IOSCO-AMCC
Bond Market Liquidity Working Party

Corporate Bond Markets During the March-April 2020 Covid-19 Turmoil

An AMCC Compendium of Research

May 2021

Final
Overview

The November 2020 FSB Holistic Review of the March Market Turmoil raises concerns about constraints on the market-making capacity of banks, as well as the potential lack of robustness of other sources of liquidity provision in core funding markets. A related key IOSCO Board priority for 2021-22 is Financial stability and systemic risks of NBFI activities. Under the FSEG\(^1\) (including work in connection with the FSB NBFI Workplan), IOSCO is undertaking a number of initiatives including a workstream focused on Corporate bond market microstructure and liquidity provision.

An FSEG-led workstream will focus on examining the liquidity, structure, and resilience of corporate bond markets during the COVID-19 Induced Market Stresses. A first phase of work will develop a data-driven diagnostic review that will contribute IOSCO’s expertise to the FSB’s Workplan. A second phase will analyze market participants’ behavior during the COVID-19 Induced Market Stresses and assess any vulnerabilities of the bond market structure that this analysis highlights:

- FSEG diagnostic report to the IOSCO Board and the FSB examining market microstructure and liquidity provision in corporate bond markets during the COVID-19 market turmoil (by mid-2021).
- FSEG report on market participants’ behavior during the COVID-19 induced market stresses (by Q4 2021).

In March 2021, the AMCC put forward a proposal to leverage its broad and diverse membership to create a dedicated Bond Market Liquidity Working Party (AMCC BMLWP). The objective the AMCC BMLWP is primarily to complement the work being undertaken by the FSEG, leveraging the AMCC’s broad membership and diversity of relevant stakeholders. In its multi-jurisdictional analysis, the AMCC BMLWP would aim to draw on input from bond issuers and syndicates, secondary market dealers, investors and asset managers, as well as trading venues and other relevant infrastructures.

In its analysis, the WP would look to provide additional value to relevant FSEG workstreams, particularly through the provision of supplementary market data and quantitative analysis that may not be publicly available or directly provided through regulatory reporting requirements.

The BMLWP may also offer qualitative perspectives either to validate or test data-driven conclusions, or to highlight considerations that may have otherwise not have been considered elsewhere.

In response to a call for interest, the BML WP was formed consisting of representatives from the following AMCC members: AIMA; ANBIMA; CCP-12; EFAMA; GFMA; ICI Global; ICMA; IIROC; and JSDA. The WP is chaired by ICMA.

As an initial deliverable, intended to complement the FSEG diagnostic report, it was agreed that the WP would produce a compendium of relevant WP member research that provides analysis of how corporate bond markets performed during the COVID-19 turmoil, globally. This would also be a launchpad for the next WP deliverable, which is intended to be a more detailed analysis of bond market structure, liquidity provision, and potential vulnerabilities.

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\(^1\) In early 2020, the IOSCO Board established the Financial Stability Engagement Group (FSEG), a Board-level group set up to enhance IOSCO’s approach to financial stability issues, including with regard to its engagement with the Financial Stability Board (FSB), international standard setting bodies, and other organizations.
Key findings of the research

Global corporate bond markets, along with equities, government bonds, agencies, and short-term credit instruments, came under significant selling pressure in the early weeks of March 2020 as COVID-19 related lockdowns around the world sparked a liquidity run. This stress in corporate bond markets is evidenced by a sharp increase in both yields and credit spreads and is observed across the four regional markets covered in this compendium: North America (US and Canada), Europe, Japan, and Brazil.

A consistent theme across the analysis presented in this compendium is that dealer capacity in corporate bond markets was severely constrained relative to the size of the flows experienced in the secondary market, which only helped to extenuate the price dislocations: both in the initial sell-off and during the ‘bounce’ following central bank interventions. How liquidity is provided in corporate bond markets, and limitations on dealers’ balance sheets, as well as the ability to assume and manage risk, is a key consideration arising out of the market turmoil. The lessons learned from the European experience further highlight a marked shift from electronic trading to voice trading during the peak of the turbulence, again underlining the central role of market makers in secondary market functioning.

In the US and Europe, investment grade bond mutual funds (noting the important distinction between investment grade bond funds and the substantially smaller investment grade corporate bond funds) had sizeable outflows. However, analysis on US bond mutual funds shows these outflows were in line with what would be expected given the unprecedented shock to the bond market in March 2020. In addition, the observation here is that the liquidity management tools available to funds worked well, and with the exception of a few outliers, corporate bond funds were able to meet redemptions.

This is similarly true for bond ETFs, which were resilient under stressed market conditions. While temporary discrepancies were observed between ETF market prices and their respective net asset values (NAVs), it is noted that bond ETFs, including corporate bond ETFs, continued to trade actively at a time when the market for the underlying bonds had frozen. This suggests that ETFs acted as a price discovery tool for investors in the bond markets where participants faced challenges in finding liquidity and establishing pricing for individual bonds. Bond ETF prices during these times reflected the increased liquidity costs in the underlying bond markets.

All the regional research also confirms the critical role of swift and extensive central bank intervention, which restored both confidence and liquidity to the corporate bond markets. Originally this came in the form of increased corporate issuance (which had ceased during the peak of the turmoil) and which helped to provide a pricing reference for secondary markets, which quickly saw yields and credit spreads stabilize and tighten. Central bank programs, particularly corporate bond purchase schemes, continue to underpin primary and secondary market activity and pricing more than a year ion from the crisis.
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North America

Summary of findings

US

- The corporate bond market has grown significantly since the global financial crisis. By the first quarter of 2020, corporate debt outstanding totaled $13.7 trillion, up from $11.1 trillion at year-end 2010. This represented a compound annual growth rate of 2.1 percent. A wide range of firms issue corporate bonds in the United States to build fixed capital or inventories, undertake research and development, fund acquisitions, or support operations. Corporate bonds are held by a wide range of entities. Households hold corporate bonds directly, as well as indirectly through RICs, which include money market funds, mutual funds, ETFs, and closed-end funds. Other majors are banks and dealers, insurance companies, non-US residents (rest of the world) and the various entities such as defined benefit pension plans.

- As with the Treasury, agency, and short-term credit markets, the market for corporate bonds came under intense stress in March 2020. This is evidenced by rising yields on corporate bonds.

- Yields on high-yield bonds also began rising a bit sooner (March 4) than those on investment grade bonds (March 9). High-yield bonds tend to have a risk-return profile more similar to equity and respond more strongly than investment grade bonds to changes in the overall health of the US economy – which are generally reflected in stock price movements.

- Oil market development also reportedly added to the upward pressure on yields on corporate bonds, especially for high-yield bonds. Energy companies, such as oil exploration and oil pipeline firms, often obtain financing by issuing high-yield bonds are, not surprisingly, correlated with oil prices.

- Looking at representative indexes during the analysis time period of January 2 to June 15, we highlight:
  - On average, the 12 indexes we tracked fell 13.4% at their troughs
  - High yield 1+ years was the worse off, -23.0% at the trough

- Bond mutual funds have been one area of focus, and policymakers will be considering the data to assess whether structural reforms might be warranted. It is therefore important the policy makers and academics differentiate between investment grade bond fund versus investment grade corporate bond fund. Investment grade corporate bond mutual funds, as the name suggests, would likely hold the bulk of their assets in investment grade corporate bonds. By contrast, investment grade bond funds would typically hold investment grade corporate bonds but could also hold a very large percentage of their assets in Treasury and agency bonds, which are also investment grade.

- The record one-month outflows from bond mutual funds in March 2020 reflected the immense size of the shock from COVID-19 to the real economy and the financial sector, not a fundamental change in fund investor behavior.

- Fund investors are unlikely to redeem at the percentage pace seen last March unless there is another shock of the same magnitude as COVID-19.
Canada

- The markups on all fixed-income securities rose substantially at the height of the crisis. The proxy of the transaction cost of two-year GoC bonds quintupled. Dealers were charging much higher service fees for buying a bond, an indication that their ability to purchase bonds was stressed. For corporate bonds, the proxy increase was tenfold, rising from a markup of around 20 cents to a peak of 250 cents.

- Another sign of dysfunction was a move to agency trading. Agency trading for GoC bonds, provincial bonds and corporate bonds generally increased in 2020. The increase is particularly pronounced for corporate bonds trades, for which agency trading nearly quadrupled in late April before falling back in line with the other classes of bonds. This illustrates the growing reluctance of dealers to bear the risk of holding bonds, especially riskier corporate bonds. Instead, dealers seemed to prioritize their use of balance sheet space and became more likely to only provide the function of matching investors and effecting the transactions.
(October 2020)
Crisis Jumped to the Corporate Bond Market

Pressures also arose in the corporate bond market in March 2020. Yields on corporate bonds jumped in March to levels not seen since 2008–2009. Yields rose (prices fell) across the credit quality spectrum, consistent with investors selling long-term bonds in order to move to the very shortest and most liquid part of the yield curve. This is further evidence that March 2020 was a flight to cash in the face of the tremendous uncertainty arising from the virus.

Corporate bonds are an important source of long-term funding for businesses, along with sales of stock and loans from banks. A corporation may issue bonds to finance a particular project, expand operations, or help fund new business lines.

Corporate bonds are rated by credit rating agencies. These ratings broadly classify bonds as either investment grade or below investment grade (also known as high-yield bonds). The rating a bond receives depends on the creditworthiness of the company. Companies that are judged as having the best ability to repay receive the highest credit ratings and consequently pay lower interest rates for borrowing. High-yield bonds are issued by companies that are less creditworthy (or that have covenants that mean even a creditworthy borrower is less likely to repay on the particular bond).

The corporate bond market has grown significantly since the global financial crisis. By the first quarter of 2020, corporate debt outstanding totaled $13.7 trillion, up from $11.1 trillion at year-end 2010 (Figure 1.29, top panel). This represented a compound annual growth rate of 2.1 percent. As can be seen, however, the corporate bond sector grew much faster from 2000 to 2007 (the year before the full onset of the global financial crisis), expanding at a rate of more than 12 percent per year.
**FIGURE 1.29**

**US Corporate Bond Market Has Grown Since the Global Financial Crisis...**

Trillions of dollars, 2000-2020

Note: The data include holdings of foreign issues held by US residents. Data from 2000 to 2019 are year-end.
Source: Federal Reserve Board

...And Is an Important Source of Funding for the US Economy

Percentage of corporate debt outstanding by selected industry, January 2019

Source: ICI calculations based on S&P Global data
A wide range of firms issue corporate bonds in the United States to build fixed capital or inventories, undertake research and development, fund acquisitions, or support operations. According to S&P Global, as of May 2019, financial firms accounted for the largest share of corporate bond issuance at more than 18 percent (Figure 1.29, bottom panel). The next largest shares were attributable to high-tech firms, utilities, telecommunications firms, and media and entertainment companies.

Corporate bonds are held by a wide range of entities (Figure 1.30). Households hold corporate bonds directly, as well as indirectly through RICs, which include money market funds, mutual funds, ETFs, and closed-end funds. Other major holders are banks and dealers, insurance companies, non-US residents (rest of the world), and various other entities such as defined benefit pension plans.

The share of US corporate bonds held by the various entities has changed since the global financial crisis. For example, a number of observers have noted that corporate bonds held by RICs rose substantially over this period, from $1.5 trillion in 2010 to $2.9 trillion at the end of 2019. What is often missed, however, is that this may, in part, reflect a substitution by retail investors from holding bonds directly to holding them indirectly through RICs, which can be more efficient and diversified. Households’ and RICs’ combined holdings of corporate bonds rose $500 billion from 2010 to 2019, but their combined share of total corporate bonds outstanding fell from 32 to 28 percent. The lion’s share of the $3.1 trillion growth in the corporate bond market from 2010 to 2019 was absorbed by insurance companies and foreign investors (rest of the world).37

### FIGURE 1.30
**Who Holds US Corporate Bonds?**
Trillions of dollars, year-end

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>11.1</td>
<td>11.2</td>
</tr>
<tr>
<td>Rest of the world</td>
<td>2.5</td>
<td>1.8</td>
</tr>
<tr>
<td>Insurance</td>
<td>2.0</td>
<td>3.8</td>
</tr>
<tr>
<td>Banks and dealers</td>
<td>1.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Households</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>RICs</td>
<td>1.1</td>
<td>1.1</td>
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</tbody>
</table>

Note: Every category except rest of the world includes holdings of foreign issues by US residents; banks and dealers includes US-chartered depositories, foreign banking offices in the United States and banks in US-affiliated areas, and securities brokers and dealers. Components may not add to the totals because of rounding.

Source: Federal Reserve Board
As with the Treasury, agency, and short-term credit markets, the market for corporate bonds came under intense stress in March 2020. This is evidenced by rising yields on corporate bonds. Figure 1.31 plots yields on investment grade corporate bonds rated A and BBB, as well as yields on high-yield bonds. As the top panel indicates, yields on these bonds spiked to levels as high as any seen since the global financial crisis.

The bottom panel focuses on February through April 2020. In March, yields on high-yield corporate bonds rose considerably more than those on investment grade corporate bonds. Note, however, that because high-yield bonds tend to have shorter durations (in part reflecting their high interest payments), the greater rise in yields can overstate the decline in prices of high-yield bonds relative to investment grade bonds.38
FIGURE 1.31
Yields on Corporate Bonds
Percent, selected bond rating categories, daily

January 2, 2008–June 30, 2020

February 3–April 30, 2020

Source: Federal Reserve Bank of St. Louis FRED database
Yields on high-yield bonds also began rising a bit sooner (March 4) than those on investment grade bonds (March 9). High-yield bonds tend to have a risk-return profile more similar to equity, and respond more strongly than investment grade bonds to changes in the overall health of the US economy—which are generally reflected in stock price movements. The stock market had been falling since mid-February and media reports indicate that the high-yield bond market finally woke up to that, especially in sectors that could be hit hard by the spread of the virus (e.g., travel and energy).39

Oil Market Developments and High-Yield Bonds

Oil market developments also reportedly added to the upward pressure on yields on corporate bonds, especially for high-yield bonds. Energy companies, such as oil exploration and oil pipeline firms, often obtain financing by issuing high-yield bonds. The prices of these high-yield bonds are, not surprisingly, correlated with oil prices. When oil prices fall, the expected profitability of energy firms falls, reducing their ability to meet their obligations and causing a drop in the value of the bonds they issued.

Oil prices had declined slowly from January to late February (Figure 1.32). The Organization of the Petroleum Exporting Countries (OPEC), anticipating a further drop in prices because of an expected fall in demand associated with the virus, had been discussing cutting oil supply to bolster oil prices. On March 6, however, discussions halted because Saudi Arabia and Russia were unable to reach an agreement on production cuts. As a result, crude oil spot and futures prices dropped sharply, falling 31 percent over March 6 and the following business day, March 9. Over the same two days, yields on high-yield bonds jumped 135 basis points.

FIGURE 1.32
Yields on High-Yield Bonds and Oil Prices
Daily, January 2–April 30, 2020

Source: Federal Reserve Bank of St. Louis FRED database
ICI: What’s in a Name, Redux: For Bond Mutual Funds, “Corporate” Matters (March 2021)
What’s in a Name, Redux: For Bond Mutual Funds, “Corporate” Matters

BY SEAN COLLINS

Policymakers around the globe are studying the turmoil in March 2020 related to the COVID-19 pandemic to determine what happened and why. Similar work is being done by academics and other analysts. Bond mutual funds have been one area of focus, and policymakers will be considering the data to assess whether structural reforms might be warranted.

But as policymakers do so, it is critical that they view the data on regulated funds through a lens of deep institutional knowledge. Otherwise, false assumptions, misinterpretations of data, or misunderstanding of institutional details could lead to policy recommendations that risk altering the fundamental structure of bond mutual funds to the detriment of millions of US households. Indeed, misinterpretations are already apparent. Gaps in understanding how regulated funds operate are adding to a flawed narrative about what happened last March—and are distorting analysis of the corporate and Treasury bond markets.

Investment Grade Bond Funds Are Not “Investment Grade Corporate Bond Funds”

A powerful example of this is policymakers’ continuing misunderstanding about the term investment grade bond fund versus investment grade corporate bond fund. This is not semantics: the one-word difference—corporate—is key to a clear understanding of funds’ experiences last March.

Leading up to March 2020, some observers had expressed concerns that “investment grade corporate bond mutual funds” could pose risks to financial stability. Commentators worried that assets in funds of this type had grown substantially in the past few years, and that investors in these funds might redeem heavily during a financial crisis. If so, the narrative proceeded, such funds might be forced to dump corporate bonds into the market at fire-sale prices, potentially amplifying the crisis. [1]

But as we explained in a January 2019 ICI Viewpoints post, these concerns were exaggerated because analysts were confusing and conflating the terms investment grade corporate bond fund and investment grade bond fund. [2] As our 2019 clarification noted, the one-word difference is important.
Investment grade corporate bond mutual funds, as the name suggests, would likely hold the bulk of their assets in investment grade corporate bonds. By contrast, investment grade bond funds—the actual category of funds that ICI tracks—would typically hold investment grade corporate bonds, but could also hold a very large percentage of their assets in Treasury and agency bonds, which are also investment grade.

Academics and others were not careful about this distinction. They mislabeled the assets in investment grade bond mutual funds, which totaled nearly $2 trillion at that time, as being assets in "investment grade corporate bond funds." This mislabeling invited policymakers to infer that such funds held nearly $2 trillion in corporate bonds, which was not the case. In fact, such funds held just $550 billion in corporate bonds.

**Investment Grade Bond Funds and Investment Grade Corporate Bond Funds: Still Not the Same**

Despite ICI’s 2019 clarification, since March 2020, some observers have continued to make the same error, confusing and conflating *investment grade corporate bond funds* and *investment grade bond funds*. This distinction is an important predicate for understanding how various types of bond mutual funds manage their liquidity, a topic some policymakers—such as the Financial Stability Board—will be studying in coming months.[3]

A range of oft-cited papers about funds’ experiences during the COVID-19 turmoil evince this confusion.[4] For example, one report dated October 1, 2020, states that “net assets of long-term mutual funds that invest *primarily* in corporate bonds have risen substantially since 2008: investment grade *corporate* bond mutual funds rose to $2.159 billion in 2019 from $738 billion in 2008” and that “one contributor to the dysfunction was the very substantial redemptions in investment grade *corporate* bond mutual funds in March” [emphasis added].[5]

This is misleading. The asset levels cited by the report are sourced from ICI. Our data, however, do not include an investment grade corporate bond fund category. As Figure 1 shows, the asset levels are in fact for ICI’s investment grade bond funds category—a label that doesn’t include the modifier corporate. Morningstar does report assets for a category called “corporate bond,” which captures funds that invest primarily in investment grade corporate bonds. The total assets in funds within this Morningstar category are very small, however, totaling just $83 billion in December 2019, just before the onset of the COVID-19 financial market turmoil.
Although funds in ICI’s investment grade bond fund category do hold corporate bonds, they hold considerably more of their assets in government bonds, or, in other words, in Treasury and agency bonds. [6] For example, as of December 2019, these funds held nearly half of their $2.159 billion of assets in government bonds, and just 31 percent in corporate bonds (Figure 2). Of the remaining 22 percent of their assets, 5 percent were in foreign securities (e.g., foreign sovereign bonds), 5 percent in money market instruments (e.g., bank deposits, Treasury bills, commercial paper), and 11 percent in other instruments (e.g., variable rate demand notes).
This distinction is critical to understanding the experiences of investment grade bond mutual funds. These funds saw redemptions in March 2020 and, in part, met the redemptions by selling Treasury bonds. Some have argued that this development is novel and surprising.\(^7\) On the contrary, given that these funds hold nearly half of their assets in Treasury and agency securities, it is quite natural that they would have sold Treasuries to help meet redemptions.

This is just one example of how important it is for policymakers and analysts to view the data on regulated funds through a lens of deep institutional knowledge. Otherwise, false assumptions or misinterpretations of institutional details of funds could lead to policy proposals that risk fundamentally altering the structure of bond mutual funds to the detriment of millions of US households.

Other Posts in This Series
- Bond Mutual Fund Outflows: A Measured Investor Response to a Massive Shock

Sean Collins is chief economist of ICI.


[6] ICI defines investment grade bond mutual funds as funds that seek current income by investing primarily in investment grade debt securities. These funds could invest up to two-thirds of their assets in Treasury and agency bonds (ICI classifies mutual funds with more than two-thirds of their assets in government securities as government bond mutual funds).

[7] See, for example, Yiming Ma, Kairong Xiao, and Yao Zeng, “Mutual Fund Liquidity Transformation and Reverse Flight to Liquidity,” December 8, 2020, who argue, “In meeting redemption requests, bond funds followed a pecking order of liquidation by first selling their most liquid assets before illiquid ones. This is why the pronounced outflows [from bond mutual funds] generated concentrated selling pressure in traditionally liquid asset markets”—in other words, in the Treasury market.
ICI: Bond Mutual Fund Outflows: A Measured Investor Response to a Massive Shock (March 2021)
Bond Mutual Fund Outflows: A Measured Investor Response to a Massive Shock

BY SEAN COLLINS

In recent months, we have seen many high-profile analyses arguing that bond mutual funds amplified stresses in financial markets during the start of the COVID-19 pandemic in March 2020. These analyses conclude that bond mutual funds therefore may require structural regulatory reforms. But as the information in this ICI Viewpoints and others to follow indicates, policymakers should not jump to that hasty conclusion.

In a series of posts, we will demonstrate that the evidence about what happened to financial markets in March 2020 is still too mixed and preliminary to conclude that new regulation is appropriate for bond mutual funds. Given the importance of bond mutual funds to retail investors and to the US and global economies, it is critical that we have all the data and insights—measured and applied correctly—before regulators start considering policy recommendations to reform these funds.

We’ll start with a key question: what caused the record redemptions from US bond mutual funds in March 2020? Did those redemptions reflect, as some analysts contend, a heightened and growing responsiveness on the part of bond mutual fund investors, a trend that makes those investors more prone to redeem heavily in times of turmoil and threatens financial stability? Or were those redemptions simply proportional to the once-in-a-century shock during that turbulent month?

Our findings indicate that bond mutual fund investors behaved in March 2020 much as they always have in response to financial market shocks: redeeming moderately in proportion to the size of the shocks they face. It’s just that in March 2020, they faced a massive and unprecedented economic and financial market shock. And, although investors redeemed 5.2 percent of their bond fund assets, they actually retained 94.8 percent.

These findings undermine the claim that bond mutual fund investors pose a growing threat to the stability of markets.
The Debate: Has Bond Mutual Fund Investors’ Behavior Changed?

The COVID-19 shock was unique and all-encompassing: while it was first and foremost a health crisis, it pummeled both the real economy and the financial sector. Seeking shelter from the downturn, volatility, and uncertainty, investors around the world scrambled for liquidity. This included trying to sell longer-dated bonds in exchange for cash, or for overnight or very short-term debt.[1] These efforts, all responses to the COVID-19 developments, created singular effects in financial markets. Some analysts have argued that these singular effects may have been amplified by the actions of bond mutual fund investors,[2] and that those investors in recent years have become more reactive to market conditions—that is, that they respond more strongly to negative fund performance.[3] As we discuss here, percent outflows from bond mutual funds in March 2020 hit a one-month record. But the drop in bond prices also shattered records from the past three decades.

Drop in Bond Prices During COVID-19 Turmoil Shattered Records

FIGURE 1
Reflecting Stresses from COVID-19, Treasury Bonds Suffered Deep Losses in Early- to Mid-March 2020
Total return on 10-year Treasury bonds, 1990 to 2020, seven business day periods*

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<td>Mar 18, 2020</td>
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* The figure plots those seven-day periods where the return on the 10-year Treasury bond index was negative. The S&P 10-year Treasury bond index starts on December 29, 1989.
Source: Investment Company Institute calculations based on S&P 10-year Treasury bond total return index

It is well-established that flows to bond mutual funds tend to track bond returns.[4] One of the most unusual aspects of the COVID-19 market turmoil was that bond prices fell at a record pace—even for US Treasury bonds, the safest of safe havens, whose prices normally rise during times of crisis. Indeed, Treasury bond prices dropped more during the seven business days from March 9 to March 18 than in any other similar period in the past 30 years (Figure 1). Given that drop, prices on all other bonds also were bound to fall by large amounts.
Bond price declines did indeed shatter records in March 2020. Figure 2 plots weekly percent returns on taxable US bonds from January 2007 to December 2020. Consistent with the record decline in Treasury bond prices shown in Figure 1, prices on taxable US bonds dropped 4.0 percent the week ending March 18, 2020, which was easily the largest one-week decline in the past 30 years. The second largest one-week decline occurred during the global financial crisis, when prices on taxable US bonds dropped 2.9 percent the week ending October 15, 2008. Notably, the bond market dropped more, and bond funds saw larger outflows, during the week of March 18, 2020.

FIGURE 2

Bond Mutual Fund Flows Tend to Track Bond Market Returns
Percent, weekly, weeks ending Wednesday

Weekly percent flows to taxable US bond mutual funds
Weekly percent returns on US bond market

Note: Taxable US bond mutual funds includes investment grade, multisector, government, high-yield; and excludes municipal bond funds or bond funds with an international, global, or emerging markets focus. Percent flows are calculated as weekly fund flows divided by those funds’ assets at the end of the previous month. Percent return on the US bond market is the weekly percent change in the Bloomberg Barclays US Aggregate Total Return bond market index, which is an index of total returns on taxable US bonds.

Sources: Investment Company Institute and Bloomberg
Given the Massive Shock, How Did Bond Fund Investors React?

Given the sheer magnitude of the economic and financial shocks to the bond market in March 2020, it would have been truly remarkable had investors in bond mutual funds not reacted. Investors did react, redeeming 5.2 percent of those funds’ assets (Figure 3).[5]

But were those outflows out of proportion to the size of the shock? Some analysts say yes.[6] They argue that bond fund investors have become more reactive in recent years to market developments, perhaps boosting March 2020 outflows relative to what previously might have been expected.

We believe there’s another possibility that better fits the data: fund investors reacted about as they have in the past. They redeemed relatively modestly in proportion to the size of the financial market shock—it’s just that in March 2020 they faced a massive shock.[7]

To assess these competing alternatives, we turned to a statistical forecasting model. Our model gauges how flows to bond mutual funds that focus on taxable US bonds respond to four factors: bond market returns, stock market returns, stock market volatility, and recent past percent flows to bond funds. To gauge whether investor behavior has changed, we estimate this model using data from three different periods: 2007 to 2019; 2007 to 2009; and 2010 to 2015. The period 2007 to 2019 stretches from one year before the global financial crisis of 2008-2009 to just before the onset of the COVID-19 crisis. The second period, 2007–2009, focuses only on the global financial crisis. The third period, 2010–2015, focuses on the post–global financial crisis period, but stops several years before the COVID-19 crisis to better gauge whether, in the past five years, investors have become more sensitive to bond market conditions.
Figure 4 shows the results. The blue line plots actual weekly percent flows. The other lines plot forecasts from the model based on data from those three periods. As is often the case with forecasting models, the forecasts lag a bit behind the actual values, declining and subsequently recovering a bit later. The key point, however, is that the patterns and magnitudes in the forecasts look very similar to the actual flows from bond mutual funds—whether the model is based on long or short periods, or periods where markets are roiled or relatively calm. In other words, it wasn’t that investors became more reactive, but that they reacted moderately in proportion to a record-breaking downturn in the markets combined with a huge jump in market volatility.
To conclude:

» The record one-month outflows from bond mutual funds in March 2020 reflected the immense size of the shock from COVID-19 to the real economy and the financial sector, not a fundamental change in fund investor behavior.

» Fund investors are unlikely to redeem at the percentage pace seen last March unless there is another shock of the same magnitude as COVID-19.

This suggests that policy focused on structural reforms for mutual funds is in danger of doing more harm than good, by imposing large costs on investors and markets year in and year out to protect against a once-in-a-century cataclysm.

Sean Collins is chief economist of ICI.


[2] See, for example, Federal Reserve Board, Monetary Policy Report, February 19, 2021, arguing that “open-end investment funds, particularly those that invest substantially in corporate and municipal debt… experienced large, sudden redemptions in March 2020, which contributed to strains in broader short-term funding markets and fixed-income debt markets.”
See, for example, Frank Hespeler and Felix Suntheim, “The Behavior of Fixed-Income Funds During COVID-19 Market Turmoil,” Global Financial Stability Notes, International Monetary Fund, December 2020, arguing that “results thus point to an increased inclination of investors to redeem their [bond mutual fund] shares when perceiving mounting valuation risk for their investments as they did during the COVID-19 episode. Such behavior suggests that feedback mechanisms from the devaluation in securities prices to capital withdrawals by investors may have intensified and could have led to runs on funds.” See also Antonio Falato, Itay Goldstein, and Ali Hortaçsu, “Financial Fragility in the COVID-19 Crisis: The Case of Investment Funds in the Corporate Bond Markets,” NBER Working Paper 27559, December 2020, arguing that their evidence indicates “there was an increased sensitivity of [bond mutual fund] flows to performance in the COVID-19 crisis” and that “investors responded much more strongly to negative performance of their funds when making outflow decisions during the crisis.”


The patterns of flows to taxable US bond mutual funds (taxable US bond mutual funds includes the following categories: investment grade, multisector, government, high-yield) looks very similar overall, but outflows were a bit smaller in March 2020 at 4.9 percent compared to 5.2 percent for all bond mutual funds.

See Hespeler and Suntheim (2020) and Falato, Goldstein, and Hortaçsu (2020).

In the jargon of economics, suppose fund flows = \( \theta \times \text{size of market shock} \), where \( \theta \) is the responsiveness of fund flows to a given-sized market shock. The question here is whether fund flows were larger because of a change in behavior, as would be indicated by an increase in \( \theta \), or whether investor behavior was unchanged, but the size of market shock was abnormally large because of COVID-19 events.
SIFMA: Insights COVID-19 Related Market Turmoil Recap: Part II (July 2020)
Corporate Bonds

Market Analysis

Looking at representative indexes during the analysis time period of January 2 to June 15, we highlight:

- On average, the 12 indexes we tracked fell 13.4% at their troughs
  - High yield 1+ years was the worse off, -23.0% at the trough
- On average, the indexes are -0.2% from the start of the year
  - Corporates 5-10 years has recovered the most, +4.0%; all high yield indexes remain below start of the year levels

<table>
<thead>
<tr>
<th>Index</th>
<th>Corporates</th>
<th>Corp 1-3Y</th>
<th>Corp 1-5Y</th>
<th>Corp 5-10Y</th>
<th>Corp 1-10Y</th>
<th>Corp 10Y+</th>
<th>High Yield</th>
<th>HY 1-3Y</th>
<th>HY 1-5Y</th>
<th>HY 5-10Y</th>
<th>HY 1-10Y</th>
<th>HY 10Y+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2</td>
<td>3,261.99</td>
<td>317.84</td>
<td>361.22</td>
<td>560.94</td>
<td>439.56</td>
<td>733.85</td>
<td>2,187.15</td>
<td>722.97</td>
<td>675.94</td>
<td>640.30</td>
<td>637.57</td>
<td>1,398.72</td>
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<td>Trough</td>
<td>2,897.32</td>
<td>307.68</td>
<td>345.72</td>
<td>512.78</td>
<td>412.53</td>
<td>623.80</td>
<td>1,787.42</td>
<td>610.84</td>
<td>558.52</td>
<td>516.86</td>
<td>520.69</td>
<td>1,076.40</td>
</tr>
<tr>
<td>Jun15</td>
<td>3,374.52</td>
<td>325.03</td>
<td>371.24</td>
<td>583.54</td>
<td>454.25</td>
<td>762.41</td>
<td>2,114.04</td>
<td>682.98</td>
<td>642.14</td>
<td>613.11</td>
<td>611.31</td>
<td>1,377.13</td>
</tr>
<tr>
<td>Jun15/Jan 2</td>
<td>3.4%</td>
<td>2.3%</td>
<td>2.8%</td>
<td>4.0%</td>
<td>3.3%</td>
<td>3.9%</td>
<td>3.3%</td>
<td>-5.5%</td>
<td>-5.0%</td>
<td>-2.9%</td>
<td>-3.8%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>1Q20</td>
<td>3,245.57</td>
<td>317.56</td>
<td>360.71</td>
<td>559.26</td>
<td>438.62</td>
<td>732.03</td>
<td>2,103.81</td>
<td>699.27</td>
<td>650.82</td>
<td>614.85</td>
<td>612.94</td>
<td>1,347.26</td>
</tr>
<tr>
<td>1Q20/Jan 2</td>
<td>-0.5%</td>
<td>-0.1%</td>
<td>-0.1%</td>
<td>-0.3%</td>
<td>-0.2%</td>
<td>-0.2%</td>
<td>-0.2%</td>
<td>-3.3%</td>
<td>-3.1%</td>
<td>-3.1%</td>
<td>-3.5%</td>
<td>-2.7%</td>
</tr>
<tr>
<td>Jan Avg</td>
<td>3,279.16</td>
<td>318.39</td>
<td>362.11</td>
<td>563.61</td>
<td>441.10</td>
<td>740.06</td>
<td>2,190.60</td>
<td>724.19</td>
<td>677.26</td>
<td>641.40</td>
<td>638.73</td>
<td>1,410.21</td>
</tr>
<tr>
<td>Feb Avg</td>
<td>3,331.09</td>
<td>319.88</td>
<td>364.54</td>
<td>571.79</td>
<td>445.60</td>
<td>760.04</td>
<td>2,192.65</td>
<td>723.78</td>
<td>677.11</td>
<td>641.72</td>
<td>638.65</td>
<td>1,430.45</td>
</tr>
<tr>
<td>Feb/Jan</td>
<td>1.6%</td>
<td>0.5%</td>
<td>0.7%</td>
<td>1.5%</td>
<td>1.0%</td>
<td>2.7%</td>
<td>0.1%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Mar Avg</td>
<td>3,139.65</td>
<td>314.77</td>
<td>356.07</td>
<td>544.29</td>
<td>430.23</td>
<td>700.17</td>
<td>1,944.24</td>
<td>654.32</td>
<td>602.88</td>
<td>566.30</td>
<td>565.95</td>
<td>1,215.34</td>
</tr>
<tr>
<td>Mar/Jan</td>
<td>-4.3%</td>
<td>-1.1%</td>
<td>-1.7%</td>
<td>-3.4%</td>
<td>-2.5%</td>
<td>-5.4%</td>
<td>-11.2%</td>
<td>-9.6%</td>
<td>-11.0%</td>
<td>-11.7%</td>
<td>-11.4%</td>
<td>-13.8%</td>
</tr>
<tr>
<td>Apr Avg</td>
<td>3,230.30</td>
<td>317.68</td>
<td>360.22</td>
<td>554.42</td>
<td>436.58</td>
<td>731.84</td>
<td>1,960.64</td>
<td>646.20</td>
<td>600.18</td>
<td>573.99</td>
<td>569.16</td>
<td>1,239.88</td>
</tr>
<tr>
<td>Apr/Jan</td>
<td>-1.5%</td>
<td>-0.2%</td>
<td>-0.5%</td>
<td>-1.6%</td>
<td>-1.0%</td>
<td>-1.1%</td>
<td>-10.5%</td>
<td>-10.8%</td>
<td>-11.4%</td>
<td>-10.5%</td>
<td>-10.9%</td>
<td>-12.1%</td>
</tr>
<tr>
<td>May Avg</td>
<td>3,278.41</td>
<td>321.78</td>
<td>365.98</td>
<td>566.75</td>
<td>444.77</td>
<td>736.65</td>
<td>2,020.47</td>
<td>657.28</td>
<td>619.12</td>
<td>594.58</td>
<td>586.78</td>
<td>1,294.13</td>
</tr>
<tr>
<td>May/Jan</td>
<td>0.0%</td>
<td>1.1%</td>
<td>1.1%</td>
<td>0.6%</td>
<td>0.8%</td>
<td>-0.5%</td>
<td>-7.8%</td>
<td>-9.2%</td>
<td>-9.2%</td>
<td>-7.3%</td>
<td>-8.1%</td>
<td>-8.2%</td>
</tr>
</tbody>
</table>

Source: Bloomberg, SIFMA estimates
Covid-19 and corporate bond markets: Research compendium

IG Corporate Bond Index Prices

<table>
<thead>
<tr>
<th>Duration</th>
<th>Jan 2 to Jun 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>IG 1-3 Y</td>
<td>733.85</td>
</tr>
<tr>
<td>IG 1-5 Y</td>
<td>623.80</td>
</tr>
<tr>
<td>IG 5-10 Y</td>
<td>566.66</td>
</tr>
<tr>
<td>IG 1-10 Y</td>
<td>741.18</td>
</tr>
<tr>
<td>IG 10+ Y</td>
<td>752.15</td>
</tr>
<tr>
<td>1-3 Y</td>
<td>762.41</td>
</tr>
<tr>
<td>1-5 Y</td>
<td>550.54</td>
</tr>
</tbody>
</table>

HY Corporate Bond Index Prices

<table>
<thead>
<tr>
<th>Duration</th>
<th>Jan 2 to Jun 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>HY1-3 Y</td>
<td>722.97</td>
</tr>
<tr>
<td>HY1-5 Y</td>
<td>1,396.72</td>
</tr>
<tr>
<td>HY5-10 Y</td>
<td>1,273.33</td>
</tr>
<tr>
<td>HY1-10 Y</td>
<td>1,338.60</td>
</tr>
<tr>
<td>HY10+ Y (RHS)</td>
<td>1,600</td>
</tr>
<tr>
<td>1-3 Y</td>
<td>1,682.98</td>
</tr>
<tr>
<td>1-5 Y</td>
<td>1,200</td>
</tr>
</tbody>
</table>

Source: Bloomberg (Jan 2 to Jun 15)
Looking at CDX spreads, a measure of corporate credit risk, during the analysis time period of January 2 to June 15, we highlight:

- Spreads were +171% on average at their peaks (max spread widening)
  - The 5-year was the worse off, +216% at the peak
- Spreads remain +50% on average from the start of the year
  - The 2-year has recovered the most, now only +22% from the start of the year

<table>
<thead>
<tr>
<th>CDX Spreads</th>
<th>1 Year</th>
<th>2 Year</th>
<th>5 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2</td>
<td>44.29</td>
<td>88.80</td>
<td>275.93</td>
</tr>
<tr>
<td>Peak</td>
<td>138.08</td>
<td>165.50</td>
<td>871.44</td>
</tr>
<tr>
<td>Peak Date</td>
<td>3/18</td>
<td>3/19</td>
<td>3/23</td>
</tr>
<tr>
<td>Peak/Jan 2</td>
<td>211.8%</td>
<td>86.4%</td>
<td>215.8%</td>
</tr>
<tr>
<td>Jun15</td>
<td>71.13</td>
<td>108.16</td>
<td>458.91</td>
</tr>
<tr>
<td>Jun15/Jan 2</td>
<td>60.6%</td>
<td>21.8%</td>
<td>66.3%</td>
</tr>
<tr>
<td>1Q20</td>
<td>68.58</td>
<td>108.15</td>
<td>404.73</td>
</tr>
<tr>
<td>1Q20/Jan 2</td>
<td>24.297</td>
<td>19.350</td>
<td>128.799</td>
</tr>
<tr>
<td>Jan Avg</td>
<td>45.73</td>
<td>91.23</td>
<td>286.36</td>
</tr>
<tr>
<td>Feb Avg</td>
<td>48.79</td>
<td>95.65</td>
<td>304.42</td>
</tr>
<tr>
<td>Feb/Jan</td>
<td>3.061</td>
<td>4.418</td>
<td>18.065</td>
</tr>
<tr>
<td>Mar Avg</td>
<td>107.49</td>
<td>135.10</td>
<td>604.35</td>
</tr>
<tr>
<td>Mar/Jan</td>
<td>61.760</td>
<td>43.867</td>
<td>317.989</td>
</tr>
<tr>
<td>Apr Avg</td>
<td>97.76</td>
<td>121.03</td>
<td>646.79</td>
</tr>
<tr>
<td>Apr/Jan</td>
<td>52.029</td>
<td>29.803</td>
<td>360.437</td>
</tr>
<tr>
<td>May Avg</td>
<td>88.59</td>
<td>115.76</td>
<td>629.91</td>
</tr>
<tr>
<td>May/Jan</td>
<td>42.863</td>
<td>24.526</td>
<td>343.552</td>
</tr>
</tbody>
</table>

Source: Bloomberg, SIFMA estimates

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6 A credit default swap (CDS) is a derivative contract offering one counterparty protection against a credit event, such as the default or bankruptcy of an issuer. The credit default swap index (CDX) is a benchmark index that tracks a basket of U.S. single-issuer CDS. It helps to hedge risk by protecting investors against default, and traders use it to speculate about potential changes in issuers’ credit quality.
**Issuance Trends**

We highlight the following, as compared to 2019 monthly averages:

- **Total**: April $316B, +168%; May $302B, +156%
- **Credit Quality**:
  - IG April $282B, +198%; May $265B, +180%
  - HY April $35B, +49%; May $37B, +60%
- **Call Feature**:
  - Callable April $287B, +213%; May $267B, +191%
  - Non-callable April $30B, +13%; May $36B, +36%
- **Rate Type**:
  - Fixed April $302, +186%; May $279B, +164%
  - Floating March $21B, +72%; May $23B, +92%
- **Convertible**: 2018 monthly average $2.7B, 2029 $0.1B; no issuance in March to May

![Graph of Corporates Issuance ($B)](#)

Source: SIFMA Research
Higher markups, rates of agency trading in core and peripheral bond markets point to dealer constraints

**Chart 5** revealed that bank dealers were generally purchasing bonds from asset managers in March, especially Government of Canada bonds. Fontaine, Ford and Walton (2020) describe some of the events in the bond market around March 2020.

In their role as dealer, banks can provide the crucial service of buying fixed-income securities from investors when there are no other willing counterparties. For providing this service, they make a profit by holding securities on their balance sheet until they can find another investor to sell them to. There are practical parallels between the business models of bond and car dealers; a car dealership buys and stores vehicles on its lot until it finds a buyer, incurring the cost of maintaining the lot, the opportunity cost of storing another vehicle in that spot and the risk that it will not fetch a good price on the car for its trouble. One of many differences is that bond trades are typically denominated in millions of dollars, so bank dealers are among the few actors in the financial sector with the sizable capital needed to deal bonds.

In March, as dealers bought bond and money market securities from asset managers with increasingly precious money and parked them in their increasingly full “lots,” they would only do so for higher markups. **Chart 10** depicts the cost of trading GoC bonds and **Chart 11** highlights the cost of trading GoC bills and provincial and corporate bonds as proxied by the Roll measure—a proxy of the markup a dealer charges to trade securities.4

**Chart 10**: The cost of trading Canadian government bonds rose during March 2020

Weekly median of daily data for the two-year Government of Canada benchmark bond

<table>
<thead>
<tr>
<th>Cents</th>
</tr>
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<tbody>
<tr>
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<tr>
<td>6</td>
</tr>
</tbody>
</table>
Chart 11: The cost of trading rose for Government of Canada, provincial, and corporate bonds
Weekly median of daily data

Sources: Canadian Depository for Securities and Bank of Canada calculations
Last observation: June 30, 2020
The markups on all fixed-income securities rose substantially at the height of the crisis. The proxy of the transaction cost of two-year GoC bonds quintupled. Dealers were charging much higher service fees for buying a bond, an indication that their ability to purchase bonds was stressed.

For corporate bonds, the proxy increase was tenfold, rising from a markup of around 20 cents to a peak of 250 cents. Corporate bonds are harder to trade than government securities in normal times due to their credit risk and the large number of distinct outstanding bonds (Fan et al. 2018); as a result, dealers are particularly uninterested in owning them during a crisis.

Another sign of dysfunction was a move to agency trading. In normal times, dealers often trade on a principal basis, purchasing securities without lining up an immediate buyer and shouldering the cost and risk of the security until it is sold. Bearing this risk can be central to the value they provide in a transaction. However, in an environment where money is scarce and their balance sheets are full, dealers tend to purchase risky assets only if they have a ready buyer lined up to take it off their hands quickly (Cimon and Garriott 2019). This practice is known as agency trading. We identify trades that occur on an agency basis using a similar method to that in Hyun, Johal and Garriott (2017). Agency trades occur when the dealer buys and sells the exact same quantity of a particular security with another counterparty within 15 minutes. This strict definition of agency trading may tend to underestimate actual agency trading activity, but it illustrates the general trend. Chart 12 shows the percentage of bond trading volume that was transacted on an agency basis.
Agency trading for GoC bonds, provincial bonds and corporate bonds generally increased in 2020. The increase is particularly pronounced for corporate bonds trades, for which agency trading nearly quadrupled in late April before falling back in line with the other classes of bonds. This illustrates the growing reluctance of dealers to bear the risk of holding bonds, especially riskier corporate bonds. Instead, dealers seemed to prioritize their use of balance sheet space and became more likely to only provide the function of matching investors and effecting the transactions (Kargar et al. 2020).

**Chart 12:** A greater percentage of bonds traded on an agency basis

Percentage of bond trading volume transacted on an agency basis, moving average of

Sources: Market Trade Reporting System 2.0 and Bank of Canada calculations  
Last observation: June 30, 2020
Europe

Summary of findings

- The corporate sector faced unprecedented pressure as a consequence of the economic restrictions imposed to stop the spread of the COVID-19 virus.

- Liquidity in the European IG credit market became severely impaired during the period of late February and early-to-mid March, and by March 18, considered to be the nadir of the ‘liquidity crisis’, some report that the market had become dysfunctional. Furthermore, there are suggestions that liquidity in the week following March 18 was perhaps even worse than the week leading into it.

- During the initial outbreak of COVID-19 in Europe, from late February to mid-March, markets were effectively closed to capital raising for many companies, in particular for smaller and non-investment grade firms. The rapid increase in spreads and in new issue premia made it uneconomical for companies to raise capital.

- Between 1 March and mid-April, a total of €701mm in high yield debt has been issued in Europe, a 93% decline compared to the same period of 2019.

- During the peak of the crisis, for the most part, electronic trading in the European corporate bond markets broke down as participants resorted to voice trading. This was not so much due to technological challenges, but rather because the market became too volatile and too illiquid for dealers to risk providing pricing across electronic platforms. However, while overall e-trading volumes reduced dramatically relative to voice, overall volumes on venues seemed to have remained high, registering record volumes at certain points. Meanwhile, some protocols appear to have better than others.

- However, according to Traxx data, European corporate bond trading increased 31% compared to Q1 2019 and 35% compared to Q4 of 2019.

- While many banks did ‘step up to the plate’ to continue providing liquidity and making markets for their clients, albeit with significantly wider bid-offer spreads, this was not the case for all market-makers, and overall dealer capacity appears to have shrunk at a time when it was needed most.

- Repo and lending activity for corporate bonds saw a notable increase through the middle of March, followed by a subsequent declined, mirroring underlying market moves. However, survey respondents identify the lack of liquidity in the credit repo market as one of the major underlying contributors to the reduction of liquidity in the underlying bond market during the crisis.

- The COVID-19 crisis generated extreme uncertainty and a dash to cash. Among UCITS, both market funds and long-term funds experienced outflows.

- According to ING with EPFR data, the IG bond market experienced fund outflows of €3.5bn per week while the HY bond market experienced outflows of €3bn per week. The cumulative outflows between late February and late March represented 12% of the European HY AuM and 6% of the European IG AuM, according to the ECB. The outflows were mostly re-directed to money market funds, sovereigns and, more broadly, liquid low-risk instruments.

- Despite unprecedented market volatility in March caused by the COVID-19 crisis, the European exchange-traded
fund (ETF) ecosystem - generally thought of as ETF issuers, authorized participants, and ETF liquidity providers – provide its resilience. ETFs shared traded smoothly and efficiently in the secondary market. 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.

- During the Covid-19 crisis the role of CDS indices as both a means to trade and hedge credit risk appears to have been pivotal and volumes in index CDS increased notably during this period. Participants report that it was more difficult accessing the single name CDS market. However, European SN-CDS traded volumes for both financial and non-financial names did increase in absolute terms following the ECB’s PEPP announcement.

- It is reported that there was a sizeable, albeit temporary, increase in settlement fails during the height of the crisis, which is largely attributed to operational challenges, this increase in structural settlement fails has accentuated concerns about the EU’s CSDR mandatory buy-in provisions and raises questions as to how this would have impacted the market if it had been in place during the COVID-19 turbulence.

- Central bank intervention, particularly the announcement of the ECB’s PEPP on March 18, is viewed as critical in ensuring that the European secondary bond markets continued to function. Not only did this provide a backstop bid for a large section of the market, more importantly it restored confidence. There is a counterview that this could be more problematic in the longer term as it creates a market dependency on central bank intervention in order to function effectively, particularly in times of stress.

- One of the key factors in bringing some stability to the corporate bond secondary market seems to be the surge in new issuance following the ECB’s March 18 intervention. Not only did this new supply satisfy pent-up demand, but it also helped to provide a point of reference for secondary valuations.
AFME: Initial Impact of COVID-19 on European Capital Markets

(May 2020)
2. Corporate Bond Market

1. Corporate Bond Market

The corporate sector is facing unprecedented pressure as a consequence of the economic restrictions imposed to stop the spread of the COVID-19 virus.

European corporates are currently seeking to position their balance sheets strategically for the abrupt change in the economic outlook while facing the short-term cash constraints derived from the sudden stop in business activity. Capital markets play a fundamental role in assisting businesses in this time of need.

Primary market

Rapid increase in investment grade (IG) bond issuance

IG borrowers raised a record amount of corporate debt from markets during recent weeks.

The amount of European IG bond issuance between 1 March and mid-April totalled €110bn, a 131% increase compared to the same period of 2019. In the first week of April 2020 alone, European IG bond issuance totalled €56bn, an all-time weekly record amount. This volume is remarkable given the large number of financial market participants working from home during this period.

A similar trend has been observed in other regions. Between March and mid-April, US corporates raised €231.7bn equivalent in IG bonds, an increase of 226% from the same period in 2019.

The increase has been driven by a large demand from corporates to increase their working capital, to build-up buffers to protect against economic uncertainty, and increase liquid assets to navigate a sudden fall in revenues. According to Dealogic, of the IG bond issuance between 1 March and mid-April, 80% was intended for general purposes (including for working capital), with just 2% for acquisitions and 12% for refinancing.

IG bond issuance has been led by the largest countries in Europe, with French, British and Belgian corporates leading with €65bn, €59bn and €35bn issued respectively between early March and mid-April. Italian corporates have not issued IG bonds over the same period.

Average deal values were in the range of €700-800mm which is almost twice the average deal size observed in 2019FY.

The increase in bond issuance has been notwithstanding an increase of 58bps in IG corporate spreads (see page 14).

The large asset purchase programmes announced by the main European central banks have also supported the surge in IG issuance. The ECB has provided a new temporary asset purchase programme (the Pandemic Emergency Purchase Programme or PEPP) of private and public sector securities of €750bn across euro-area fixed income asset classes and
2. Corporate Bond Market

the BoE will increase its holdings of UK government bonds and sterling non-financial IG bonds by £20bn to a total of £645bn. This is in addition to the purchase programmes that were ongoing prior to the COVID crisis.

High Yield (HY) bond and leverage finance

The rapid increase in IG bond issuance contrasts with the subdued performance of the high yield and leveraged finance markets as investors price in potential credit losses of low-rated corporate debt.

Between 1 March and mid-April, a total of €701bn in high yield debt has been issued in Europe, a 93% decline compared to the same period of 2019.

Leveraged loan issuance has also declined during the COVID-19 crisis as markets continue to reflect concerns about credit quality and highly leveraged companies. Leveraged loan issuance totalled €4.5bn between March and mid-April 2020, a decline of 86% from €31.8bn issued in the same period of 2019.

Sustainable bonds

In Q1 2020, green, social and sustainable bond issuance was 19% lower compared to Q1 2019 but 16% greater than Q1 2018.

It is too early to ascertain any visible trends in the sustainable bond market, although March 2020 represented the lowest volume in the month of March since 2017. See chart 2.6.

Credit trading

According to Traxx data, European corporate bond trading increased 31% compared to Q1 2019 and 35% compared to Q4 of 2019. See chart 2.7.

Data is not readily available to breakdown total bond trading activity between High Yield and Investment Grade bonds. However, according to ING with EPFR data, the IG bond market experienced fund outflows of €3.5bn per week while the HY bond market experienced outflows of €3bn per week. The cumulative outflows between late February and late March represented 12% of the European HY AuM and 6% of the European IG AuM, according to the ECB.

Industry research indicates that the US high yield market also experienced cumulative outflows of c6% of high yield AuM YTD (as of mid-March).

The outflows have been mostly re-directed to money market funds, sovereigns and, more broadly, liquid low-risk instruments. US government bond funds, for example, experienced an increase in inflows of 10% of AuM, while US money market funds saw increased flows by 6% of AuM.

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6 See ING: “Massive mutual fund outflows” here.
7 See ECB blog on CP purchases here.
8 EPFR data referenced by the FT here.

(July 2020)
2. Corporate Bond Market

1. Corporate Bond Market

European corporates have continued to endure the economic consequences of the COVID-19 outbreak. Although some of the lockdown measures have been lifted since early June, the subdued economic demand and the risk of further contagion flare ups continue to put pressure on business activity in the corporate sector.

Primary market

Ample capital markets support for IG issuance

During the initial outbreak of COVID-19 in Europe, from late February to mid-March, markets were effectively closed to capital raising for many companies, in particular for smaller and non-investment grade firms. The rapid increase in spreads and in new issue premia made it uneconomical for companies to raise capital.

The monetary policy interventions of central banks, such as the ECB Pandemic Emergency Purchase Programme launched on mid-March, helped markets reopen in subsequent weeks. Between March and May, the ECB has purchased roughly 19.5% of the equivalent new flow of euro area bond issuance (EUR 39bn of EUR 179bn of euro area IG bond issuance).

Issuance levels for investment grade securities have reached record weekly, monthly and quarterly volumes. The second quarter of 2020 was, by far, the highest quarterly value of investment grade bond issuance in Europe reaching a total of EUR 225bn. (See chart 2.1.)

Firms headquartered in France, the United Kingdom and Germany have led investment grade bond issuance volumes. Companies headquartered in Italy only resumed issuance of investment grade bonds by mid-May, with the local bond market effectively closed from late February until mid-May.

The top three sectors accounted for 39% of proceeds; the leading sector was oil & gas (EUR 54bn or 19% of the total), followed by food & beverage (EUR 28bn, 10%) and utility & energy (EUR 28bn, 10%).

Bond Issuance led by large corporates

Average deal volumes of IG bonds issued between March and June of 2020 have stood at EUR 1bn, which is EUR0.3bn above the average deal volumes in 2019FY (EUR 0.7bn). The significant increase suggests that debt issuance during the COVID-19 outbreak has been undertaken predominantly by large firms.

According to Dealogic and Eikon data, less than one percent of new debt issuance by French and German companies was by smaller firms, suggesting that all but the largest corporates remain reliant on bank or government lending. Dealogic has not reported IG bond issuance by companies of balance sheet size of less than EUR1bn since February 2020. (See chart 2.3.)
2. Corporate Bond Market

Increase in cost of debt issuance
There has been a significant increase in new issue premia across the credit spectrum, which makes it more expensive for companies to raise new capital and may deter smaller borrowers due to the high proportion of funds raised represented by the premia paid. The rapid increase in market volatility (see chart 2.10) and market spreads (see chart 2.9) contributed to the sharp increase.

The new issue premium is extra yield that a buyer receives, and a seller pays, for a new bond, when compared to seasoned bonds from the same issuer that are trading in the secondary market. A new issue premium is a standard feature of the bond market and reflects the initial relative lack of liquidity due to a narrower investor base compared to a broader range of investors in the secondary market. This premium is paid by the issuer to attract new investment.

High Yield (HY) bond and leverage finance
European leveraged finance saw a greatly reduced issuance volumes both in High Yield bonds and Leveraged Loans in March and April of 2020, as consequence of the rapid increase in borrowing costs in the leveraged finance market.

Most recently, High Yield bond issuance has come back strongly with EUR 16.1bn in proceeds in June (EUR 0.6bn in March). Average deal volumes have risen from EUR 0.5bn in 2019FY to EUR 0.9bn for the 18 deals issued in June 2020.

The ECB included bonds issued by “fallen angels” (i.e. companies rated at IG rating that were recently downgraded below IG ratings) as eligible for collateral in credit operations with the ECB. The US Federal Reserve included “fallen angel” bonds as eligible for the monetary large-scale asset purchase programme and for collateral in credit operations.

Social bonds contribute to the recovery
European social, sustainable, and green bond issuance reached EUR 55.2 bn in Q2 2020, representing a record quarterly volume. During Q2 2020, issued volumes of green bonds increased 51% (QoQ), sustainable volumes increased 167% (QoQ) and social bonds increased 872% (QoQ).

The increased activity in the social bond space has taken issuance volumes in this asset class category to unprecedented levels, with EUR 19.1 bn issued in Q2 2020, which is greater than the entire volume of social bonds issued in 2018-19 combined (EUR 17.3 bn).

The German government announced the issuance in Q3 2020 of an inaugural 10Y green Bund of EUR 8-12bn which will further contribute to an ESG post-crisis recovery.

Credit trading
European average daily corporate bond trading has recently recovered during the first two months of Q2 2020, according to Traxx after a sharp increase observed in March 2020 as portfolio flows slowly return to the credit markets. (See chart
2. Corporate Bond Market

Erosion in corporate bond liquidity
Whilst there are significant challenges with producing a non-biased and consistent bid-ask spread estimator, AFME has created a bespoke weighted index of 76 non-financial corporate bonds for which reliable data is available, to estimate this impact. The data suggests that in corporate bond markets, average bid-offer spreads remain approximately 40% higher than pre-crisis levels.

Analysis by a leading European bond trading platform, comparing activity on its platform on 20th February versus 20th March, supports this, showing increases in bid-offer spreads of between 50% and 300% across different asset classes. Further, the data shows a reduction of up to 25% in the number of instruments for which quotes were available, indicating a severe erosion in liquidity for these instruments.

Credit quality
High Yield spreads, price volatility
Markets have priced some degree of stress and credit losses in the corporate bond and loan markets.

European high yield spreads rose from 300bps in January 2020 to a maximum of 866bps at the end of March. Most recently, however, high yield spreads have declined to 512bps in late-June 2020. Markets have also priced some degree of elevated stress in the leveraged loan market. European leverage loan prices declined roughly 20 per cent with a recent partial recovery.

In addition to increasing spreads, the Covid-19 crisis has also led to the rapid increase in volatility observed across asset classes. Implied volatility for European equities rose to levels last seen during the 2008-2009 Global Financial Crisis, particularly for HY products. (See chart 2.10.)

Downgrades and rising bond default rates
The sharp increase in HY and IG spreads has been mirrored by a rapid increase in default and credit rating downgrades in the corporate sector.

95% of Moody’s European corporate actions in 1Q’20 were downgrades (76 to 4 upgrades), a worse ratio than 34 downgrades to 6 upgrades in 4Q’19 and 16 downgrades to 10 upgrades in 1Q’19, reflecting the ongoing credit concerns on the corporate sector. For the months of April and May of 2020, Moody’s reported 97 downgrades and no upgrades in the European corporate sector.

As of May 2020, Moody’s reported the trailing 12-month speculative-grade default rate at 2.3%, up from 1.5% in December 2019 and from 1.0% in March 2019. S&P reported the trailing 12-month speculative-grade default rate at 2.7%, an increase from 2.2% in December 2019 and from 2.0% in March 2019. S&P and Moody’s have reported 15 bond defaults in the first five months of 2020, with missed interest payment as the most common reason for default.
Experiences of UCITS in the European Union During the COVID-19 Crisis

UCITS are collective investment undertakings established and authorized under a harmonized EU legal framework, under which a UCITS established and authorized in one EU Member State can be sold cross-border into other Member States without a requirement for an additional full registration. This “European passport” is a central feature of the UCITS product and enables fund sponsors to create a single product for the entire European Union rather than having to establish an investment fund product on a jurisdiction-by-jurisdiction basis. UCITS include money market funds, long-term funds—such as equity and fixed-income funds—and ETFs. Appendix A provides a summary of the key regulatory requirements to which UCITS are subject. UCITS money market funds also are subject to the Money Market Fund Regulation (MMFR), which also is summarized in the appendix.

The COVID-19 crisis generated extreme uncertainty and led to a massive shock to the real economy that ultimately strained global financial markets. As the crisis unfolded, market participants reduced their risk exposure and sought cash and liquidity. This global phenomenon was exhibited by all market participants, including UCITS investors. Like US prime money market funds and long-term mutual funds, both UCITS money market funds and UCITS long-term funds experienced outflows.

UCITS Money Market Funds

UCITS money market funds are used by both institutional and retail investors to manage liquidity. At the end of February 2020, just before the COVID-19 crisis hit markets with full force, net assets in UCITS money market funds domiciled in the European Union totaled €1.3 trillion—with 44 percent domiciled in Ireland, 26 percent in France, 25 percent in Luxembourg, and the remainder in the United Kingdom and other EU countries. Based on data from Morningstar, 47 percent of total net assets in UCITS money market funds were in institutional share classes; 53 percent were in retail share classes.

UCITS money market funds are classified into four different categories, each with specific regulatory requirements, based on their assets and treatment of their NAV: public debt constant NAV (CNAV) money market funds, low volatility NAV (LVNAV) money market funds, short-term variable NAV (VNAV) money market funds, and standard VNAV money market funds. Public debt CNAV and LVNAV money market funds are primarily used by institutional investors.
Like US money market fund investors, European investors sought to protect or build liquidity in March. Figure 4.8 shows the net assets of UCITS money market funds that are domiciled in Ireland, Luxembourg, the United Kingdom, and France, which total €1,076 billion, or 84 percent of the EU market, at the end of February. By the end of March, total net assets fell to €1,009 billion as outflows from LVNAV money market funds denominated in US dollars and French VNAV funds—which are predominantly denominated in euros and sold to French residents—were only partly offset by inflows to public debt CNAV funds. In March, LVNAV funds denominated in US dollars had outflows of €83 billion or 28 percent of their February month-end assets, and French VNAV funds had outflows of €53 billion or 16 percent of their February assets. In contrast, public debt CNAV funds experienced inflows of €63 billion, or 65 percent of their February assets.

**FIGURE 4.8**

**UCITS Money Market Fund Assets Domiciled in Ireland, Luxembourg, the United Kingdom, and France**

By category, billions of euros, February 29, 2020, and March 31, 2020

<table>
<thead>
<tr>
<th>Category</th>
<th>February 2020</th>
<th>March 2020</th>
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<tbody>
<tr>
<td>French VNAV*</td>
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<td>1,009</td>
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<tr>
<td>US dollar LVNAV</td>
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<td>285</td>
</tr>
<tr>
<td>Sterling/Euro LVNAV</td>
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<td>217</td>
</tr>
<tr>
<td>Short-term VNAV</td>
<td>307</td>
<td>311</td>
</tr>
<tr>
<td>Public debt CNAV</td>
<td>31</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>100</td>
</tr>
</tbody>
</table>

* Data for French VNAV funds include both standard and short-term VNAV funds.

**Note:** Data from iMoneyNet include UCITS money market funds that are both domiciled in Ireland, Luxembourg, and the United Kingdom and registered with the Institutional Money Market Funds Association (IMMFA). Data from Morningstar Direct include UCITS money market funds domiciled in France.

**Source:** ICI calculations of iMoneyNet and Morningstar Direct data.
During the first week of March, UCITS money market funds domiciled in Ireland, Luxembourg, the United Kingdom, and France saw outflows of €18 billion, or 1.7 percent of their February month-end assets, which primarily reflected outflows from sterling- and euro-denominated LVNAV funds (Figure 4.9). During the second week of March, UCITS money market funds experienced inflows of €20 billion, or 1.9 percent of previous month-end assets, most of which was attributable to sterling and euro LVNAV money market funds, which had inflows of €23 billion, or 7.6 percent of their February assets. The significant inflows into sterling and euro LVNAV funds were driven by gains from derivatives margins.29

**FIGURE 4.9**

**Investors Sought Liquidity in Public Debt CNAV, or Government, Money Market Funds**

Change in money market fund assets domiciled in Luxembourg, Ireland, the United Kingdom, and France, billions of euros, January–April 2020

1 French VNAV funds include both standard and short-term VNAV funds.
2 The vast majority of public debt CNAV money market funds are denominated in US dollars.
3 Weekly data for French VNAV funds only include those with available daily total net assets from Morningstar.

Memo: percentage of previous month-end assets

<table>
<thead>
<tr>
<th>Month</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly</td>
<td>+5.0%</td>
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<tr>
<td>Weekly</td>
<td>-1.7%</td>
<td>1.9%</td>
<td>-5.7%</td>
<td>-3.3%</td>
</tr>
</tbody>
</table>

Note: Data from iMoneyNet include UCITS money market funds that are both domiciled in Ireland, Luxembourg, and the United Kingdom and registered with the Institutional Money Market Funds Association (IMMFA). Data from Morningstar Direct include UCITS money market funds domiciled in France.

Source: ICI calculations of iMoneyNet and Morningstar Direct data
In the third and fourth weeks of March, outflows from UCITS money market funds totaled €96 billion, or 9.0 percent of their February assets (Figure 4.9). For sterling and euro LVNAV funds, the gains from derivatives in the prior week reversed, which resulted in outflows of €41 billion. At the same time, LVNAV funds denominated in US dollars and French VNAV funds had outflows of €69 billion and €39 billion, respectively. In contrast, public debt CNAV funds had inflows of €55 billion during this period.

Outflows from LVNAV funds denominated in US dollars likely were related to inflows into public debt CNAV funds, which are primarily denominated in US dollars. In the United States, net assets shifted from prime money market funds, which have floating NAVs and the ability to invest in short-term high-quality corporate securities, to government money market funds, which have a constant NAV and primarily hold US Treasury securities. In the same way, some investors in dollar-denominated UCITS money market funds likely shifted from LVNAV funds, which have exposure to short-term corporate credits, into public debt CNAV funds. As financial markets began stabilizing toward the end of March and into April following monetary and fiscal interventions, UCITS money market funds, in aggregate, experienced inflows in each week.

Long-Term UCITS

Retail and institutional investors use long-term UCITS to meet their medium- to long-term investment needs. In particular, retail investors rely on equity, fixed-income, and mixed funds to meet long-term personal financial objectives, including preparing for retirement and saving for education. At the end of February 2020, long-term UCITS domiciled in the European Union had total net assets of €7.1 trillion—with €3.0 trillion in equity UCITS, €2.4 trillion in fixed-income UCITS, and €1.6 trillion in mixed and other UCITS. Additionally, 74 percent of total net assets in long-term UCITS were in retail share classes and 26 percent in institutional share classes.
European ETF Experiences

Despite unprecedented market volatility in March 2020 caused by the COVID-19 crisis, the European ETF ecosystem—generally thought of as ETF issuers, authorized participants, and ETF liquidity providers—proved its resilience. ETF shares traded smoothly and efficiently in the secondary market. 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.

At some points during March 2020, market prices of many European corporate bond ETFs traded at substantial discounts to those funds’ end-of-day NAVs. Some observers argued that discounts were indicative of a problem with the structure of bond ETFs, but ICI—along with several policymakers—contend that bond ETF prices during these times reflected the increased liquidity costs in the underlying bond markets. Indeed, a recent Financial Stability Board report concluded that “ETFs, which offer immediate liquidity because of their trading on the secondary markets, became one of the key mechanisms for price discovery during the dash for cash.” The report further suggested that “ETFs contained more up-to-date information about the underlying asset values than out-of-date cash prices, reflecting more accurately the liquidity and cost of selling those assets.”

Because bond ETF shares are traded on the secondary market, their market prices are continually updated and incorporate market participants’ evolving real-time 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.

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.
In March, bond ETFs experienced net outflows of €12 billion, or 5.2 percent of their February assets, with the majority of the outflows occurring in the second half of March (Figure 4.17). ETFs that invest in non-European and non-US fixed-income securities accounted for more than a third of the outflows from bond ETFs. ETFs that invest in high-yield bonds, those that invest in European investment grade bonds, and those that invest in US government and investment grade corporate bonds each represented a little more than 20 percent of the total outflows. ETFs that invest in European government bonds were the only category to receive net inflows in March. Outflows from bond ETFs abated toward the end of March and inflows resumed in April.

**FIGURE 4.17**
Outflows from Bond UCITS ETFs Were Modest in March 2020

Billions of euros, January–April 2020

<table>
<thead>
<tr>
<th>Monthly</th>
<th>Weekly*</th>
</tr>
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<tbody>
<tr>
<td>January</td>
<td>5</td>
</tr>
<tr>
<td>February</td>
<td>-12</td>
</tr>
<tr>
<td>March</td>
<td>2</td>
</tr>
<tr>
<td>April</td>
<td>8</td>
</tr>
</tbody>
</table>

Memo: percentage of previous month-end assets

<table>
<thead>
<tr>
<th>March</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0%</td>
<td>0.1%</td>
</tr>
<tr>
<td>1.0%</td>
<td>-1.1%</td>
</tr>
<tr>
<td>-5.2%</td>
<td>-2.5%</td>
</tr>
<tr>
<td>3.7%</td>
<td>-2.0%</td>
</tr>
<tr>
<td>-1.1%</td>
<td>0.5%</td>
</tr>
<tr>
<td>-0.2%</td>
<td>0.8%</td>
</tr>
<tr>
<td>0.1%</td>
<td>0.9%</td>
</tr>
<tr>
<td>-2.5%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

* Weekly data only include UCITS with available estimated daily net new cash flow.
Source: ICI calculations of Morningstar Direct data
ICMA: The European investment grade corporate bond secondary market & the COVID-19 crisis

(May 2020)
Overview
The market moves and dislocation experienced during the onset of the recent global COVID-19 pandemic are unprecedented in recent times, and arguably surpass those seen during the Global Financial Crisis of 2007-09. This report documents how the European investment grade corporate bond secondary market performed during the last weeks of February through March and April 2020. Drawing on interviews and surveys of sell-side and buy-side market participants, as well as market data and analysis, it attempts to identify the key themes and dynamics of the ‘COVID-19 crisis’, the challenges faced by market participants, and the extent to which the market was able to adapt and respond. The report also looks to provide some potential lessons learned from the recent turbulence.

Liquidity

- Liquidity in the European IG credit market became severely impaired during the period of late February and early-to-mid March, and by March 18, considered to be the nadir of the ‘liquidity crisis’, some report that the market had become dysfunctional.
- There are suggestions that liquidity in the week following March 18 was perhaps even worse than the week leading into it.

The surveys and interviews provide a consistent and compelling view that liquidity in the European IG credit market became severely impaired during the period of late February and early-to-mid March, and that while conditions have improved since, they have not yet returned to their pre-crisis levels. Furthermore, while the general decline in liquidity seems to have applied across all asset classes, it appears to have been driven by a number of contributing factors dynamics, impacting different market segments and trading flows as the crisis evolved.

More sellers than buyers
Many contributors remark on both the speed and scale of the change in market sentiment as being a major consideration. Respondents report that as the scale of the Covid-19 pandemic became clearer toward the end of February, and as countries began to go into lockdown, so predominantly passive funds, en masse, became sellers of risk assets; partly as they began to reassess the risk associated with certain credits (including the potential for downgrades), but also in anticipation of fund outflows. Sell-sides report a buy-to-sell enquiry skew going into early March as high as 20:80 to 10:90, noting that in previous corrections during this multi-year rally this would not rise much above 40:60. The greater this skew (in either direction), and the quicker it happens, the more pressure this puts on market-makers’ balance sheets, both in terms of their capacity to warehouse risk and their ability to recycle it.

As we moved further into March, and as the sell-off gained momentum, so market increasingly relocated and physically separated their trading and support staff, either moving to various disaster recovery sites or working from home. With this came initial technical challenges, the extent and duration of which seem to vary across individual firms, but which undoubtedly put on more strains, at least initially, on performing everyday trading functions. This too seems to have exacerbated the erosion of market efficiency and liquidity.

By March 18, considered to be the nadir of the ‘liquidity crisis’, some buy-sides report that the market had become dysfunctional. The ECB’s seismic intervention with the announcement of the Pandemic Emergency Purchases Programme (PEPP), along with related initiatives to support the market, seems to have been both timely and pivotal in providing much needed confidence. The intensity of the ensuing snap back in credit spreads was felt to be even greater than that of the preceding sell-off.

More buyers than sellers
Some buy-sides report that liquidity in the week following March 18 was perhaps even worse than the week leading into it. Sell-sides, similarly, report that the buy-to-sell enquiry skew fully reversed, to close to 90:10, as asset managers came back into the market looking to redeploy funds and rebalance risk. Once again, market-maker capacity appears to have become stretched in the face of the predominantly one-directional flow.

By the end of March and early April, a slew of new issuance would seem to have helped to meet investor demand as well as to anchor pricing, while fund inflows and outflows, also began to stabilize. While respondents report that liquidity conditions were still some way off from pre-crisis levels, they were nonetheless much improved, and the market begun to take on a sense of near-normality.

**Bid-offer spreads**

While bid-offers spreads in dealer-based markets are primarily a function of underlying market volatility, they are also influenced by a number of other factors, including dealer balance sheet cost and capacity, hedging accessibility and costs, funding costs, and the expected time to recycle risk: variables that are also intrinsic to measures of market liquidity. A notable observation over this period is that bid-offer spreads widened significantly. Ordinarily bid-offers spreads also tend to be influenced by trade size, particularly in less liquidity markets, however it would seem that dealer spreads widened generically, including for smaller transactions sizes. Furthermore, while these are not as extreme as experienced at the height of market volatility, they remain substantially wider than pre-crisis level.
One buy-side respondent shared their analysis suggesting that the generic bid-ask spread for European IG credit was around 10bp prior to the crisis but widened to 43bp as its peak. This subsequently contracted, but by the end of April was still at 21bp: twice pre-crisis levels.

**Trading volumes**

Notably, second trading volumes in European IG corporate bonds do not appear to have reduced significantly during the crisis, and despite a small decrease in early-to-mid March, they seem to have increased post March 18.\(^1\) This seems consistent with participants testimonies. What the data does not capture, however, is that volumes did not keep up with orders, which increased significantly during this period. One sell-side contributor suggests that enquiries through late February and early March increased by 100-150% while another, consistent with this observation, reports hit-rates (the ratio of requested quotes to executed trades) dropping from a typical level of around 75% to 30-45%.

As is often the case when it comes to measuring liquidity, it is the number of unexecuted orders that tells the full story.

**Survey Question 1: General market liquidity conditions**

**Survey Question 2: Liquidity by trade size and sub-class**

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\(^1\) This contrasts with trading volumes in sovereign bonds which increased at the height of the crisis.
Survey Question 3: Bid-offer spreads by trade size and sub-class
Survey Question 4: General market liquidity conditions in recent weeks

Figure 1: Daily trading volumes (EEA IG Non-Financial Corporates): MiFID data

Source: ICMA analysis using Bloomberg data
Figure 2: Daily trading volumes (EEA Financial Investment Grade Corporates): MiFID data

![EU FIGs Daily Trading Volume](image)

Source: ICMA analysis using Bloomberg data

Figure 3: ICE Data Services Liquidity Indicators™

![Liquidity Indicators](image)

ICE Data Services’ Liquidity Indicators are designed to reflect the average liquidity across the three major currencies by tracking the changes in weighted-average liquidity costs over time for both portfolios of Investment Grade and High-Yield securities. The cost calculation used in these indicators is based on an estimate of market price impact. This price impact metric incorporates security-level features, including projected trading volume capacity, transaction costs, price volatility, etc. to estimate the liquidity cost measured as a percentage of the bid price.
Using Bloomberg liquidity metrics (based on its LQA Liquidity Assessment solution) for securities in the Bloomberg Barclays Euro Aggregate total return index (but removing government bonds from this population to leave around 4,500 corporate IG bonds), Bloomberg disaggregated the analysis by the Bloomberg Industry Classification Systems (BICS) to show results by sector. This analysis shows the response to the crisis from trade costs. Both consumer discretionary and energy sectors saw the quickest reaction into the sell-off, and amongst the slowest responses to recover.

Again using Bloomberg’s LQA, based on the IG corporate component of the Bloomberg Barclays Euro Aggregate total return index, this analysis illustrates how the expected daily trading volume has reacted through the crisis. The measure assesses the potential average daily market capacity per bond, disaggregated by sector.
Survey Question 5: Factors impacting liquidity

Respondents were asked to score the below factors based on their contribution to market liquidity during the crisis, where -5 is considered very negative, and +5 very positive, with 0 neutral. The below shows the average scores, disaggregated by buy-sides and sell-side respondents.
Market moves

- One of the most vivid representations of the crisis is the rapid and acute widening of credit spreads, followed by their subsequent extensive retracement. Underlying these moves appear to be a number of factors.
- Respondents report that largely as a result of years of assertive central bank monetary policy, IG credit had become a technically driven market, where fundamental valuations had come to take second place. The COVID-19 crisis has to some extent corrected this aberration, returning to a more fundamentals-based repricing of risk.

One of the most vivid representations of the crisis is the rapid and acute widening of credit spreads, followed by their subsequent extensive retracement (see Figure 6). Underlying these moves appear to be a number of factors. Partly these reflect the significant shifts in demand and supply, as already described, but also a reversion to more fundamental assessments of credit valuations from what had become a primarily technically driven market. Respondents also point out that driving many of these moves was a repricing of risk, rather than this being volume driven, and that the price action is defined largely by ‘gapping’, and not continuous transaction-based market moves.

Cash is king

The initial moves in spreads seem to have been driven more by a need for funds to generate cash in the wake of actual and anticipated redemptions, which put pressure primarily on higher-rated shorter-dated holdings (liquidity buffers). As the sell-off gained momentum, this seems to be where the most pain was felt, with a disproportionate number of sell orders focused on the very short end of the curve. Buy-sides report struggling to find bids for bonds with maturities under two years. It is observed that in these cases the market seemed to stop trading on spread or yield, which became meaningless, and reverted to price: in effect becoming a market for deeply discounted liquidity transformation. The flattening of credit curves (where time premia for holding credit risk is effectively eliminated) is a normal observation in stressed credit environments (and as default risk becomes more extant), but in this case it would seem to be more liquidity driven. It is also notable that the European credit curve remains considerable flatter than pre-crisis levels (see Figure 11).

Repricing risk

Respondents report that largely as a result of years of assertive central bank monetary policy, including the direct purchases of corporate bonds (through the Corporate Sector Purchase Programme, or CSPP, the case of the ECB), IG credit had largely become a technically driven market, where fundamental valuations had come to take second place. Accordingly, spreads were artificially compressed, with a reduction in meaningful distinction in relative value between individual credits or even sectors. The Covid-19 crisis has to some extent corrected this aberration, with a more fundamentals-based repricing of risk.

As the sell-off from late February to mid-March took place, there was greater delineation between underlying credits, based both on credit ratings and cyclical risk, with lesser credits and cross-over (falling just below investment grade status), as well as financials and consumer discretionaries, being the hardest hit (see Figure 7). As the market rebounded, at least in the initial stages, it was the better credits and more defensive sectors that outperformed. It was only later, in early-to-mid April that the spreads of lower credits began to compress as the Federal Reserve, and later, but more implicitly, the ECB, began to extend their market support to cross-over credits. (Figures 8 to 10 illustrate the movement in generic credit curves by credit rating buckets.)
Figure 6: EUR corporate credit spreads

Source: ICMA analysis using Bloomberg data

Figure 7: EUR IG corporate bond market spreads by sector

Source: ICMA analysis using Bloomberg data
Figure 8: EUR corporate bond yield curve moves (AA+, AA, AA-)

Source: ICMA analysis using Bloomberg data

Figure 9: EUR corporate bond yield curve moves (A+, A, A-)

Source: ICMA analysis using Bloomberg data
Figure 10: EUR corporate bond yield curve moves (BBB+, BBB, BBB-)

Source: ICMA analysis using Bloomberg data

Figure 11: iTraxx credit curve

Source: ICMA analysis using Bloomberg data
Market structure

- During the peak of the crisis, for the most part, electronic trading in the European corporate bond markets broke down as participants resorted to voice trading. This was not so much due to technological challenges, but rather because the market became too volatile and too illiquid for dealers to risk providing pricing across electronic platforms.

- Respondents suggest that while many banks did ‘step up to the plate’ to continue providing liquidity and making markets for their clients, albeit with significantly wider bid-offer spreads, this was not the case for all market-makers, and overall dealer capacity appears to have shrunk at a time when it was needed most.

Aside from the perennial debate about market liquidity, perhaps the most prominent focus of discourse in recent years with respect to the European credit markets has been related to its structural evolution, and in particular the rapid growth of venue-based trading and automation. What many studies and reports have highlighted is that despite the ever-increasing complexity and digitalization of the market structure, the elemental structure of the corporate bond market remains fundamentally unchanged as a dealer-centric model that attempts to fulfil the need for otherwise scarce liquidity. The Covid-19 crisis would appear to have provided a useful opportunity to strip-back the layers of technological development of the past decade to reveal its intrinsic core: a dealer-based market, where market-makers remain the primary source of executionable prices, and liquidity is reliant on their capacity to assume and recycle market risk.

E-trading in a crisis

Respondents confirm that during the peak of the crisis, for most part, electronic trading in the European corporate bond markets broke down as participants resorted to voice trading. This was not so much due to technological challenges with firms relocating from their trading floors, but rather the consequences of market conditions. Essentially the market became too volatile and too illiquid for dealers and other liquidity providers to risk providing pricing across electronic platforms.

Participants note that a significant proportion of flow in the European corporate bond markets is automated, particular for smaller sizes and more actively traded ISINs, with requests for quotes (RFQs) being automatically routed into the market, via order management systems (OMS) or execution management systems (EMS), and with dealers responding to RFQs or providing price streaming by means of algorithms. This so-called ‘low touch’ activity can be as much as 60-to-70% of an asset manager’s flow, leaving more time for them, and their dealer counterparts, to focus on the more difficult, price sensitive, ‘high touch’ flow, involving larger sizes and less liquid bonds.

As volatility increased it is reported that algo trading, in many cases, had to be shut off. One participant suggests that many pricing models are designed to sustain market moves of five standard deviations, in itself a rare event. In the days leading up to and out of March 18, the market was experiencing moves of up to ten standard deviations. However, one sell-side respondent argues that this was not the case for every bank, and that some were able to continue auto-quoting, albeit with much wider bid-offer spreads. They further suggest that in some respects algos used in the European market tend to be more robust than those used in the US since they are less reliant on actual trade data in their modeling, utilizing synthetic composite prices instead, and largely as a consequence of less immediate post-trade data.

Whether feeding prices onto platforms automatically or manually, however, it would seem that this was largely with the intention of dealers encouraging clients to pick up the phone and negotiate a tighter price. Buy-sides also note that any prices that could be found on platforms were unlikely to be executable, while in many cases electronic RFQs did not return quotes. As one buy-side participant explains, everything effectively became ‘high touch’, involving direct messaging or a phone call with a salesperson. Meanwhile, to the extent that buy-sides were able to continue to rely on their OMS/EMS functionality, this required far greater flexibility in their price tolerance parameters.

While overall e-trading volumes reduced dramatically relative to voice, overall volumes on venues are
reported to have remained high, registering record volumes at certain points. Meanwhile, some protocols appear to have fared better than others. A number of respondents report that as it became more difficult to find the three or more quotes that are often required as part of firm’s best execution policy, they turned to all-to-all RFQ functionality to reach a broader base of potential liquidity providers. Similarly, anonymous trading venues (sometimes referred to as ‘dark pools’) also found traction. Additionally, it would seem as if portfolio trading, whereby dealers provide an overall price of a list of multiple bonds on an all-or-nothing basis, took on more value as working individual orders became manually too intensive. Perhaps unsurprisingly, the most utilized venue protocol during this period appears to have been ‘move to venue’ (also referred to as ‘processed trades’), whereby traders are negotiated over the phone or via message, and then, once agreed, ‘consummated’ through a platform in order for the parties to benefit from automated post-trade processes, such as reporting and settlement.

Making markets
Market-makers are at the core of corporate bond secondary markets, and the primary source of liquidity, whether using trading venues or not. What the Covid-19 crisis seems to have highlighted is the importance of the dealer-investor relationship, which takes on even greater significance in times of market stress. The interviews and survey responses suggest that while many banks did ‘step up to the plate’ to continue providing liquidity and making markets for their clients, albeit with significantly wider bid-offer spreads, this was not the case for all market-makers, and overall dealer capacity appears to have shrunk at a time when it was needed most.

While it would appear that generally stricter capital rules and smaller balance sheets for market-making is an important consideration in this scenario, it is reported that in some cases dealers stepped away from their usual market-making activities. Some respondents suggest that in many cases this may have been a bank policy decision, while another theory is that some decks lacked the experience of heightened market volatility, and viewed the market turbulence as threat rather an opportunity; as one interviewee put it, who wants to catch a falling knife? Similarly, with respect to the post-March 18 rebound, it is also reported that some, potentially inventory-light, dealers shied from showing offers, for fear of being ‘caught short’.

However, some participants, both sell-side and buy-side, point out that for those traders with the technical know-how and capacity to take risk, this was a chance to make exceptional returns both on the way down and the compressed spreads, the moves witnessed in February and March would probably have seemed quite surreal. It is also noted that a lack of market environmental diversity probably did not help, with the loss of market participants such as bank proprietary trading desks and credit relative value hedge funds, which traditionally have provided a contrarian more value-driven position in the face of extreme market moves, helping to create an alternative source of liquidity for market-makers to access (in effect, ‘the other side of the market’), while also smoothing volatility.

Participants note that moved by both the Federal Reserve and the ECB to relax capital constraints on banks’ market-making services were helpful and allowed banks to expand their liquidity provision. Furthermore, the broadening of central bank purchase programs to include short-dated commercial paper also helped to free up bank balance sheets which had come under pressure as corporates turned to their bank credit facilities to remain liquid. But the main observation of buy-sides seems to be the value of strong relationships with their dealer banks, and also in knowing who will be there when most needed and when the screens go blank.
Survey Question 6: Trading activity on venues

Survey Question 7: Change in use of e-protocols
Survey Question 8: Change in use of autoquoting/algo trading

![Use of Autoquoting/Algo trading](chart)

Survey Question 9: Change in use of OMS/EMS

![Use of OMS/EMS](chart)

Survey Question 10: Change in number of dealers

![Range of dealers](chart)
Survey Question 11: Use of alternative instruments
Central bank intervention

- Participants cite central bank intervention, particularly the announcement of the ECB’s PEPP on March 18, as critical in ensuring that the European secondary bond markets continued to function. Not only did this provide a backstop bid for a large section of the market, more importantly it restored confidence.

- There is a counterview that this could be more problematic in the longer term as it creates a market dependency on central bank intervention in order to function effectively, particularly in times of stress.

Unsurprisingly, participants cite central bank intervention, particularly the announcement of the ECB’s PEPP on March 18, as critical in ensuring that the European secondary bond markets continued to function. Not only did this provide a backstop bid for a large section of the market, more importantly it restored confidence. Implicit in this is also the sense that the ECB will do whatever it takes to ensure market stability, including potentially expanding its purchases of corporate bonds, if required, both in terms of quantum and scope.

However, there remains a counterview to ongoing central bank purchases, which is perhaps reflected in the sell-side survey responses (see Survey Question 5), that this could be more problematic in the longer term. In particular, as the Corporate Sector Purchase Programme (CSPP) ratchets up its overall market share, this crowds out genuine investors (who may be forced into riskier assets), while also perpetuating artificial credit valuations and a mispricing of risk. Furthermore, and as we have possibly already seen, it creates a market dependency on central bank intervention in order to function effectively, particularly in times of stress.

Figure 12: ECB CSPP

![ECB CSPP Chart]

Source: ICMA analysis using ECB data
New issuance

- One of the key factors in bringing some stability to the corporate bond secondary market seems to be the surge in new issuance following the ECB’s March 18 intervention.
- Not only did this new supply helped to satisfy pent-up demand, it also helped to provide a point of reference for secondary valuations.

Perhaps one of the key factors in bringing some stability to the corporate bond secondary market was the surge in new issuance following the ECB’s March 18 intervention. New issuance from corporates had pretty much dried up completely in the first half of March, save for some limited bank issuance. However, the second half of March saw a flood of new issues coming to market that made for a record month for 2020, and that continued into early April.

Participants explain that this was helpful for secondary market liquidity for a number of reasons. Firstly, in the sharp retracement that followed March 18 as investors scrambled for paper, this new supply helped to satisfy much of that pent-up demand. Secondly, while much of the new issuance came to market at what were clearly deep concessions, it did help to provide a point of reference for secondary valuations. While ordinarily the secondary market is used as the reference point for pricing new deals, secondary liquidity had become so stretched at this time that this dynamic was actually reversed. Thirdly, the majority of secondary trading in any corporate bond takes place in the first few days following its issuance, which also helped to stimulate liquidity through switching activity against more seasoned bonds.

Figure 13: EEA Corporate IG Issuance 2020
ETFs

- Some respondents note that the one-directional nature of the orders in the bonds underlying corporate bond ETF baskets helped to exacerbate the market moves, which possibly explains the large discounts and premiums witnessed in ETF prices compared to the net asset value.
- The counter argument is that corporate bond ETFs performed well through the crisis and that it remained possible to recycle risk in the secondary market, while also being able to meet the heightened investor outflows and inflows. The observed dislocations reflect the loss of liquidity in the underlying market, with the ETF providing a more accurate valuation.

In ICMA’s recent report, *Time to Act*, the growth of the European corporate bond ETF market is identified by market participants as one of the most important developments of recent years, not only facilitating an alternative investment vehicle for the asset class, but by generating additional flows, and liquidity, in the underlying bonds of the proxy baskets through the creation and redemption process. With respect to their contribution during the recent Covid-19 turbulence, however, views appear to be more mixed.

Some respondents note that as with any passive investment flows, during more neutral market conditions, a more even balance between selling and buying helps overall liquidity. However, in the case of the recent crisis, with first heavy outflows, followed by significant inflows, the one-directional nature of the orders in the underlying ETF baskets only helped to exacerbate the market moves. They suggest that this probably explains the large discounts and premiums witnessed in ETF prices compared to the net asset value (NAV) of their underlying indices, reaching divergences of around 6% at the height of the crisis (see Figure 14).

The counter argument to this, however, is that corporate bond ETFs actually performed well through the crisis, doing what they were supposed to do, and providing an additional layer of liquidity and an easy access and exit point for the underlying asset class. Participants note that while volumes increased, it remained possible to recycle risk in the secondary market while also being able to meet the heightened investor outflows and inflows. Rather the observed dislocations between prices and NAVs reflect the loss of liquidity, and unreliability of pricing, in the underlying market, with the ETF providing a more accurate valuation.

Figure 14: iShares Core Euro Corporate ETF vs NAV

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2 *Time to Act: ICMA’s 3rd study into the state and evolution of the European investment grade corporate bond secondary market, ICMA, March 2020*
CDS

- During the Covid-19 crisis the role of CDS indices as both a means to trade and hedge credit risk appears to have been pivotal and volumes in index CDS increased notably during this period.
- Participants report that it was more difficult accessing the single name CDS market. However, European SN-CDS traded volumes for both financial and non-financial names did increase in absolute terms following the ECB’s PEPP announcement.

The credit default swap (CDS) market is an essential component of the credit market landscape, providing both an alternative means for investors to assume and offlay credit risk, particularly where liquidity conditions in the underlying market are insufficient, as well as being an important hedging tool for both investors and liquidity providers. There is a strong correlation between corporate bond market liquidity and a healthy and vibrant CDS market.  

During the Covid-19 crisis the role of CDS indices as both a means to trade and hedge credit risk appears to have been pivotal. While it became more difficult to find prices in underlying cash bonds, particularly in large sizes, liquidity in CDS indices remained robust, with participants reporting that trading €50 or €100 million clips, at least in the on-the-run 5-year iTraxx main and cross-over indices, remained easy, with relatively tight bid-offer spreads. Unsurprisingly, volumes in index CDS increased notably during this period (see Figure 15).

However, while index CDS liquidity held up, participants report that it was more difficult accessing the single name (SN) CDS market. While index CDS provides a vehicle to transfer more generic credit risk, based on an underlying basket of credit, SN-CDS facilitates the risk-transfer of specific credits. The decline in liquidity of the SN-CDS market has been frequently highlighted as a cause for concern in recent years, and it would appear that similar to the underlying cash market, liquidity became stretched during the crisis, with wide bid-offer spreads and limited size capacity. To some extent this can be seen in the dislocation between index prices and their intrinsic value (i.e. the basis of the index price and the prices of the individual single name components). This tends to move positive in sharp widening moves, and negative in the case of rapid flattening. Although, as one respondent commented, while €5 or €10 million may not sound like large clips for SN-CDS, this is still significantly better than the sizes being quoted for many corporate bonds. Furthermore, European SN-CDS traded volumes for both financial and non-financial names did increase in absolute terms following the ECB’s PEPP announcement (see Figure 16).

In terms of hedging specific corporate bond credit risk, it is reported that in some cases, as sourcing liquidity in the underlying markets became challenging, some participants resorted to selling equities as proxy hedge. While far from prefect, this did at least provide one avenue of liquidity. However, it is also noted that the introduction of short-selling restrictions in some EU jurisdictions unhelpfully closed even this outlet.

Figure 15: iTraxx Index CDS Weekly Market Activity (US$ billions)
See: ICMA, 2018, The European Corporate Single Name Credit Default Market
Figure 16: European Single-Name CDS Weekly Market Activity (US$ billions)

![European Single-Name CDS Weekly Market Activity](image)

Source: ISDA analysis using DTCC TIW data

Figure 17: iTraxx EUR 5yr Main and Cross-over CDS Basis

![iTraxx EUR 5yr Main and Cross-over CDS Basis](image)

Source: ICMA analysis using Bloomberg data
Credit repo

- Repo and lending activity for corporate bonds saw a notable increase through the middle of March, followed by a subsequent decline, mirroring underlying market moves. However, survey respondents identify the lack of liquidity in the credit repo market as one of the major underlying contributors to the reduction of liquidity in the underlying bond market during the crisis.

The recent ICMA report on how the European repo market performed during the Covid-19 crisis\(^4\) concludes that the market held up relatively well under extreme conditions, despite a number of technical and operational challenges, including collateral bottlenecks, increased settlement fails, and difficulties managing intraday liquidity and collateral. In terms of credit repo, it is perhaps not surprising that demand for specifics increased, in line with underlying market activity and direction, and while it would seem that some institutional lenders temporarily deprioritized their lending activity, the market functioned relatively well during this time. Data from DataLend, which provides a reliable proxy for overall market repo and lending activity, shows a notable increase in balances of European corporate bonds on loan through the middle of March, followed by a subsequent decline: largely mirroring the underlying credit market price moves. Somewhat interestingly, average borrow fees appear to have decreased through the first half of March, whereas one would normally expect relative repo rates for specific corporate bonds to widen significantly. However, this could be explained by lenders being slow to adjust repo and lending pricing, as well as an indication of relatively deep lending pools. It may also reflect anecdotal reports that banks responded to heightened volatility by increasing haircuts, particularly with respect to non-ECB eligible securities, which become more relevant than pricing in times of market stress.

That said, survey respondents, both sell-side and buy-side, identify the lack of liquidity in the credit repo markets as one of the major underlying contributors to the reduction of liquidity in the underlying bond market (see Survey Question 5), perhaps reflecting the more general decline in market liquidity over recent years.\(^5\)

Figure 18: European Corporate bonds on loan and average fee

Source: DataLend

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\(^5\) See: ICMA, 2017. The European Credit Repo Market: the cornerstone of corporate bond market liquidity
It is noted by a number of buy-side and sell-side participants that there was a sizeable, albeit temporary, increase to transitioning in settlement fails during the height of the crisis. This is largely attributed to operational challenges related to transitioning middle- and back-office teams to disaster off-sites and home-working, as well as the impact of lockdowns on outsourced settlement teams (such as those based in India), at a time when overall trading volumes were significantly above average. As some explained, it was important, at least for a short-while, to tolerate settlement fails in order for the market to continue to function.

Nonetheless, it is evident that the market did take steps to contain settlement risk during this period, including Euroclear notably opening on a weekend (on March 28) in order to process the growing backlog of settlement instructions. Both buy-sides and sell-sides also report issuing contractual buy-in notices in selective instances to help expedite the settlement of ‘sticky fails’ (while acknowledging that successfully executing an actual buy-in would have been challenging, and the settlement-chain ramifications too difficult to contemplate). By early April it would appear that settlement efficiency rates normalized.

This increase in structural settlement fails has accentuated concerns about the EU’s CSDR mandatory buy-in provisions, due to come into force in early 2021, and raises questions as to how this would have impacted the market if it had been in place during the Covid-19 turbulence. The general view of participants is that it would have turned a crisis into a catastrophe. Firstly, the time and resources required to manage the buy-in process (which requires operational, trading, and legal input) would have been significant drain on already stretched staff. Secondly, trying to buy-in illiquid securities in an already stressed and often chaotic market would only have exacerbated market volatility, while comprising market stability. And thirdly, as previously highlighted, anything that further restricts market-maker capacity would have been an additional blow to liquidity at a time when it was most needed. A number of participants express their hope that the regulatory community use this experience as an opportunity to reconsider, and possibly recalibrate, this unhelpful regulatory initiative.

**Settlement fails**

- It is reported that there was a sizeable, albeit temporary, increase in settlement fails during the height of the crisis, which is largely attributed to operational challenges.
- This increase in structural settlement fails has accentuated concerns about the EU’s CSDR mandatory buy-in provisions and raises questions as to how this would have impacted the market if it had been in place during the Covid-19 turbulence.
Trading under lockdown

- Respondents suggest that despite some initial challenges, the physical relocation and separation of trading teams and associated functions has worked successfully.
- The most common complaint relates to the loss of information flow and the immediacy of human interaction that come from being on a trading floor, which inevitably impacts overall efficiency, and market liquidity.

One of the most significant aspects of the Covid-19 crisis is the disruption it created in the form of the physical relocation, and separation, of trading teams and associated functions. Respondents suggest that, for the most part, this has worked successfully, much to the surprise of many. However, it has not been without challenges, and not least in terms of information flows.

It would appear that many firms had already began to split teams across sites before European centres commenced imposing lockdowns, as well as ensuring that staff had the necessary technology to operate effectively their homes, if required. Virtually all interviewees describe technical difficulties, at least in the first few days, which perhaps also played a role in reducing liquidity. But otherwise, the story seems to be one of a market being largely well prepared and quick to adapt to its new circumstances.

The most common grievance, however, related to the loss of information flow that comes from being on a trading floor. It is difficult to replace the immediacy of communications between salespeople and traders, or portfolio managers and execution desks, as well as those between different product desks that help to provide an overall picture of what is happening, As one interviewee explains, while you can still share information electronically or over a phone call, being on the trading floor allows you to soak up vast amounts of information without even having a conversation. Other key communication lines, such as between traders and risk managers or compliance teams, also becomes less fluid, which can make the trading process disjointed. There is general agreement that overall efficiency, and market liquidity, inevitable suffers from this, at least to some degree.

And while some report that they do not miss their daily commutes, and are enjoying more time with their families, others point to a loss of camaraderie as a consequence of teams being physically separated, and the support of having your team mates around you, particularly during a stressful time. As one participant explained, one of the biggest challenges of working remotely is trying to maintain team morale.


**Lessons learned**

The COVID-19 crisis perhaps also provides a number of lessons from which market participants and others stakeholders can potentially learn, and which may help to inform future market developments related to structure, innovation and regulation: not least since it is safe to assume that a return to the ‘old normal’ is unlikely, at least any time soon.

- The market infrastructure held up through the crisis, and both buy-side and sell-side traders were quickly and successfully able to adapt to operating remotely. The observed increase in voice trading, relative to e-trading, was largely a consequence of market volatility and liquidity conditions, and not because of any technological deficiencies.

- Constraints on dealer balance sheets limit the extent to which market-makers can provide liquidity when markets become heavily directionally skewed, which in turn exacerbates market moves and price gapping. However, it is also observable that some dealers choose to reduce their propensity to take risk under stressed conditions.

- While central bank intervention is critical in a crisis, it is also a double-edged sword. The announcement of the ECB’s PEPP on March 18 effectively brought the market back from ‘the brink', restoring confidence for both investors and liquidity providers. However, it also becomes clear that sustained central bank bond purchases result in artificial credit valuations and a mispricing of risk.

- While the corporate bond ETF market appears to have functioned well during the crisis, sustaining heightened inflows and outflows amidst significant price volatility, there is also a view that the associated flows in the underlying baskets helped to amplify moves in the bond market.

- The loss of liquidity and depth in critical ancillary markets that help to hedge and recycle risk, in particular the SN-CDS and credit repo markets, are viewed as exacerbating the crisis.

- While the imminent EU mandatory buy-in regime is expected to reduce corporate bond market liquidity and efficiency in benign conditions, it is widely believed that this will prove to be disastrous in a stressed scenario.

- While there are benefits to working from home (both psychological and environmental), there is also a loss of both synergy and camaraderie that the trading floor environment engenders. It may be that the future for trading will embrace a hybrid model.

Perhaps the main lesson learned from the crisis, however, is to be reminded how corporate bond secondary markets function and how liquidity is created. The structure of corporate bond markets is fundamentally different to that of the equity market, and while over a decade of technological innovation has provided significant efficiencies as well as facilitating new ways in which to access liquidity, this simple reality has not changed. Market-makers remain at the core of credit markets, and it is their capacity and willingness to assume and recycle risk (both long and short) that allows the secondary market to function. This has been a central message of ICMA and the wider market for a number of years.

This recognition of how bond markets function needs to be reasserted as a central consideration when designing and calibrating regulation intended to be implemented in corporate bond markets. The fact that global prudential regulation related to trading activity has been recalibrated in response to an environment of market stress would appear to support this view.

Anything that constrains the ability of market-makers to take prudent and appropriately priced and capitalized...
risk will inevitably impact market liquidity and, potentially, efficiency. This includes capital and liquidity rules, pre- and post-trade transparency calibrations, access to ancillary hedging and financing markets, as well as the projected EU mandatory buy-in provisions. If we are to learn anything from the recent crisis, it is that whether the screens are switched on or off, it is the dealer-client relationship that ultimately holds the market together.
Survey Question 12: Expected impact of future factors on liquidity in similar scenario

Respondents were asked to score the below future factors based on their expected contribution to market liquidity in a similar scenario, where -5 is considered very negative, and +5 very positive, with 0 neutral. The below shows the average scores disaggregated by buy-sides and sell-sides respondents.
Japan

Summary of findings

- While yields on JGBs, which serve as the base rate, declined in the fall of 2019, there was limited investor demand for corporate bonds with negative yields. Consequently, the decrease in corporate bond yields at issuance and in the secondary market was limited and yield spreads between corporate bonds and JGBs temporarily expanded somewhat.

- Thereafter, although the yield spreads between corporate bonds and JGBs had narrowed once, the yield spreads began to widen again through the end of March 2020 as supply and demand conditions of corporate bonds worsened somewhat. During that time, liquidity in the Japanese corporate bond market declined and the need for dealers and investors to decrease their corporate bond holdings and obtain cash grew amid the increasing volatility in financial markets against the backdrop of the outbreak of COVID-19.
Bank of Japan: Market Operations in Fiscal 2019
(August 2020)
E. Corporate Bond Market

Corporate bond yields and yield spreads between corporate bonds and JGBs in the secondary market remained generally at low levels throughout fiscal 2019, and remained stable on the whole (Charts 3-17 and 3-18). While yields on JGBs, which serve as the base rate, declined in the fall of 2019, there was limited investor demand for corporate bonds with negative yields. Consequently, the decrease in corporate bond yields at issuance and in the secondary market was limited and yield spreads between corporate bonds and JGBs temporarily expanded somewhat.

Thereafter, although the yield spreads between corporate bonds and JGBs had narrowed once, yield spreads began to widen again through the end of March 2020 as supply and demand conditions of corporate bonds worsened somewhat. During that time, liquidity in the Japanese corporate bond market declined and the need for dealers and investors to decrease their corporate bond holdings and obtain cash grew amid the increasing volatility in financial markets against the backdrop of the outbreak of COVID-19.

The amount outstanding of corporate bonds continued to increase from fiscal 2018 on the back of highly accommodative financial conditions (Chart 3-19).

**Chart 3-17: Yields on Corporate Bonds and JGBs**

**Chart 3-18: Yield Spreads between Corporate Bonds and JGBs**

Note: Rated by R&I. The same applies to Chart 3-18.
Chart 3-19: Amounts Outstanding of Ordinary Corporate Bonds

Notes: 1. Figures are as of the month-end.
2. On a nominal basis. General mortgage bonds are excluded.
Brazil

Summary of findings

- The Covid-19 pandemic crisis brought impacts to relative and absolute prices in the Brazilian corporate bond market in March 2020, affecting a positive trend of expansion in this segment since 2017. After a few days of intense volatility and price dispersion, a more flexible approach to liquidity instruments allowed financial institutions to contribute for an impulse in trading and to the distribution of liquidity among market participants.

- Liquidity lines available since then authorized the use of debentures and credit securities as collateral for institution accessing Central Bank loans and contributed to price discovery and trading levels recovery soon after. Primary market activity for commercial paper and, later, for debentures had an impulse in the second half of the year, so was the net influx of the investment fund industry. In 2021, projections for the primary market regarding the issuance of debentures and its market share are positive, fixed income funds remains a significative share in the overall industry and there is a perception of recovered liquidity among market participants.
ANBIMA: Corporate bond market in Brazil and COVID-19 (May 2021)
Topics about the Covid-19 impacts on corporate bond market in Brazil

• The significative fall in interest rates since 2017 and until January 2020 led to an increase in emissions in the corporate bond market in Brazil. Due to the more attractive profitability compared to government bonds, the demand for debentures expanded, also impacting its transactions in the secondary market.

• According to the Brazilian Central Bank, the outstanding source of funding to companies represented by the capital market since 2017 “demonstrated a slowdown in growth pace in the (first) semester (of 2020), with reduction of bond issuance. Short-term funding by commercial papers, less relevant considering the whole market, increased 34.3%, but not enough to support capital market growth as seen in the past.”

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• Data collected by ANBIMA on reference prices for debentures reflected the instability that was brought by the outbreak of the pandemic crisis at the first half of March – but also dispersion and asymmetry among prices. Short term liquidity initiatives were put in place to support market function, mostly related to the expansion of credit and intermediation activity. Monetary Policy instruments as the reduction of compulsory requirements and other measures to ensure liquidity distribution revealed important and instrumental.


• The expanding liquidity of the secondary market of debentures was affected: the share of liquid bonds was reduced after a long period of positive evolution. Measures that supported new
acquisition of debentures collateralized by reserve requirements and an increase in the repurchase capacity of banks’ securities allowed intermediaries to meet liquidity demand, contributed for the recovery of corporate bond market functionality.

- In particular, the Central Bank announced two distinct liquidity lines for financial institutions: one of the lines the loan granted would require the use of debentures as collateral and, in the second one, the loans should be backed by financial letters issued by the institutions and collateralized by loan pools or securities. The announcement of the measures itself was already positive for fostering bonds secondary market. Liquidity measures and loan lines predicted a potential volume of resources that revealed much larger than effective funds borrowed, but it helped prices and trading to recover reasonable levels in the following weeks.

- Considering the results of the first half of the year, corporate financing via capital markets slowed down, with debenture issues concentrated in a few corporations. But in April 2020, capital market issues raised 70.3% compared to March. Considering the year of 2020, local issuances totaled an amount 14.5% less than 2019. “Despite the drop, reflecting an atypical year marked by investor uncertainty regarding the economy and given high asset volatility, capital markets showed a more sustained recovery from the middle of the year: In the first three months of the pandemic, the monthly average of issuances reached R$ 21.6 billion against R$ 34.5 billion between June and December.” By April 2021, “Debentures stood out, accounting for 61.3% of issuances and debentures sales already totaled values above those verified in the same period in 2020.”

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2 For a full description of Credit and Monetary Policy measure, please see “Dealing with the effects of Covid-19 Crisis” - BCB, March 2021. See also Central Bank consolidated information on Measures, here.
3 For detailed information on the Brazilian Central Bank measures, please consult https://www.bcb.gov.br/en/about/covid-19-measures
4 For detailed information, please see ANBIMA Capital Market Bulletin, April 2020
5 For detailed information, please see ANBIMA Capital Market Bulletin, Jan 2021.
6 More information, please see ANBIMA Capital Market Bulletin, Apr 2021
• Investment Funds industry recorded net outflows between March and May of 2020\(^7\) also “marked by rising uncertainties amid the health crisis caused by the Covid-19 pandemic and its impact on global and domestic growth”. In June this flow already reverted, although Fixed Income Funds were still facing net redemptions. “Breaking down the class performance by categories, net redemptions were concentrated in the retail, more liquid types, rated as investment grade, indicating that investors in this group may have requested redemptions to meet their need for emergency cash (...).”\(^8\).

• A positive balance was reached by July (regarding yearly net inflows), followed by other negative and positive turns between November and February 2021, but the industry remained resilient in this period despite the uncertainty scenario and considering the overall AUM. “In April 2021 the year-to-date amount raised already account for 70% of the 2020 net balance. Among the most representative types, Fixed Income has the largest net assets in the industry (36%)”.

According to the Brazilian Central Bank Stability Report from April 2021, the recent perception is that markets are liquid, although expectations regarding further adjustments in corporate bonds prices are not consensual among participants.

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\(^7\) More information, please see ANBIMA Investment Funds Bulletin, Apr 2020.

\(^8\) For more detailed information, please see ANBIMA Investment Funds Bulletin, Aug. 2020.