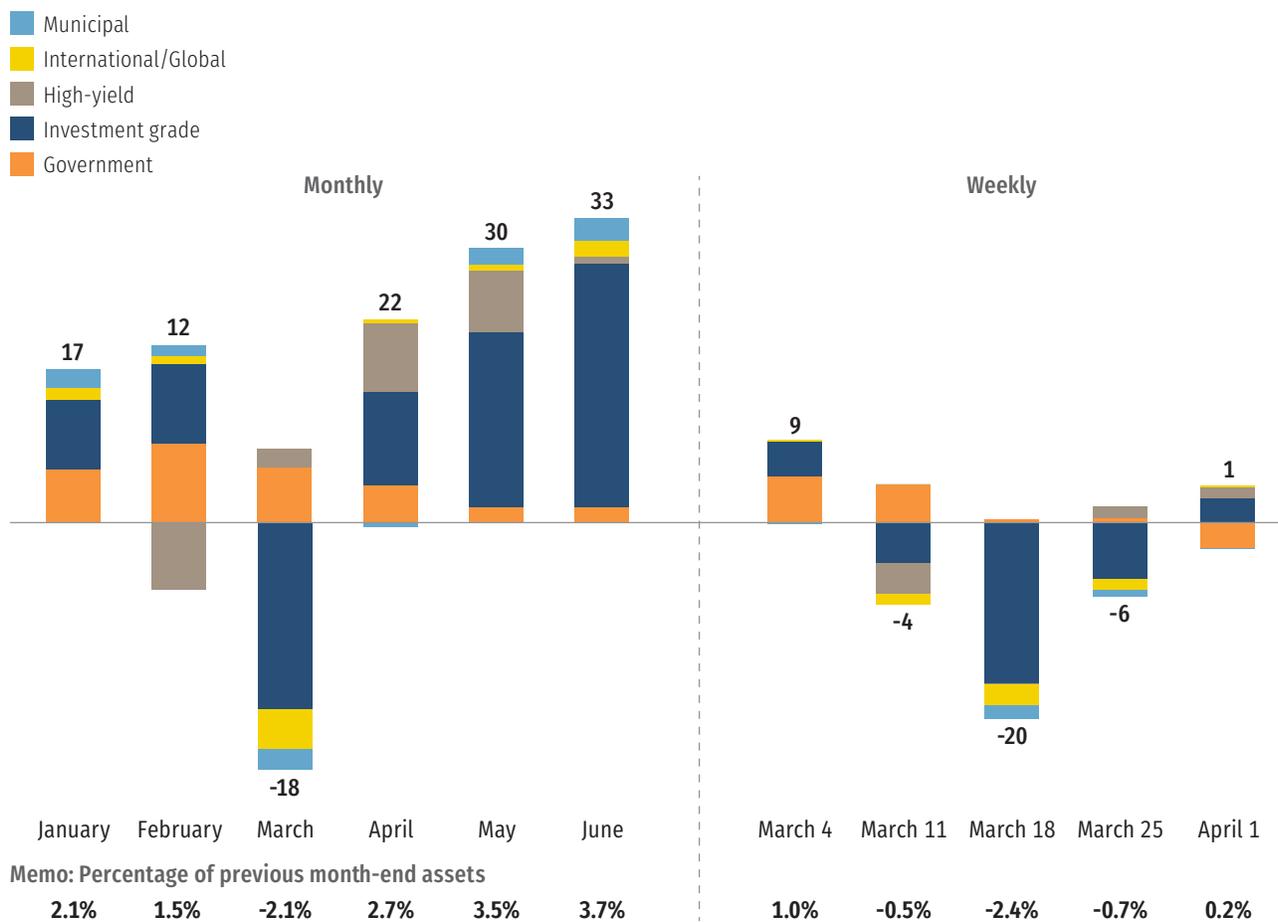
Interestingly, high-yield bond ETFs, which some believe are fragile and susceptible to redemptions en masse in stressed markets,<sup>22</sup> had net inflows of \$2 billion for all of March. During the height of the stress in the underlying bond markets from March 12 through March 25, high-yield bond ETFs had small net inflows, totaling an estimated \$1 billion, or 1.8 percent of their February assets of \$57 billion.

Since March, net inflows to bond ETFs, particularly investment grade and high-yield bond ETFs, have been strong, exceeding the pace set in the first two months of the year. Investors clearly responded to the Federal Reserve’s Secondary Market Corporate Credit Facility (SMCCF), which was established on March 23 and sought to support liquidity in the secondary market for corporate bonds by resuming and bolstering their demand for fixed-income investments.<sup>23</sup> As part of its program, the SMCCF conducts secondary market purchases of investment grade corporate bonds and bond ETFs with broad exposure to US investment grade and high-yield corporate bonds.<sup>24</sup>

FIGURE 2.10

### Bond ETFs Had Modest Net Outflows in March 2020

Billions of dollars, 2020



Sources: Investment Company Institute (monthly data) and ICI calculations of Bloomberg data (weekly estimates)

## Authorized Participants Stepped Up Their ETF Primary Market Activity

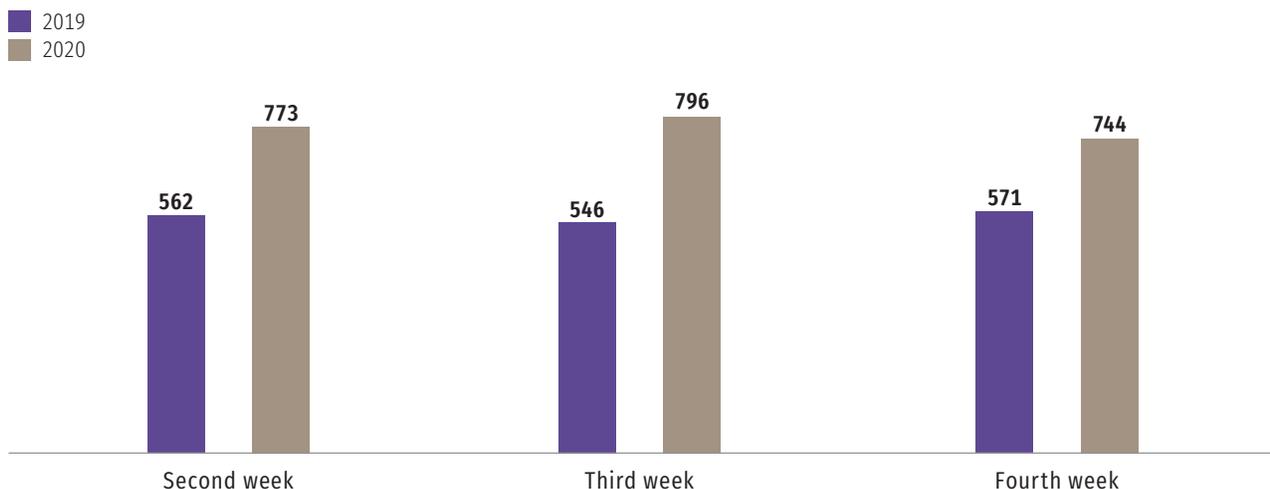
Over the years, policymakers have expressed concern that APs will step away from their role in facilitating creations and redemptions of ETF shares during periods of market stress, and this situation would have knock-on effects in the secondary market for ETF shares.<sup>25</sup> To investigate this concern, ICI conducted a member survey to assess the activity of APs during the March 2020 stress period compared with the March 2019 normal period.<sup>26</sup> In short, APs facilitated a significantly higher volume of ETF creations and redemptions for more ETFs during the March 2020 stress period than in the March 2019 normal period. And, rather than pulling back, more APs, on average, participated in ETF primary market activity during the crisis in March 2020.

Although overall net flows to ETFs were modest in March 2020, there was a flurry of ETF primary market activity. As shown in Figure 2.11, more than 700 ETFs had at least one creation or redemption of shares in the March 2020 stress period. This was an increase of 38 percent when compared with the March 2019 normal period.

FIGURE 2.11

### Substantial Increase in Number of ETFs with Primary Market Activity in March 2020

Number of ETFs with primary market activity,\* March 11–March 29, 2019, and March 9–March 27, 2020



\*In this figure, an ETF with primary market activity had at least one creation or redemption of shares during the specified week.

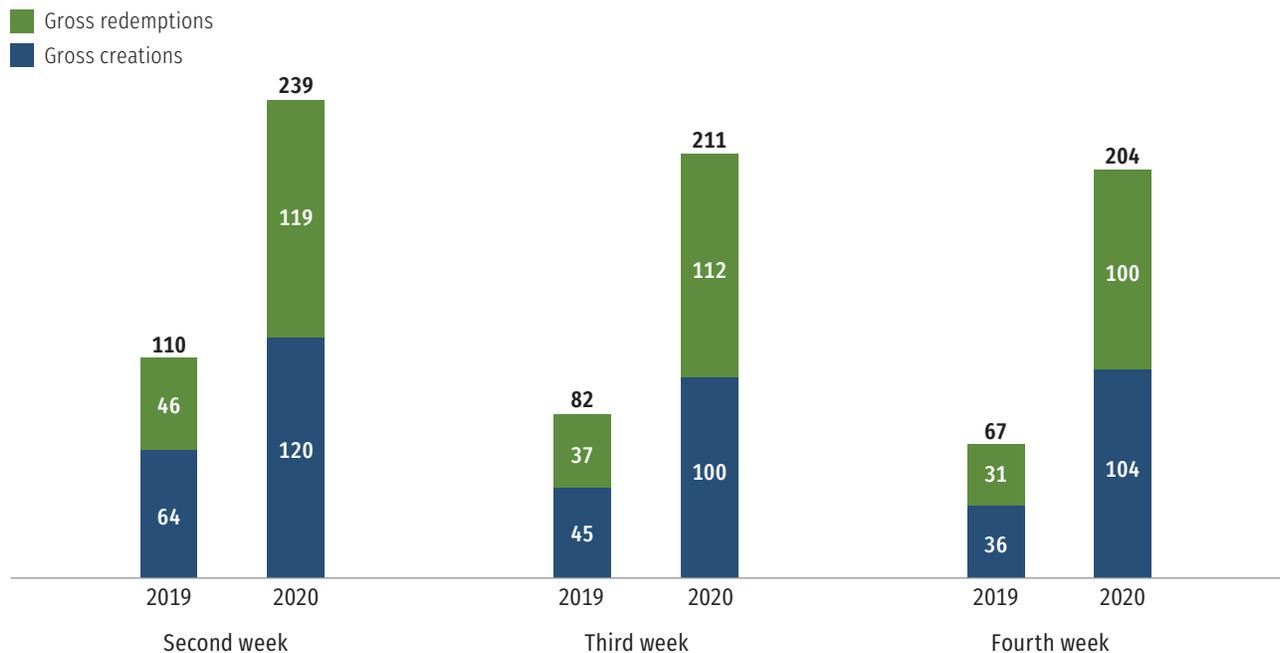
Source: Investment Company Institute survey of ETF sponsors

As more ETFs had primary market activity, the total dollar amount of ETF share creations and redemptions surged in the March 2020 stress period. ETFs had \$654 billion in creations and redemptions, more than double the \$259 billion in primary market activity over the March 2019 normal period (Figure 2.12). Redemptions totaled \$331 billion in the March 2020 period, up from \$114 billion in the March 2019 period. But that increased activity did not reflect redemption pressure alone—creations of ETF shares increased substantially as well. ETF share creations totaled \$324 billion in the March 2020 stress period, compared with \$145 billion in the March 2019 normal period.

FIGURE 2.12

### Dollar Amount of ETF Primary Market Activity More Than Doubled in March 2020

Billions of dollars, weekly, March 11–March 29, 2019, and March 9–March 27, 2020



Source: Investment Company Institute survey of ETF sponsors

This increase in ETF share creations indicates that there was excess demand for ETF shares from investors in March 2020 and that ETFs were not besieged by redemption requests. This point holds true across asset classes. The level of gross creations of domestic equity, international equity, and bond ETFs all were higher in the March 2020 stress period compared with the March 2019 normal period (Figure 2.13, top panel). For example, bond ETFs had \$59 billion in gross creations in the March 2020 stress period compared with \$24 billion in the March 2019 normal period.

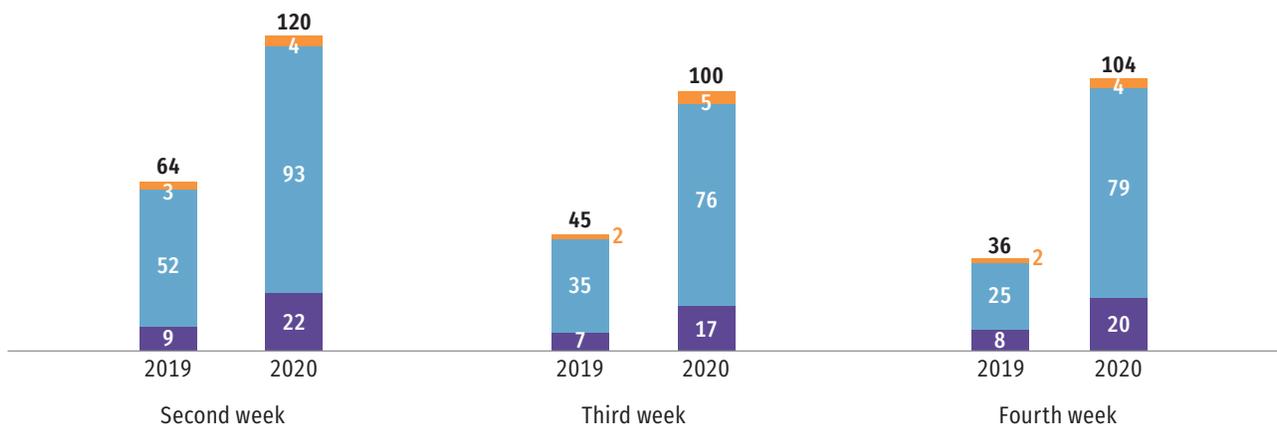
FIGURE 2.13

### Level of Primary Market Activity Increased Across ETF Investment Objectives

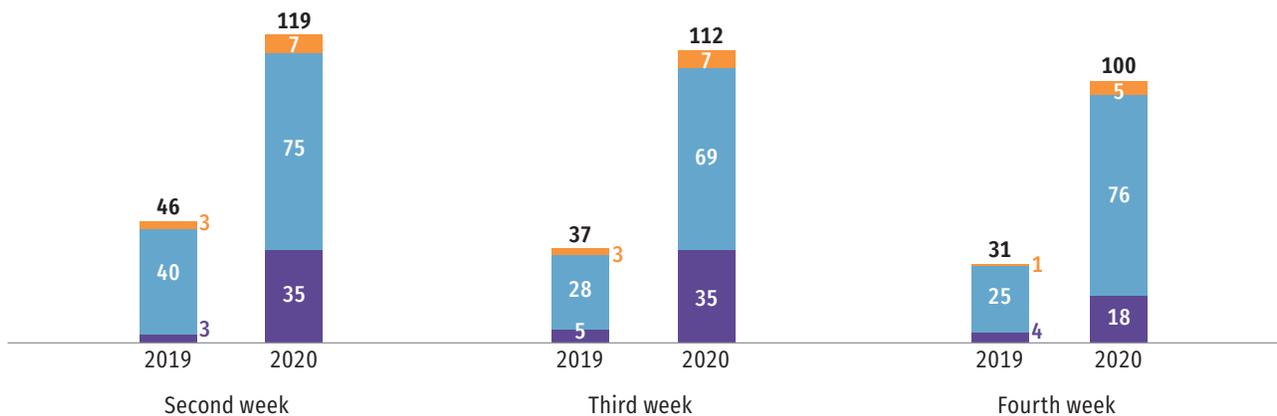
Billions of dollars, weekly, March 11–March 29, 2019, and March 9–March 27, 2020

- International equity
- Domestic equity
- Bond

#### Gross creations



#### Gross redemptions



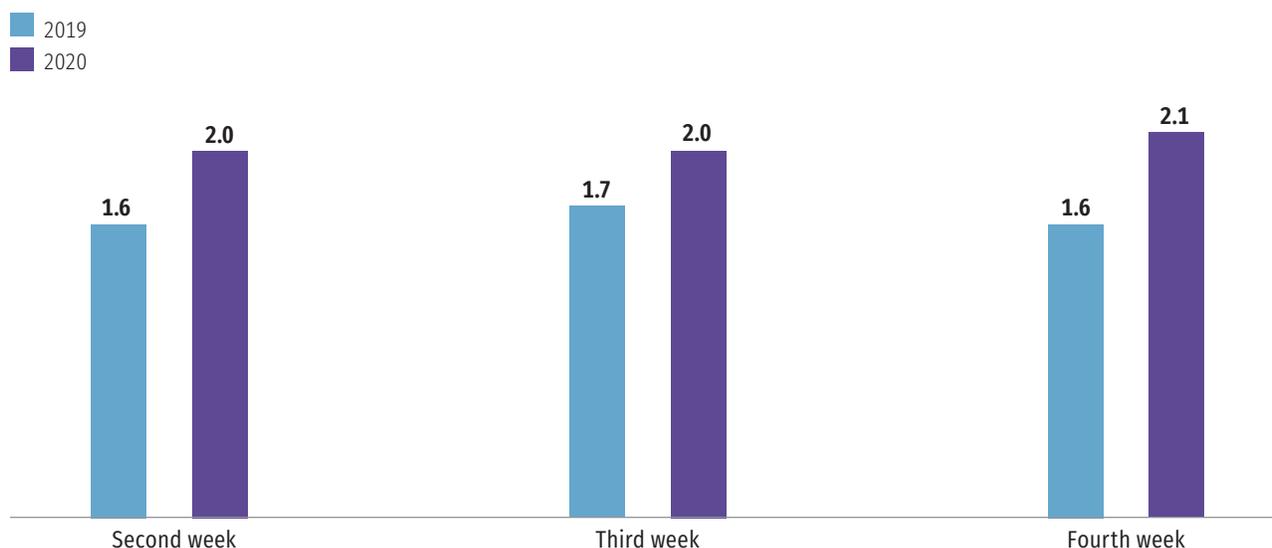
Source: Investment Company Institute survey of ETF sponsors

Rather than stepping away in a crisis period as some have predicted, more APs, on average, stepped up to facilitate the higher level of primary market activity in the March 2020 stress period compared with the March 2019 normal period. As shown in Figure 2.14, each day, an ETF had, on average, two APs that conducted creations and redemptions of ETF shares. This level of AP engagement was somewhat higher than the daily average of 1.6 active APs per ETF in the March 2019 normal period. In addition, in each of the three weeks of March 2020, daily average AP participation per ETF was consistent at two active APs.

FIGURE 2.14

### More APs Stepped Up to Facilitate ETF Primary Market Activity in March 2020

Daily average number of active APs per ETF, March 11–March 29, 2019, and March 9–March 27, 2020



Source: Investment Company Institute survey of ETF sponsors

APs stepped up their activity in the ETF primary market in the March 2020 stress period across asset classes and asset sizes. Domestic equity ETFs experienced the largest increase in the daily average of active APs, moving up from 1.8 active APs in the March 2019 normal period to 2.3 active APs in the March 2020 stress period. This result is not surprising, as domestic equity ETFs account for the vast majority of ETF primary activity. In addition, creations and redemptions of domestic equity ETFs involve a central counterparty because they are processed through the National Securities Clearing Corporation (NSCC) and guaranteed by the Depository Trust Company (DTC).<sup>27</sup>

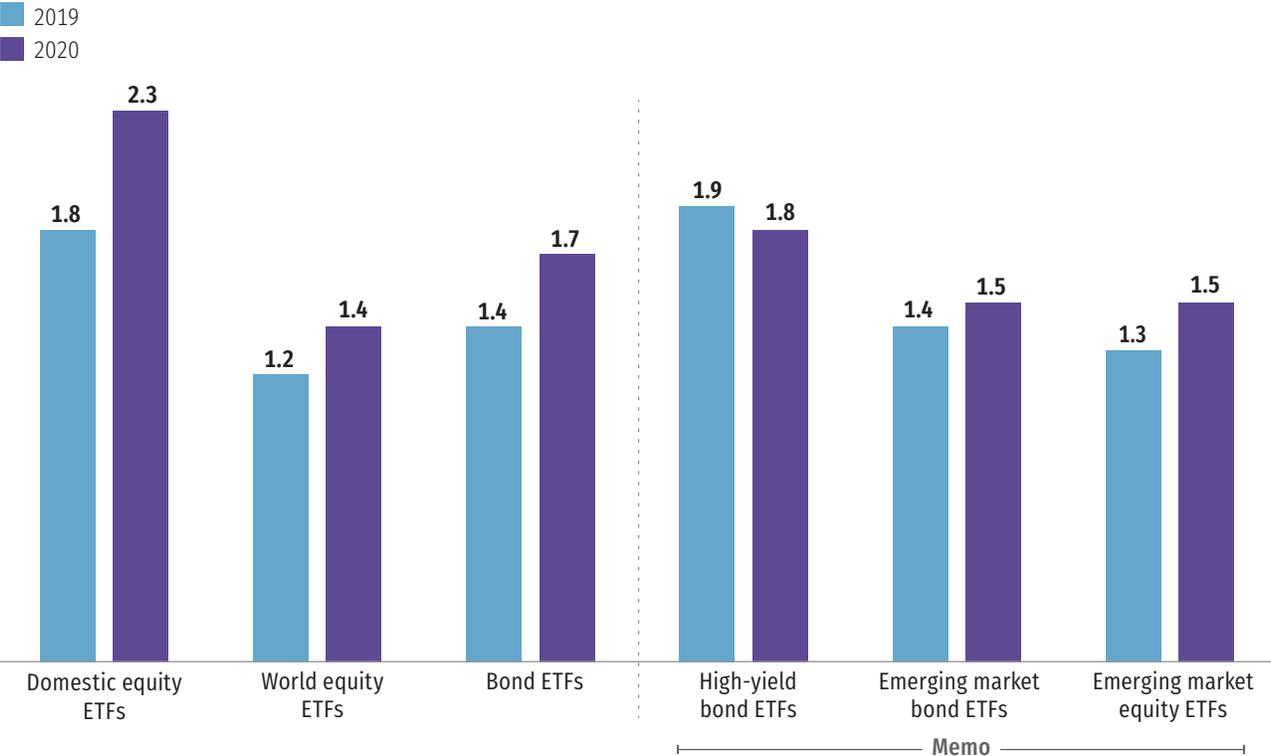
Creations and redemptions of bond ETFs, on the other hand, generally are conducted bilaterally between the AP and the ETF. For this reason, in part, regulators and others often speculate that bond ETFs could be the most susceptible to a pullback by APs in a crisis. But no such pullback occurred in March 2020—quite the opposite. The daily average number of active APs per bond ETF increased to 1.7 in the March 2020 stress period from 1.4 in the March 2019 normal period. Moreover, this increase in AP activity for bond ETFs in March 2020 occurred when bond ETFs had aggregate net outflows (redemptions exceeded creations)—the opposite of March 2019, when bond ETFs had net inflows (creations exceeded redemptions).

In more narrow asset classes, APs also had strong primary market participation in the March 2020 stress period. Emerging market bond ETFs and emerging market equity ETFs both had a small increase in active APs in the March 2020 stress period relative to the March 2019 normal period. This increase is notable because these transactions are processed differently from those involving domestic equities, which are processed through NSCC. When facilitating creations and redemptions in ETFs that invest in international securities, APs post cash collateral to the ETFs—a practice that protects current ETF shareholders in internationally focused ETFs. Some may be concerned that APs would withdraw from facilitating creations and redemptions of internationally focused ETFs during a crisis because constraints elsewhere on their balance sheets would diminish their ability to post collateral. But the data show that this did not occur in the March 2020 stress period (Figure 2.15).

The daily average number of active APs for high-yield bond ETFs was slightly lower in the March 2020 stress period than the March 2019 normal period (Figure 2.15). Even so, the level was relatively high—a daily average of 1.8 active APs per high-yield bond ETF.

**FIGURE 2.15**  
**APs Increased Their Activity Across Varied ETF Asset Classes in March 2020**

Daily average number of active APs per ETF, March 11–March 29, 2019, and March 9–March 27, 2020



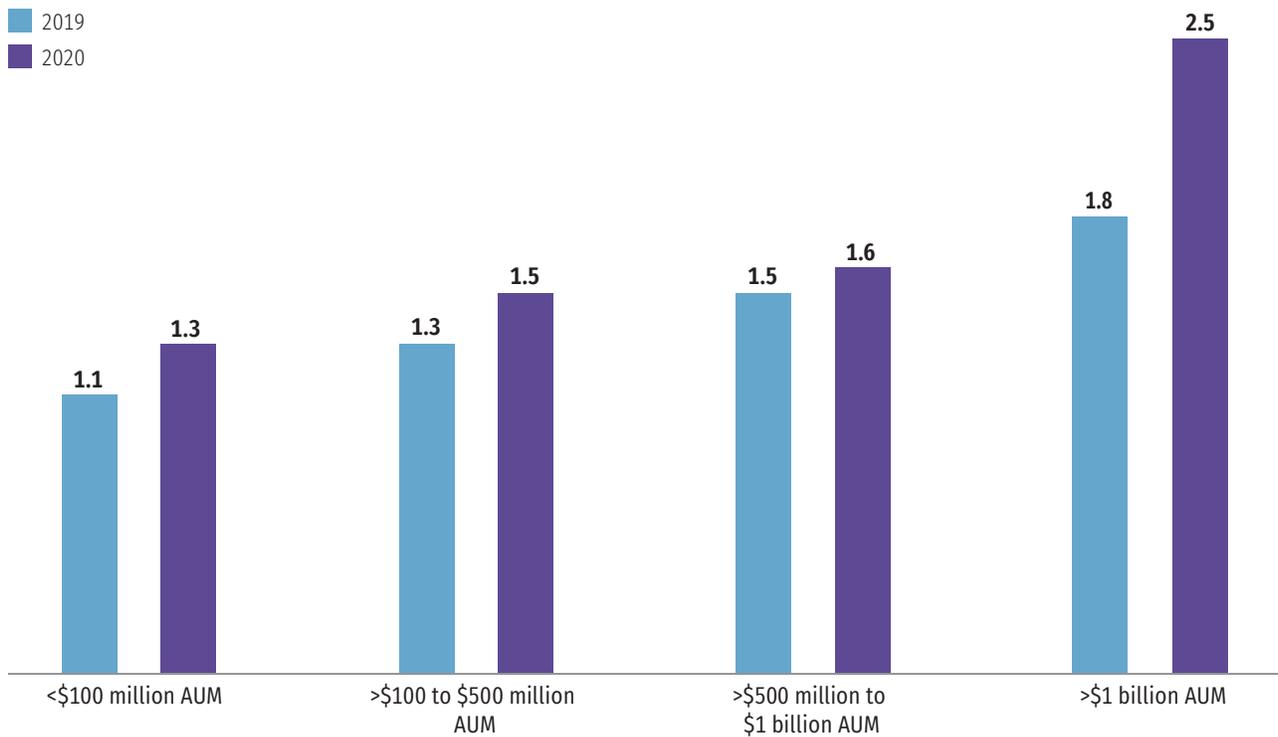
Source: Investment Company Institute survey of ETF sponsors

Increased participation by APs also was widespread across all ETF asset sizes in the March 2020 stress period relative to the March 2019 normal period. Larger ETFs—those with AUM greater than \$1 billion—experienced the largest increase in average daily active APs, rising from 1.8 in March 2019 to 2.5 in March 2020 (Figure 2.16). This increase, however, was not at the expense of smaller ETFs. ETFs with less than \$100 million in AUM also saw an increase in average daily active APs during the March 2020 stress period.

FIGURE 2.16

### Expanded AP Activity Widespread Across ETF Asset Sizes

Daily average number of active APs per ETF, March 11–March 29, 2019, and March 9–March 27, 2020



Source: Investment Company Institute survey of ETF sponsors

## Summary

ETFs proved their resilience in March 2020 during unprecedented market volatility resulting from the COVID-19 crisis. Indeed, contrary to negative predictions, ETFs performed as designed. Rather than stepping away, APs, market makers, and other liquidity providers remained active and engaged, helping to facilitate heightened ETF creation and redemption activity and trading volumes. ETFs also acted as a source of stability and an important source of price discovery in the fixed-income market by providing investors with real-time views on the costs of liquidating the underlying bonds. This evidence should help ease concerns that ETFs might put additional pressure on the financial system during a crisis.

## Notes

- <sup>1</sup> See Investment Company Institute 2019.
- <sup>2</sup> For more information about APs, see Investment Company Institute 2015.
- <sup>3</sup> For a discussion of how ETFs trade, see Investment Company Institute 2020a.
- <sup>4</sup> While ETFs registered under the Investment Company Act of 1940 (Investment Company Act) are subject to the same regulatory requirements as other registered funds, throughout their history ETFs were required to first receive exemptive relief from certain provisions of the Investment Company Act before they could commence operations. After granting more than 300 exemptive orders to fund sponsors, the Securities and Exchange Commission (SEC) adopted the “ETF rule” (Rule 6c-11 under the Investment Company Act) in September 2019. See Securities and Exchange Commission 2019. All ETFs that can rely on the ETF rule must be in compliance by December 22, 2020. In approving the ETF rule, the SEC intended to “create a consistent, transparent, and efficient regulatory framework for the regulation of most ETFs and help level the playing field for [ETF] market participants.” See Securities and Exchange Commission 2019, at 1.
- <sup>5</sup> See Investment Company Institute 2020d.
- <sup>6</sup> See, e.g., Pagano, Serrano, and Zechner 2019. See also Bhattacharya and O’Hara 2020 and Evans and Barrett 2019.
- <sup>7</sup> For more information on the trading of ETF shares, see Investment Company Institute 2020b, at 87.
- <sup>8</sup> See Investment Company Institute 2020f.
- <sup>9</sup> See Investment Company Institute 2020e.
- <sup>10</sup> The average closing price of the five largest high-yield bond ETFs was \$52.32 on March 23, 2020.
- <sup>11</sup> Data used for purposes of this analysis are from Cboe Global Markets, Inc. (CGM), a global exchange operator and one of the largest US equities market operators on any given day. It operates four US equities exchanges—Cboe BZX Exchange, Inc. (BZX), Cboe BYX Exchange, Inc. (BYX), Cboe EDGA Exchange, Inc. (EDGA), and Cboe EDGX Exchange, Inc. (EDGX). CGM (formerly CBOE Holdings, Inc.) acquired Bats Global Markets, the prior operator of these exchanges, in February 2017.
- <sup>12</sup> For the purposes of this analysis, the definition of *other liquidity provider* is any firm that has a two-sided quote for any point in the trading day (09:30 to 16:00 ET) that is less than or equal to 30 percent wide (midpoint x 1.15 for the ask price and midpoint x 0.85 for the bid price), and is not a registered market maker.
- <sup>13</sup> See, e.g., Pan and Zeng 2019, which suggests that liquidity mismatch and AP balance sheet space constraints are important limits to arbitrage in corporate bond ETFs, which ultimately affect ETF pricing.
- <sup>14</sup> Securities and Exchange Commission, Division of Economic and Risk Analysis 2020, at 33; see also Bank of England 2020, at 76 (noting that ETFs became one of the key mechanisms for price discovery during the COVID-19 shock); Aramonte and Avalos 2020; Baxter 2020; *Financial Times* 2020.
- <sup>15</sup> Securities and Exchange Commission, Division of Economic and Risk Analysis 2020, at 33.
- <sup>16</sup> See *id.* at 38 noting that “ETF market prices can rapidly incorporate new information as it becomes available. In contrast, most bonds trade only infrequently, and as a result, bond prices may be relatively insensitive to the arrival of new information. Bond funds, including bond ETFs, generally calculate their NAV in reliance on evaluated prices, matrix prices, price opinions, or similar pricing estimates. During periods of market volatility when the information environment is changing rapidly—as was the case during in March 2020—ETF market prices are viewed by some market participants as a more reliable indicator of actionable value than the ETF’s NAV.” See also Laipply and Madhavan 2020.
- <sup>17</sup> APs are large financial institutions that are US-registered, self-clearing brokers, and full participating members of the National Securities Clearing Corporation (NSCC) and the Depository Trust Company (DTC).

- <sup>18</sup> For more information on the ETF creation and redemption mechanism, see Investment Company Institute 2020c, at 85.
- <sup>19</sup> See, e.g., Greifeld 2020.
- <sup>20</sup> See Securities and Exchange Commission, “Key Points About Regulation SHO.” Specifically, “Rule 203(b)(1) and (2)—Locate Requirement. Regulation SHO requires a broker-dealer to have reasonable grounds to believe that the security can be borrowed so that it can be delivered on the date delivery is due before effecting a short sale order in any equity security. This ‘locate’ must be made and documented prior to effecting the short sale.”
- <sup>21</sup> See, e.g., Flood 2020.
- <sup>22</sup> For a general discussion of the liquidity of fixed-income ETFs and underlying securities, see Securities and Exchange Commission, Subcommittee on ETFs and Bond Funds 2019 and Lawton 2019. But see Gutscher, Ballentine, and Greifeld 2020.
- <sup>23</sup> See Board of Governors of the Federal Reserve System 2020.
- <sup>24</sup> Regarding its decision to include bond ETFs as eligible assets under the SMCCF, the Federal Reserve noted that “ETF purchases can serve as an efficient mechanism to access the corporate bond market, thereby helping the Facility to achieve its objectives.” See Investment Management Agreement 2020, at 47.
- <sup>25</sup> For example, the Financial Stability Board (FSB) noted in its 2017 recommendations regarding asset management that “APs are not obligated to create or redeem ETF shares, and an AP engages in these transactions only when they are in the AP’s best interest given market conditions. This could have potentially negative effects on the ability to trade without accepting significant discounts to the estimated value of the underlying assets if, for example, one or more APs were to pull back from the market in turbulent conditions” (see Financial Stability Board 2017). The FSB further states that “this situation could still create a significant discount or premium on ETF shares for an extended period, which could affect hedged positions and pricing of securities closely linked to the ETF.” *Id.* See also Bhattacharya and O’Hara 2020, at 10.
- <sup>26</sup> Twenty-three ETF sponsors responded with information on 1,205 ETFs registered under the Investment Company Act with a total of \$3.4 trillion in assets as of March 2020. Survey respondents represented 58 percent of the total number of ETFs and 92 percent of assets at the end of March 2020.
- <sup>27</sup> For more information on the clearing and settlement process for ETF primary market activity processed through the NSCC and the safeguards that protect an ETF and its shareholders from a default by an AP, see Antoniewicz and Heinrichs 2014, at 14–19.

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