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Capital Markets Volatility and COVID-19: Background and Policy Responses

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SUMMARY

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Capital Markets Volatility and COVID-19: Background and Policy Responses

Capital markets provide major sources of financing and investment for American businesses and investors by facilitating the creation and trading of securities, such as stocks, bonds, and shares of investment funds. During the COVID-19 pandemic, certain markets ceased generating transactions, or the transactions became abnormally expensive as participants demanded a higher risk premium. The uncertainties surrounding the crisis have led to increased volatility, meaning increased price fluctuation and dispersion, a common indicator of risk and stress. Although the pandemic has substantially reduced business activities, a large portion of these activities are expected to resume eventually. However, the timing and extent of the economic recovery are uncertain.

COVID-19-related market reactions, including broad capital market selloffs and rebounds, and policy responses have been marked by their speed. Congress passed some of the largest and fastest interventions in history, including the Coronavirus Aid, Relief, and Economic Security Act (CARES Act; P.L. 116-136). The Federal Reserve, sometimes with support from the Treasury Department, has established several facilities to provide emergency lending to selected capital markets segments. A key policy goal during the pandemic is to allow businesses and capital markets to remain functional so they can meet demands at the time of need. The crisis-induced stress conditions have been broadly felt in all corners of capital markets. Stocks, corporate bonds, investment funds, and others have all experienced selloffs. The coronavirus triggered both liquidity and solvency concerns, though some of the conditions for volatility have been brewing for years.

Stocks. The pandemic ended a record-long 11-year U.S. stock market bull run in March 2020, representing the quickest drawdown on record. Stock prices are forward-looking, generally reflecting the market's expectations of a company's worth in the future. In the context of pandemic-induced market stress, earnings estimates and other factors feeding into valuation estimates decreased due to pandemic-related revenue losses. In addition, market stress often causes stock prices to decouple from underlying corporate fundamentals, with market psychology and liquidity crunches adding to stress levels. Reactions to market stress can also seize up the financial "plumbing," as firms desperate for cash rush to liquidate stocks, further distancing immediate stock prices from firms' underlying valuations. The Securities and Exchange Commission's (SEC's) policy tools to calm market volatility include circuit breakers and limit up-limit down mechanisms. There have also been federal government fiscal and liquidity interventions during the pandemic, which have eased companies' pressure for cash and liquidity. The stock market rebounded following the anticipation of such interventions.

Corporate bonds. Prior to the COVID-19 pandemic, U.S. companies were carrying record levels of debt to finance their operations, with a major portion of this corporate debt in higher-risk positions relative to historical levels. Policymakers and market observers have been concerned that, during a market downturn, funding costs and availability might change, driving already risky companies to defaults and business closures. Such funding dislocation could undermine financial system liquidity and amplify financial and economic vulnerabilities. To keep capital markets functioning in the current crisis, the federal government has acted to provide broad support for segments of the corporate bond market, allowing them to rebound. In addition, policy discussions have addressed the manner in which credit rating agencies assign bond credit ratings, which in turn influence a bond's borrowing costs and liquidity. Ratings inflation, market concentration, and conflicts of interest by credit rating agencies have been policy concerns since the 2007-2009 financial crisis.

Funds. Investment funds, such as mutual funds and exchange-traded funds (ETFs), are pooled investment vehicles that consolidate money from investors and manage it for a fee. During crisis conditions, some mutual funds may be susceptible to sudden large redemptions (runs) if investors have an incentive to redeem shares before others do when there is a perception that the fund could suffer a loss. ETFs might also behave irregularly, with an ETF's share price decoupling from the value of its underlying holdings. The fund market has also experienced high volatility due to COVID-19. Some funds received new sources of liquidity through the SEC's temporary allowance of certain interfund lending and the federal government's emergency intervention programs.

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Introduction

Capital markets are where securities—such as stocks, bonds, and shares of investment funds—are issued and traded. They provide the largest sources of financing for U.S. nonfinancial companies. Companies obtain funding by selling stocks or borrowing from the bond markets. Stocks, also called *equities* or *shares*, represent an ownership interest in a firm. Bonds, also called *fixed income* or *debt securities*, refer to the indebtedness or creditorship of a firm or a government entity. Investment funds are pooled investment vehicles that gather and invest money from a variety of investors. U.S. capital markets for financing are mainly regulated by the Securities and Exchange Commission (SEC) and self-regulatory organizations (SROs).

Participants in U.S. capital markets include about 7,600 companies that report to the SEC, of which approximately 4,400 are exchange-listed public companies; more than 28,000 investment advisers, mutual funds, exchange-traded funds, broker-dealers, and other registered entities; and millions of domestic and foreign retail and institutional investors.[1] The annual trading volumes of stocks and bonds are approximately $100 trillion and $40 trillion, respectively, and reported assets under management at SEC-registered investment advisors amount to around $80 trillion.[2]

This report focuses on capital markets behavior and policy responses in reaction to the COVID-19 economic crisis, with particular focus on stocks, corporate bonds, and investment funds. The report aims to provide context for understanding policy decisions, their perceived outcomes, and the pros and cons of certain policy actions.

Normal Market Conditions Versus Crisis Conditions

Under normal conditions, capital markets provide reliable sources of financing for businesses. Businesses can obtain such funding by, for example, issuing stocks and bonds. The funding can then be used for equipment purchases, research and development, employee salaries, or any other functions that facilitate operations and growth. Institutions and households can partake in these growth opportunities by investing in stocks, bonds, and funds, with the hope of future returns.

In crisis conditions, including during the COVID-19 pandemic, normal capital markets functions can come to a halt. Certain markets may no longer generate transactions, or the transactions may become abnormally expensive. Normal funding channels can become unreliable, creating funding shortages for businesses and financial losses for investors. Furthermore, businesses and investors might start to hoard cash and sell risky assets. These activities may lead to asset devaluation, fire sales, and bankruptcies that may have a negative ripple effect on the broader economy.

The uncertainties surrounding crisis conditions can increase volatility, meaning markets experience greater price fluctuation and dispersion.[3] Volatility is a common indicator of risk—

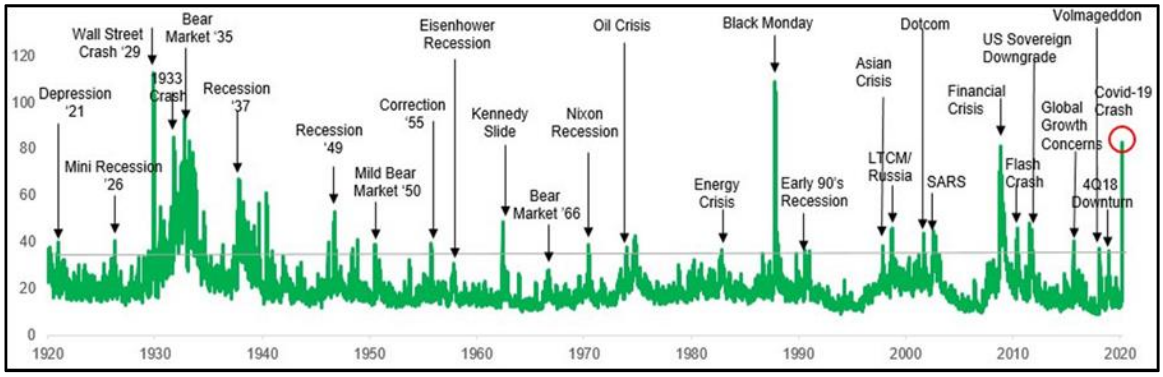
[1] U.S. Securities and Exchange Commission (SEC), *Fiscal Year 2021 Congressional Budget Justification Annual Performance Plan*, at https://www.sec.gov/files/secfy21congbudgjust.pdf#page=6.

[2] SEC, *Fiscal Year 2021 Congressional Budget Justification Annual Performance Plan*.

[3] Volatility is a statistical measure of the degree of variation in a financial instrument's trading price observed over a period of time. It can be historical or implied, and volatility itself can also be a tradable market instrument. A market index, called the VIX index, is often used to measure the market's expectation of 30-day forward-looking volatility using inputs from S&P 500 options. This report does not cover the technical details of volatility.

excessive volatility often coincides with market turmoil or high levels of uncertainty. High-volatility events have regularly occurred throughout financial history (**Figure 1**).

Figure 1. Modeled Volatility (VIX Index) Over a Century



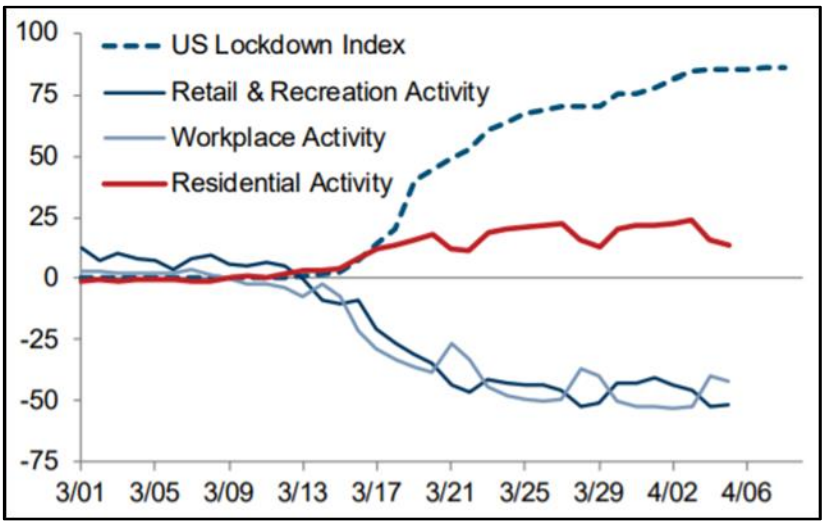
Source: BNP Paribas, *100 Years of Crashes: COVID-19 Crisis Playbook*, April 17, 2020.

Note: The VIX index is a market index that measures the market's expectation of 30-day forward-looking volatility using inputs from S&P 500 options.

How Is This Time Different?

Forward projections of earnings and economic performance drive capital markets pricing. Economic and earnings uncertainties during the COVID-19 pandemic present unique challenges that could fuel market volatility. The COVID-19 pandemic has created a period of lost economic activity induced by public health concerns, rather than a crisis originating from the financial services sector, as was experienced in 2007-2009. The economy—as measured by gross domestic product (GDP) growth and corporate earnings—was relatively strong prior to the pandemic. One index that measures the GDP-weighted share of the country that has shut down activities (e.g., schools, non-essential businesses, and issued stay-at-home orders) reached 86% in April 2020 (**Figure 2**). There were estimated 50% declines in activities at workplaces and retail stores and a 25% increase in activities at home. A large portion of these declines are expected to reverse once the pandemic is under control, but uncertainties exist regarding how and when the recovery might occur.

Figure 2. U.S. Activity Declines vs. Pre-COVID-19, GDP-Weighted, % Change

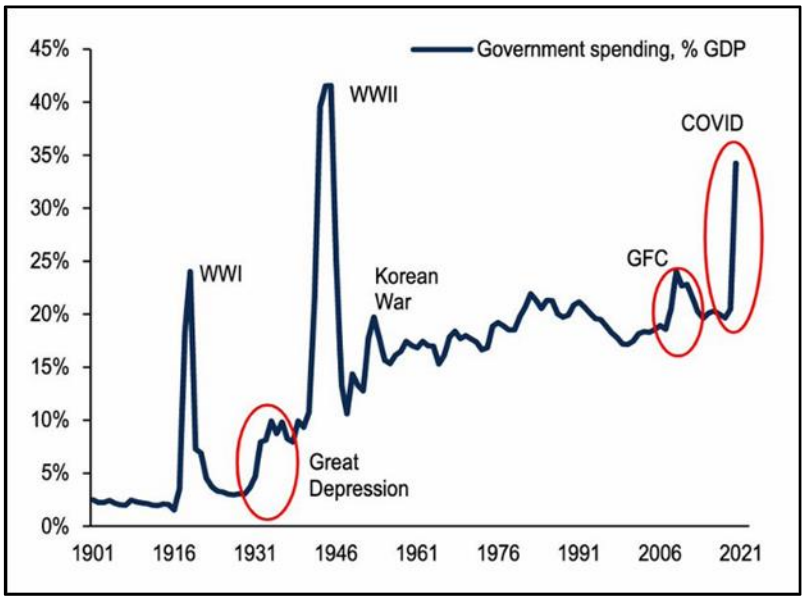


Source: Goldman Sachs Global Macro Research, *Reopening the Economy*, April 28, 2020.

One notable feature of market reactions and policy responses to COVID-19 has been their speed—the speed of market selloffs (**Figure 5**) as well as the speed of congressional action. Congress acted to provide some of the largest and fastest interventions in history in a crisis environment (**Figure 3**).

Figure 3. Government Spending as Share of GDP

(as of 4/19/2020)



Source: Bank of America Research Investment Committee. Robin Wiggleworth, "Coronavirus Creates Biggest Economic Uncertainty in Decades," April 19, 2020, at https://www.ft.com/content/4d77ab77-0ff0-46ff-b30e-ae712c582457.

Notes: WWI = World War I; WWII = World War II; GFC = the 2007-2009 global financial crisis.

Among other policy goals, congressional action has aimed to allow businesses to stay solvent so they can return to meet increased demand as social distancing and stay-at-home orders come to an

end. In general, the longer the businesses are disrupted, the harder it is to recover. But the lockdown's duration is largely dependent on health care factors relating to testing, treatment, and immunity, as well as the political will to lift restrictions.

The COVID-19 pandemic could affect investor and consumer behavior in profound ways. Some of these changes could have longer-term financial implications. Some argue that after the pandemic is over, Americans may enter a period of austerity and become more cautious about investing and consumption, affecting business growth and investable assets. For example, the household savings rate went up considerably after the Great Depression. Certain habits and activities cultivated during the quarantine period could also become more permanent. For example, the large-scale teleworking undertaken during the pandemic may change work habits. If a portion of the teleworking becomes more permanent, markets such as commercial real estate may experience ramifications.

Past pandemics provide mixed evidence for the lasting impact of such events. Some believe past pandemics' adverse effects were short term, whereas others argue that they were long lasting. For example, one study suggests that industrial output fell sharply during the 1918 flu pandemic but rebounded within months, and that the adverse economic effects captured in the study were short lived.[4] Another study of 15 major pandemics suggests that their adverse macroeconomic after-effects lasted about 40 years.[5]

Capital Markets Volatility and COVID-19

This section discusses how stressful conditions are observed in the markets for stocks, corporate bonds, and funds. The subsections relating to each of these three components identify key concerns, discuss selected market segments and their stress conditions, and describe policy responses to these conditions as well as their effects.

Stocks

Stocks, also called *equities*, are shares of ownership in a public company, generally listed on a national securities exchange. The stock market consists of around 4,400 companies with a combined market capitalization of more than $30 trillion (**Figure 4**).[6] In broad usage, the stock market also refers to the public offering and trading of shares in investment funds and other financial instruments. Around half of U.S. households own stock investments.[7]

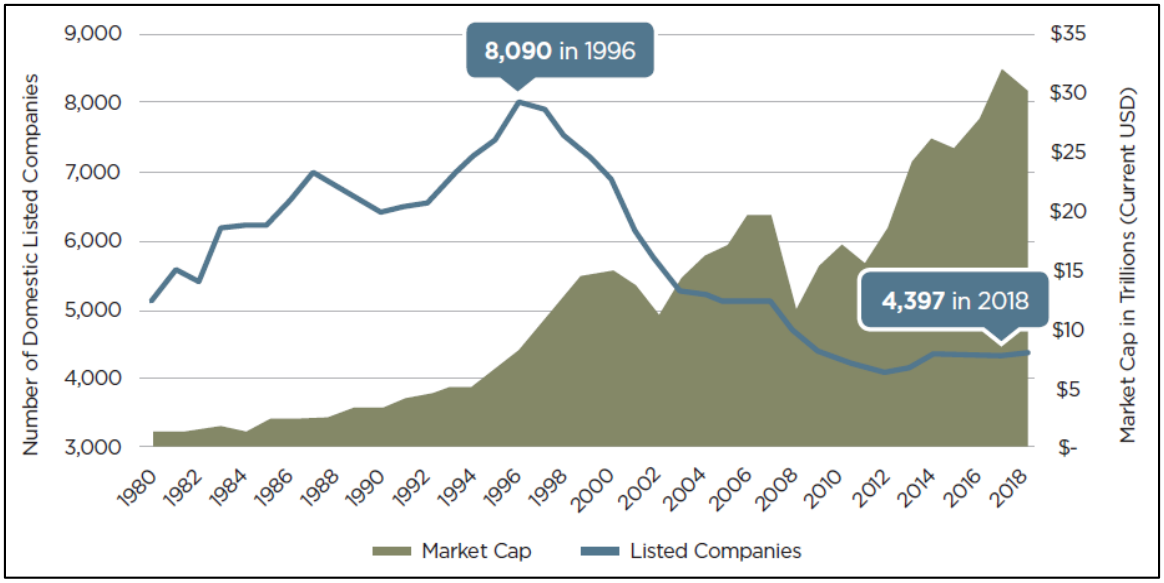
[4] Francois Velde, *What Happened to the US Economy During the 1918 Influenza Pandemic? A View Through High-Frequency Data*, Federal Reserve Bank of Chicago Working Paper no. WP-2020-11, April 17, 2020, at https://www.chicagofed.org/publications/working-papers/2020/2020-11.

[5] Oscar Jorda, Sanjay R. Singh, and Alan M. Taylor, *Longer-Run Economic Consequences of Pandemics*, Federal Reserve Bank of San Francisco Working Paper no. 2020-09, March 2020, at https://www.frbsf.org/economic-research/files/wp2020-09.pdf.

[6] As compared to the 2018 U.S. gross domestic product of $20 trillion. Market capitalization refers to the market value of a company's outstanding shares of stock. For more details, see SEC, *Office of the Advocate for Small Business Capital Formation FY2019 Annual Report*, December 19, 2019, at https://www.sec.gov/files/2019_OASB_Annual%20Report.pdf#page=30; and Bureau of Economic Analysis, *Gross Domestic Product, Fourth Quarter and Annual 2018 (Initial Estimate)*, February 28, 2019, at https://www.bea.gov/news/2019/initial-gross-domestic-product-4th-quarter-and-annual-2018.

[7] Kim Parker and Richard Fry, "More Than Half of U.S. Households Have Some Investment in the Stock Market," Pew Research Center, March 25, 2020, at https://www.pewresearch.org/fact-tank/2020/03/25/more-than-half-of-u-s-households-have-some-investment-in-the-stock-market.

Figure 4. U.S. Stock Market: Publicly Listed Companies and Their Market Capitalization



Source: SEC, *Office of The Advocate for Small Business Capital Formation Annual Report for Fiscal Year 2019*, at https://www.sec.gov/files/2019_OASB_Annual%20Report.pdf#page=30.

The stock market provides a means of fundraising and trading for businesses and investors. These activities direct money into businesses that the investment community believes to be the most promising for growth and returns. As such, the stock market functions to allocate assets, drive economic growth, provide liquidity, and facilitate savings and investments. The market also offers a barometer for the health of the business and economic environments.

The Dow Jones Industrial Average or S&P 500 (indexes that comprise 30 and 500 large listed companies, respectively) are often used to gauge the stock market's movements.[8] The stock market's overall performance generally follows underlying business and economic conditions and enters into bull or bear runs.[9]

Rapid Bull and Bear Transitions

The COVID-19 pandemic ended an 11-year U.S. stock market bull run in mid-March, resulting in the quickest drawdown on record (**Figure 5**).[10] The market subsequently rebounded to an extent,

[8] The Dow Jones Industrial Average is a 30-stock, price-weighted index that measures the performance of some of the largest U.S. companies. The index covers all industries except for transportation and utilities. The S&P 500 is based on market capitalization and measures the performance of 500 large-cap companies covering around 80% of available market capitalization. For more details, see S&P Global, "S&P 500," at https://us.spindices.com/indices/equity/sp-500, and "Dow Jones Industrial Average," at https://us.spindices.com/indices/equity/dow-jones-industrial-average.

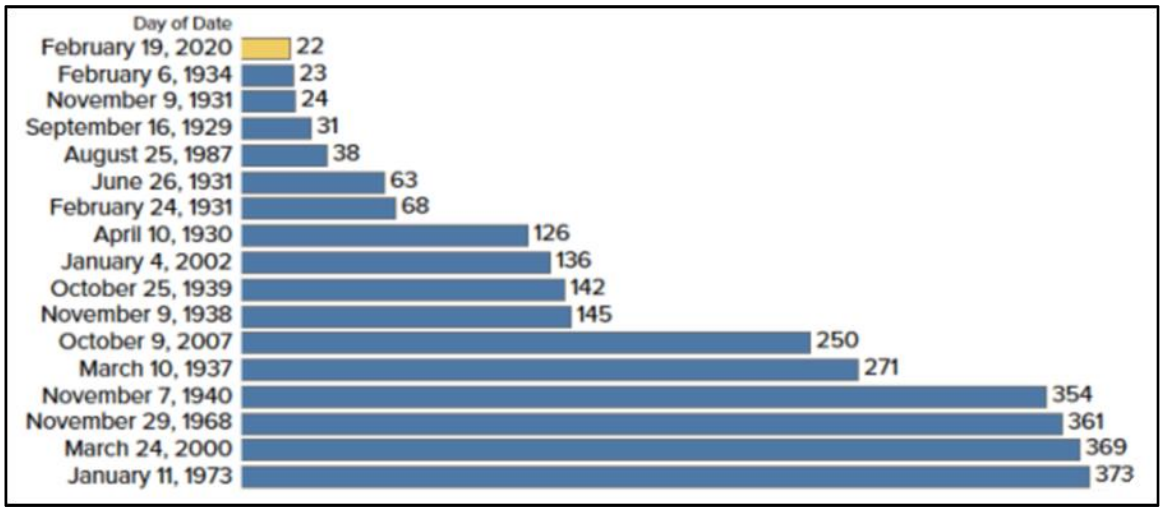
[9] Fidelity, "Sector Investing Using the Business Cycle," May 31, 2019, at https://www.fidelity.com/viewpoints/investing-ideas/sector-investing-business-cycle.

[10] Tom Westbrook and Scott Murdoch, "How the Longest Bull Run in History Ended in Pandemic Panic," Reuters, March 13, 2020, at https://www.reuters.com/article/us-health-coronavirus-markets-ticktock/how-the-longest-bull-run-in-history-ended-in-pandemic-panic-idUSKBN21038A.

following liquidity interventions by the Federal Reserve and Congress's $2 trillion coronavirus relief package (P.L. 116-136).[11]

Figure 5. Quickest Drawdown for U.S. Stocks on Record

(the number of trading days it took for the S&P 500 index to drop 30%)



Source: Bank of America Global Research. Yun Li, "This was the fastest 30% sell-off ever, exceeding the pace of declines during the Great Depression," *CNBC*, March 23, 2020, at https://www.cnbc.com/2020/03/23/this-was-the-fastest-30percent-stock-market-decline-ever.html.

Securities Valuation During Market Stress

Stock prices are forward looking, generally reflecting the market's expectations of a company's worth. These expectations are informed by different methods of determining a company's underlying value. For example, the discounted cash flow model calculates the current value of a company's future income stream, whereas multiples analysis gauges a company's worth using multiples of its existing earnings or sales, among other measures.[12] These fundamental analyses aim to calculate a firm's intrinsic value for comparison with its stock price and allow investors to determine whether they should buy or sell.

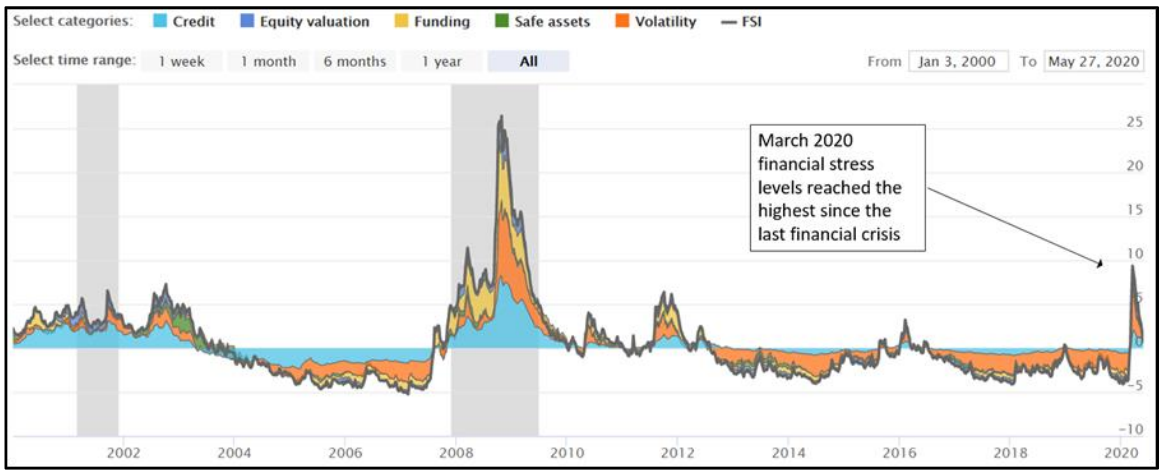
In the context of the coronavirus-induced market stress (**Figure 6**), does market volatility mean that companies' underlying financial conditions suddenly changed, or are there other factors that come into play? The answer seems mixed. Earnings estimates and other factors feeding into valuation estimates certainly have changed. For example, the coronavirus directly reduced economic activities in certain industries. The virus might also indirectly reduce companies' outlooks because certain macroeconomic conditions have worsened (e.g., higher unemployment rate, reduced spending, and the threat of widespread bankruptcies), further suppressing stock prices. Such economic effects, however, do not tell the whole story. Stock prices can often decouple from underlying corporate fundamentals during market turmoil, with market psychology and liquidity crunches adding to stress levels. Reactions to market stress can also

[11] For more details on the capital markets reactions toward the liquidity interventions, see CRS Insight IN11340, *COVID-19: Selected Capital Markets Segments Supported by Federal Government Liquidity Interventions*, by Eva Su.

[12] For more on the discounted cash flow model and multiples analysis, see WallStreetPrep, "Introduction to The DCF Model," at https://www.wallstreetprep.com/knowledge/dcf-model-training-6-steps-building-dcf-model-excel; and McKinsey & Company, "The Right Role for Multiples in Valuation," March 2005, at https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-right-role-for-multiples-in-valuation.

seize up "financial plumbing," as firms desperate for cash rush to liquidate stocks, further distancing immediate stock prices from firms' underlying valuations.

Figure 6. Office of Financial Research Financial Stress Index



Source: Office of Financial Research, U.S. Department of the Treasury, *OFR Financial Stress Index*, at https://www.financialresearch.gov/financial-stress-index/.

Note: Shaded areas indicate U.S. recessions.

Selected Policy Responses

Congress and the SEC have responded to market volatility in several ways.

SEC Responses

The SEC has responsibilities regarding capital markets operations, systemic risk, and financial stability. During the pandemic, its highlighted responsibilities include the following:[13]

- **Market monitoring**. Monitor market price movements and the availability and flows of capital, and take related actions, including regulatory relief.
- **Market function**. Ensure the continuing, orderly, and fair function of the securities markets for stocks, bonds, funds, and other products.
- **Issuer disclosure**. Facilitate timely and accurate disclosures of material information to ensure market transparency.[14]

The SEC established a new cross-divisional COVID-19 market monitoring group in April 2020 to analvze the effects of COVID-19 on capital markets.[15] There are also many other new operational and market monitoring initiatives. A summary of the SEC's pandemic-related responses is published through its *SEC Coronavirus (COVID-19) Response* web page.[16]

[13] SEC Chairman Jay Clayton, "Remarks to the Financial Stability Oversight Council," May 14, 2020, at https://www.sec.gov/news/speech/clayton-remarks-financial-stability-oversight-council-051420.

[14] For more details, see CRS In Focus IF11256, *SEC Securities Disclosure: Background and Policy Issues*, by Eva Su.

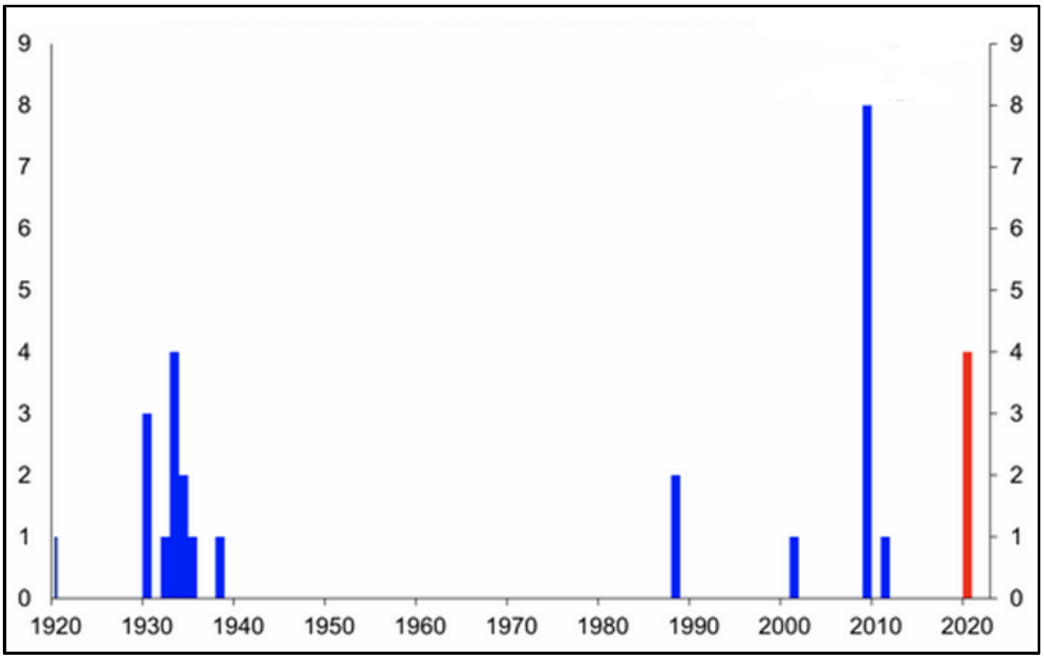
[15] SEC, "SEC Forms Cross-Divisional COVID-19 Market Monitoring Group," press release, April 24, 2020, at https://www.sec.gov/news/press-release/2020-95.

[16] SEC, "SEC Coronavirus (COVID-19) Response," at https://www.sec.gov/sec-coronavirus-covid-19-response.

Of special note are some of the SEC's existing tools to help manage market volatility, including circuit breakers and limit up-limit down (LULD) mechanisms. Circuit breakers are market-wide temporary halts that occur at three single-day S&P 500 index decline thresholds—7% (level 1), 13% (level 2), and 20% (level 3).[17] The level 1 and 2 circuit breakers generally enforce 15-minute pauses, and the level 3 circuit breaker halts the market for the rest of the day.[18] The market-wide circuit breakers were triggered four times in March 2020, a relatively rare occurrence (**Figure 7**). LULDs are single-stock halts enforced by "price bands" of 5%, 10%, 20%, or the lesser of $0.15 or 75%, depending on the stock price over the immediately preceding five-minute trading period.[19] A stock faces a five-minute trading pause if its price increases or decreases outside of these price bands. Single-stock halts were triggered thousands of times in March 2020 (**Figure 8**).

Figure 7. Incidence of Circuit Breakers

(number of times the S&P 500 fell 7% and hit a circuit breaker [as of April 2020])



Source: Deutsche Bank Research; Lev Borodovsky, "The Daily Shot: The Expected Spike in Savings Rate Will Hinder Recovery," *Wall Street Journal,* April 23, 2020.

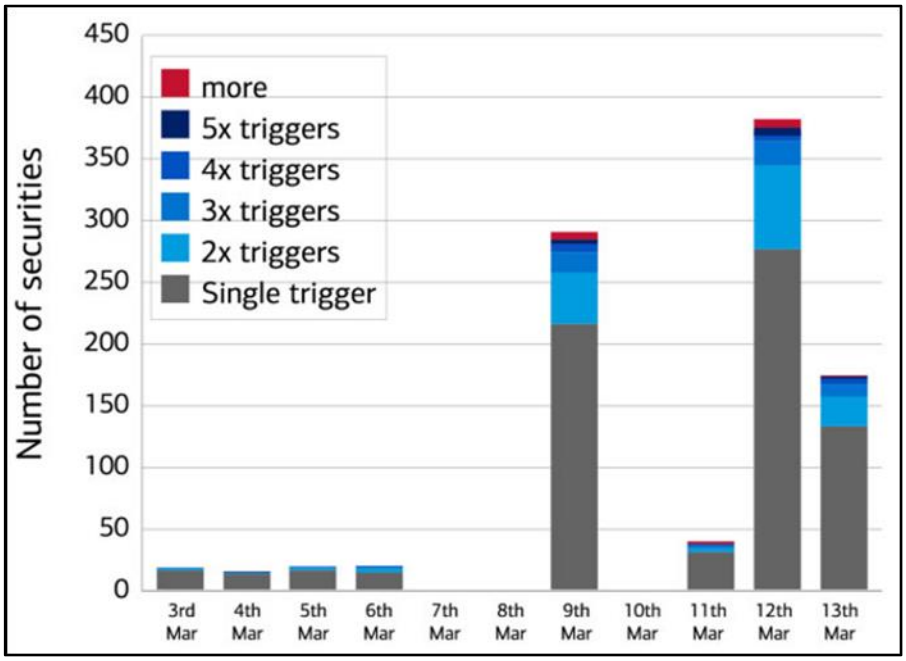
[17] SEC, "Investor Bulletin: Measures to Address Market Volatility," July 1, 2012, at https://www.sec.gov/oiea/investor-alerts-bulletins/investor-alerts-circuitbreakersbulletinhtm.html.

[18] A market decline that triggers a Level 1 or Level 2 circuit breaker before 3:25 p.m. will halt market-wide trading for 15 minutes, whereas a similar market decline at or after 3:25 p.m. will not halt market-wide trading.

[19] SEC, "Investor Bulletin: Measures to Address Market Volatility," July 1, 2012, at https://www.sec.gov/oiea/investor-alerts-bulletins/investor-alerts-circuitbreakersbulletinhtm.html.

Figure 8. Number of Unique Securities Triggering LULD Trading Pauses

(illustrative examples of LULD trading pauses between 3/3/2020 and 3/13/2020)



Source: Bank of America Securities, *Global Banking & Markets: Market Insights*, at https://www.bofaml.com/en-us/content/trader-insights/coronavirus-impact-market-structure-volatility.html.

Both market-wide and single-stock halts were designed to allow investors to pause and digest information during volatile and fast-paced market movements. While some believe the halts serve the purpose of calming market volatility, others argue that the halts can be disruptive, especially when circuit breakers are tripped immediately following market openings.[20] In addition to these existing mechanisms, other proposals for potential agency responses to calm volatility include banning short sales or revisiting the SEC's uptick rule that applies short-selling restrictions.[21] This is because short sales normally involve investors selling borrowed stocks in the hope that prices will fall.[22] Whereas some are concerned that short sales exacerbate market declines, others believe the opposite is true because there is evidence of worse stock performance during short-sell restrictions.[23] Observers also argue that shutting down the stock market or opening it for a shorter trading day may calm extreme market volatility. But views on this are also mixed, with some observers believing total shutdowns are problematic.[24]

[20] Alexander Osipovich and Dawn Lim, "Wall Street Explores Changes to Circuit Breakers After Coronavirus Crash," *Wall Street Journal*, April 15, 2020, at https://www.wsj.com/articles/wall-street-explores-changes-to-circuit-breakers-after-coronavirus-crash-11586952558.

[21] For more on the uptick rule, see SEC, "SEC Approves Short Selling Restrictions," press release, February 24, 2015, at https://www.sec.gov/news/press/2010/2010-26.htm.

[22] SEC, "Short Sales," at https://www.sec.gov/answers/shortsale.htm.

[23] Robert Battalio, Hamid Mehran, and Paul Schultz, "Market Declines: What Is Accomplished by Banning Short-Selling?" *Federal Reserve Bank New York*, 2012, at https://www.newyorkfed.org/medialibrary/media/research/current_issues/ci18-5.pdf.

[24] Reuters, "U.S. Finance Industry Says Markets Must Stay Open During Pandemic," March 20, 2020, at https://www.reuters.com/article/us-health-coronavirus-usa-markets/u-s-finance-industry-says-markets-must-stay-open-during-epidemic-idUSKBN21720O.

The coronavirus pandemic has created operational challenges for both capital markets and the SEC. COVID-19-related risks and uncertainties could make it challenging for publicly traded companies to fulfill their obligations to file periodic financial disclosures and hold annual shareholder meetings. For example, the pandemic could directly affect these companies' normal course of operations in relation to the filings process. It could also create challenges for assessing a company's financial performance given COVID-19 related uncertainties. The SEC has provided conditional regulatory relief for affected public companies' filing obligations.[25] It has also provided guidance to encourage virtual annual meetings for shareholder engagements.[26] The agency has also issued a temporary coronavirus no-action letter and an exemptive order to provide more rollout time for the Consolidated Audit Trail, a large multiyear data project.[27] The New York Stock Exchange temporarily closed its human trading floor and switched to fully electronic operation to avoid contagion, and the SEC has published a related notice.[28]

Legislative Responses

The CARES Act (P.L. 116-136), enacted on March 27, provides both fiscal stimulus and liquidity support to respond to the pandemic.[29] The stock market initially responded positively to the $2 trillion (10% of GDP) in total direct relief in P.L. 116-136. Although much of it is not directly aimed at capital markets, provisions in Division A, Title IV of P.L. 116-136 that may particularly influence financial markets include allowing the Department of the Treasury to provide loans, loan guarantees, and other backstops for businesses and Federal Reserve facilities;[30] and providing financial assistance to certain segments of the economy, conditioned upon government equity stakes, executive compensation restrictions, and a ban on stock buybacks. Other broad relief legislation with significant financial market provisions includes H.R. 6321, which proposes to mandate securities disclosures on supply chain disruption and global pandemic risk and to require the SEC to provide pandemic guidance, testing, and reporting.

Corporate Bonds

U.S. companies are carrying record levels of debt to finance their operations (**Figure 9**). A large portion of the debt is in corporate bonds.[31] Investors in corporate bonds are functioning as lenders

[25] SEC, *Order Under Section 36 of the Securities Exchange Act of 1934 Granting Exemptions from Specified Provisions of the Exchange Act and Certain Rules Thereunder*, at https://www.sec.gov/rules/other/2020/34-88318.pdf.

[26] SEC, *Staff Guidance for Conducting Shareholder Meetings in Light of COVID-19 Concerns*, at https://www.sec.gov/ocr/staff-guidance-conducting-annual-meetings-light-covid-19-concerns.

[27] SEC, *Update on Consolidated Audit Trail; Temporary COVID-19 Staff No-Action Letter; Reducing Cybersecurity Risks*, March 17, 2020, at https://www.sec.gov/news/public-statement/statement-clayton-cat-covid-19-nal-cybersecurity-2020-03-17; and SEC, *Order Granting Conditional Exemptive Relief, Pursuant to Section 36 of the Securities Exchange Act of 1934 ("Exchange Act") and Rule 608(e) of Regulation NMS Under the Exchange Act, from Sections 6.4, 6.7(a)(v) and 6.7(a)(vi) of the National Market System Plan Governing the Consolidated Audit Trail*, April 20, 2020, at https://www.sec.gov/rules/exorders/2020/34-88702.pdf.

[28] SEC, *Self-Regulatory Organizations; New York Stock Exchange LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Amend Rules 7.35A, 7.35B, and 7.35C for a Temporary Period*, March 20, 2020, at https://www.sec.gov/rules/sro/nyse/2020/34-88444.pdf.

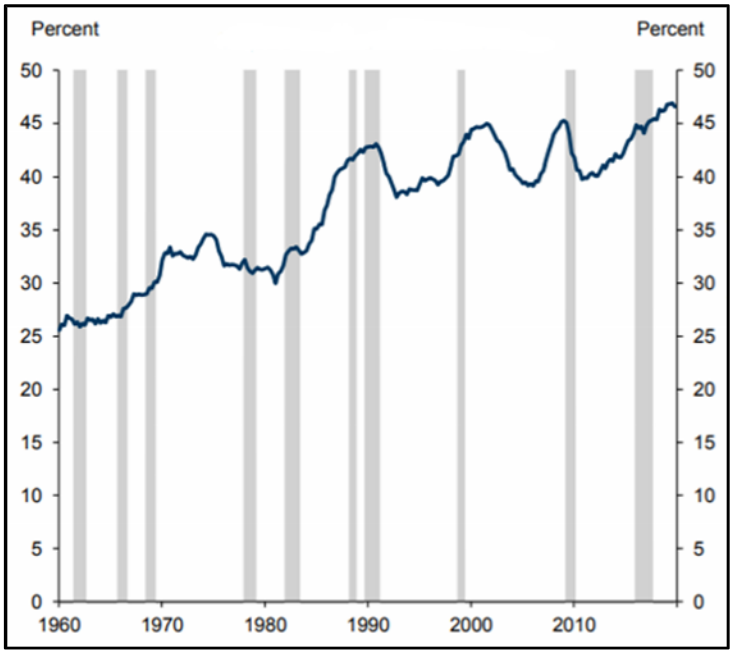
[29] For more details, see CRS Report R46301, *Title IV Provisions of the CARES Act (P.L. 116-136)*, coordinated by Andrew P. Scott.

[30] For more details, see CRS Report R46329, *Treasury and Federal Reserve Financial Assistance in Title IV of the CARES Act (P.L. 116-136)*, coordinated by Andrew P. Scott.

[31] The corporate debt market also consists, to a much lesser extent, of leveraged loans, bank loans, and other liabilities. For more on leveraged loans, see CRS Report R46096, *Leveraged Lending and Collateralized Loan Obligations: Frequently Asked Questions*, by Eva Su, Marc Labonte, and David W. Perkins.

who generally receive the payments of principal plus interest over a period of time. The bonds themselves are financial instruments that can be bought or sold.

Figure 9. Corporate Debt as a Share of GDP



Source: Goldman Sachs, *Assessing Credit Losses and Risks to the Banking System*, May 25, 2020.

Note: Shaded areas indicate recessions.

Bond issuers' borrowing costs and liquidity are generally determined by their credit ratings, which are assigned by credit rating agencies. These ratings intend to indicate the issuers' investment risks and payment capabilities. For example, bonds can receive either *investment-grade* or *high-yield* (also called below investment grade, speculative grade, or junk bond) ratings—the higher the rating, the lower the borrowing costs (**Table 1**).[32]

Table 1. Corporate Bond Credit Ratings

	Moody's	Standard & Poor's and Fitch
Investment Grade		
Highest quality (best quality, smallest degree of investment risk)	Aaa	AAA
High quality (often called high-grade bonds)	Aa	AA
Upper medium grade (many favorite investment attributes)	A	A
Medium grade (neither highly protected nor poorly secured)	Baa	BBB
High Yield (Speculative Grade)		
Somewhat speculative (have speculative elements)	Ba	BB
Speculative (generally lack characteristics of a desirable investment)	B	B
Highly speculative (bonds of poor standing)	Caa	CCC

[32] PIMCO, "Corporate Bonds," at https://www.pimco.com/en-us/resources/education/understanding-corporate-bonds.

	Moody's	Standard & Poor's and Fitch
Most speculative (poor prospects)	Ca	CC
Imminent default (extremely poor prospects)	C	C
Default	C	D

Source: PIMCO, *Understanding Corporate Bonds*, at https://www.pimco.com/en-us/resources/education/understanding-corporate-bonds.

The "Seized Up" Corporate Debt Market

The coronavirus-induced market crash in March put the corporate debt market to a real-world stress test, with the market's main segments "seized up" and unable to provide normal operations. Investment-grade bond funds experienced the largest outflow on record.[33] High-yield bonds and other high-risk asset prices have fallen sharply. Bond yields and prices move in opposite directions—the higher the yields, the higher the borrowing costs, and the lower the bond prices. Economic activities, especially those in the hardest-hit segments (e.g., travel, retail, sports), have nearly come to a stop.[34] Affected businesses have begun to have difficulty generating earnings,[35] which could reduce their ability to repay corporate debt and further restrict their ability to access funding.

Investment-Grade BBB-Rated Bonds

Financial regulators have shown particular concern over the growth of BBB bonds—which, in this report, refer to the lowest-quality investment-grade bonds (**Figure 10** and **Table 1**). BBB bonds made up around half of the investment-grade market as of 2019, compared to 17% in 2001.[36]

[33] Claire Boston, Olivia Raimonde, and Alex Harris, "High-Grade Bond-Fund Outflows Hit $35.6 Billion, Smashing Record," Bloomberg, March 19, 2020, at https://www.bloomberg.com/news/articles/2020-03-19/investors-pull-record-35-6-billion-from-investment-grade-debt.

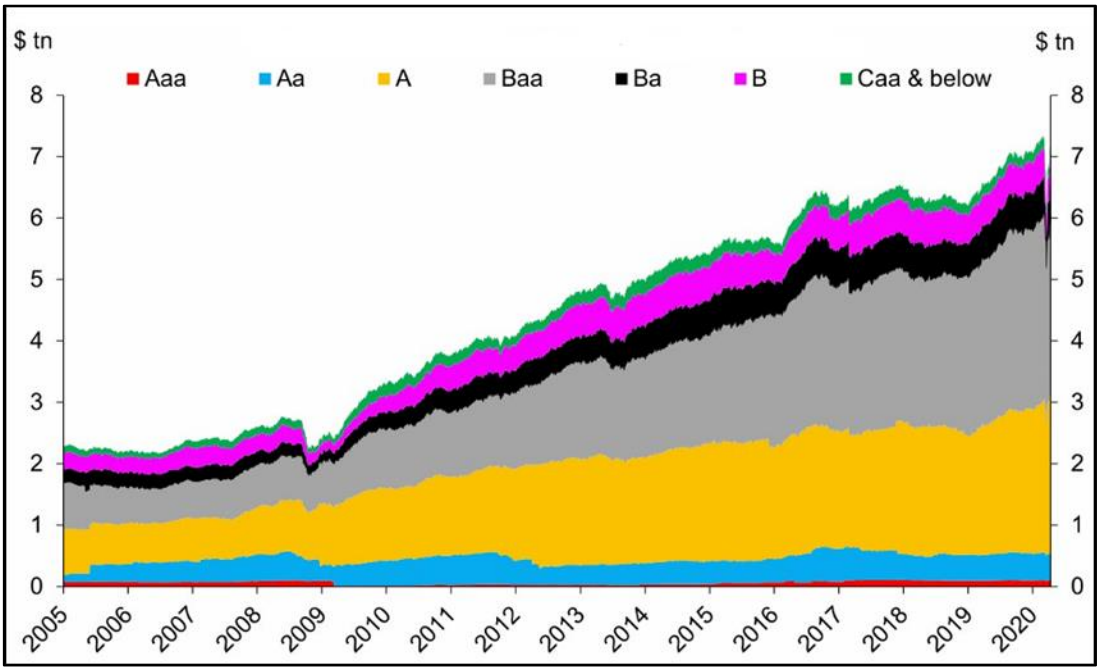
[34] Thomas Gryta and Jennifer Maloney, "Sports, Retailors, and Airlines, Autos: The Damage Across Business," *Wall Street Journal*, March 15, 2020, at https://www.wsj.com/articles/how-a-virus-upended-the-business-world-11584150596.

[35] For example, the restaurant and the airline industries were among the first to experience difficulty generating earnings. See Dean Donovan, "How the Airline Industry Will Transform Itself as It Comes Back from Coronavirus," *Forbes*, March 30, 2020, at https://www.forbes.com/sites/deandonovan/2020/03/30/how-the-airline-industry-will-transform-itself-as-it-comes-back-from-coronavirus/#3e72600167b9.

[36] Karen Schenone, "Making the Grade: How Risky Are BBB Bonds?" Nasdaq, October 7, 2019, at https://www.nasdaq.com/articles/making-the-grade%3A-how-risky-are-bbb-bonds-2019-10-07.

Figure 10. Changes in Corporate Bond Credit Rating Composition

(market capitalization of Bloomberg Barclays Corporate Indexes, BBB [Baa] growth highlighted in gray)

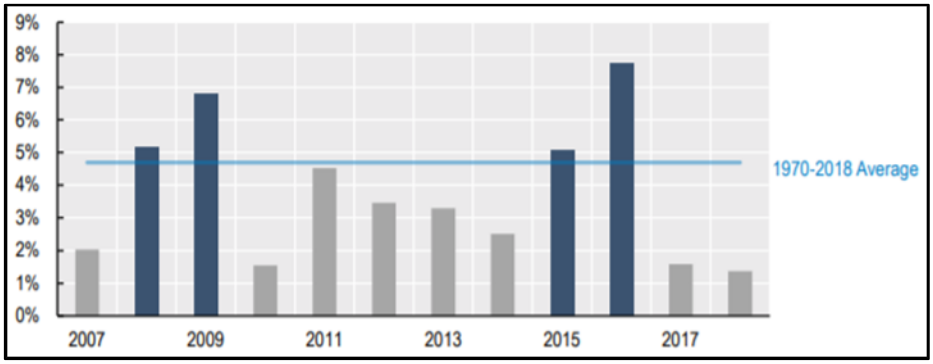


Source: Deutsche Bank Research; London Business School, *Centre for Economic Policy Research COVID-19 Webinar*, April 1, 2020, at https://www.forbes.com/sites/lbsbusinessstrategyreview/2020/04/01/centre-for-economic-policy-research-covid-19-webinar/#70f5d10257f2.

BBB bonds draw concerns over "fallen angels" risk—the risk that further downgrades could push a BBB bond's rating from investment grade to high yield. This migration would adversely affect companies' borrowing capacity and costs, thus increasing the likelihood that these already risky companies may default. Large-scale defaults might, in turn, lead to systemic risk and financial stability concerns. The long-term average rate by which "angels fall" is around 5% per year, with higher rates seen during business downturns (**Figure 11**). Various credit strategists have projected that the volume of fallen angels will continue to increase substantially in 2020, although the exact projections differ (**Table 2**).[37]

[37] Molly Smith, "Virus Sell-Off Turns Bonds Into 'Fallen Angels.' Here's Why Downgrades Matter," Bloomberg, April 1, 2020, at https://www.bloomberg.com/news/articles/2020-04-01/bond-downgrades-by-the-boatload-and-why-they-matter-quicktake.

Figure 11. Percentage of BBB-Rated Issuers That Become Fallen Angels Within a Year



Source: Organisation for Economic Co-operation and Development, *Corporate Bond Market Trends, Emerging Risks and Monetary Policy*, 2020, at http://www.oecd.org/corporate/ca/Corporate-Bond-Market-Trends-Emerging-Risks-Monetary-Policy.pdf#page=47.

Table 2. Credit Strategists' Estimations of 2020 Fallen Angels Volume

Credit Strategist	Fallen Angel Volume Estimate for 2020
UBS	$115 billion - $140 billion
Barclays	$175 billion - $200 billion
Bank of America	$200 billion
JPMorgan	$215 billion
Citigroup	$250 billion - $300 billion
Morgan Stanley	$300 billion - $350 billion

Source: Molly Smith, "Virus Sell-Off Turns Bonds Into 'Fallen Angels.' Here's Why Downgrades Matter," Bloomberg, April 1, 2020, at https://www.bloomberg.com/news/articles/2020-04-01/bond-downgrades-by-the-boatload-and-why-they-matter-quicktake.

Some observers are also concerned that large volumes of fallen angels may place pressure on the high-yield market.[38] This is a concern because investment-grade and high-yield bonds have different investor pools that convey different levels of investment capacity and liquidity, so the high-yield market's narrower investor pool may not be able to absorb large volumes of fallen angels efficiently.

In addition, some analysts are concerned that forced sales by institutional investors, who are required to hold only investment-grade bonds, could further distort the bonds' prices and liquidity. However, some academic research suggests that the actual liquidation pressure from forced sales of fallen angels could be relatively small.[39]

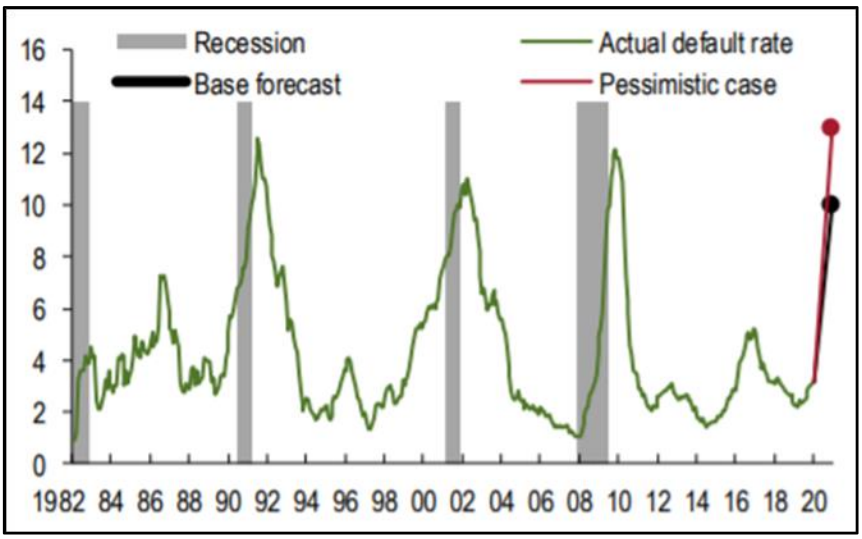
[38] Organisation for Economic Co-operation and Development, *Corporate Bond Markets in a Time of Unconventional Monetary Policy*, February 18, 2020, at http://www.oecd.org/corporate/Corporate-Bond-Markets-in-a-Time-of-Unconventional-Monetary-Policy.htm.

[39] Brent Ambrose, Nianyun Kai, and Jean Helwege, "Forced Selling of Fallen Angels," *Journal of Fixed Income*, March 14, 2008, at http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.139.1160.

High-Yield Bonds

High-yield bonds receive lower than BBB or equivalent ratings (**Table 1**). These bonds have a higher rate of return accompanied by a higher risk of default, meaning that investors have a greater chance of not receiving interest and principal at maturity.[40] The U.S. high-yield market size is around $1 trillion and includes many companies from different industry sectors. Familiar high-yield issuers include Netflix, Steak 'n Shake, and Delta Airlines. Although actual high-yield bond default rates have not spiked as of April 2020, major rating agencies have projected their default rates to multiply (**Figure 12**).

Figure 12. S&P High Yield Default Rate (Percent of Issuers)



Source: S&P Global Ratings; International Monetary Fund, *Global Financial Stability Report: Markets in the Time of COVID-19*, April 2020, at https://www.imf.org/~/media/Files/Publications/GFSR/2020/April/English/ch1.ashx.

Selected Policy Responses

As previously discussed, policymakers have introduced market-wide actions and rescue packages to calm volatility, including broad-scale federal government liquidity intervention. The ongoing policy debate regarding credit rating agencies is also relevant, particularly as it closely relates to corporate bonds' pricing and liquidity.

Federal Government Liquidity Interventions

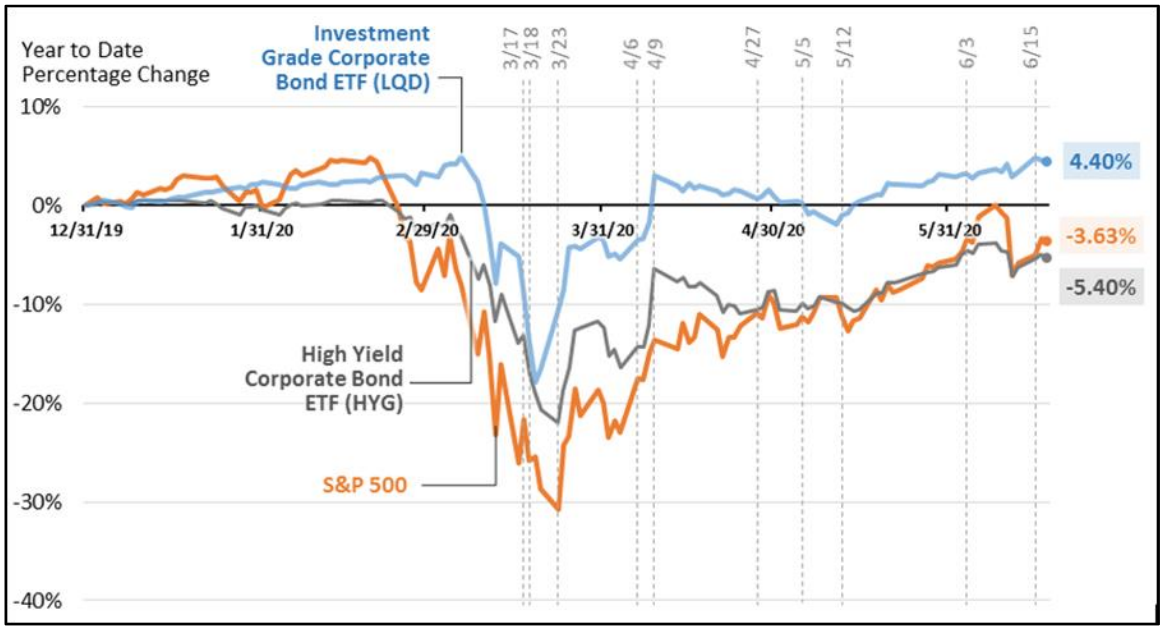
Policymakers are seeking ways to avoid permanent damages to sound corporate borrowers who face what may be only a temporary period of low income during the coronavirus pandemic. The Federal Reserve—sometimes with support from the Treasury Department—has established several emergency lending facilities to provide liquidity to key capital markets segments.[41] As of this report's publication, some markets that have announced Federal Reserve liquidity support appear to have begun to stabilize. **Figure 13** illustrates the changing market conditions since the Federal Reserve intervention.

[40] SEC, "What Are High-Yield Corporate Bonds?" at https://www.sec.gov/files/ib_high-yield.pdf.

[41] For more on Fed liquidity facilities, see CRS Insight IN11327, *Federal Reserve: Emergency Lending in Response to COVID-19*, by Marc Labonte.

Figure 13. Changing Market Conditions and Selected Federal Reserve Announcement Dates

(vertical lines indicate selected announcement dates of Federal Reserve emergency interventions)



Source: Congressional Research Service based on S&P Capital IQ data.

Notes: For more details on related Federal Reserve emergency facilities, see **Appendix B**.

As previously discussed, a major portion of the corporate debt market is in higher-risk positions than has been the case historically.[42] For example, BBB-rated bonds now make up a major portion of the corporate bond market (**Figure 10**) and there is high growth in a type of risky corporate debt called *leveraged loans*.[43] The concern in recent years has been that, during a market downturn, funding costs and availability could change, driving already risky companies to defaults and business closures. Furthermore, funding dislocation could drain out financial system liquidity and amplify financial and economic vulnerabilities.

To keep capital markets functioning, the Federal Reserve (Fed) acted in March to provide broad liquidity support for higher credit quality investment-grade issuers and bonds for the first time. The bond market subsequently rebounded, but high-yield (noninvestment-grade) bonds, which did not receive the announced support, stabilized less.

As the gap between the government-supported and nonsupported segments continued to widen in March, issuers and investors began to crowd into the supported segments of the market. In March, there were indications of high levels of new investment-grade bond issuance, but virtually no new high-yield bond issuance. The pricing gap between investment-grade and high-yield bonds had also widened to several times the norm as of March, another sign of the difference between the government-supported and nonsupported markets.

Furthermore, the pandemic-induced economic halt has generated downgrade pressure for many companies. Of special concern are the lowest-quality investment-grade BBB bonds. Because the Fed's liquidity facilities were initially limited to investment-grade issuers, a company's loss of its

[42] For more details, see CRS Insight IN11275, *COVID-19 and Corporate Debt Market Stress*, by Eva Su.

[43] For more details on leveraged loans, see CRS Report R46096, *Leveraged Lending and Collateralized Loan Obligations: Frequently Asked Questions*, by Eva Su, Marc Labonte, and David W. Perkins.

investment-grade credit rating would have disqualified it from receiving support from those facilities. A large number of fallen angels had already migrated into the high-yield category, including some household names like Macy's and Ford Motor.

Given the scale of the pressure, the Fed eventually extended its liquidity facilities to fallen angels by broadening the relief to include companies that lost investment-grade credit ratings after March 22. Similarly, the Fed announced plans to further support the high-yield market by making limited purchases of exchange-traded funds tracking high-yield corporate bonds.[44] Following these announcements, prices for high-yield bonds rose substantially, possibly signaling the restoration of the market to some extent. In addition, other fiscal packages and lending programs that are not directly linked to the bond markets, but provide loans or cash assistance to bond issuers, could ease the bond market's funding pressure. For example, if bond issuers are eligible for the Paycheck Protection Program and Main Street Lending Program, these bond issuers' repayment capabilities and default rates could improve.[45]

Credit Rating Agency-Related Policy Debates

Credit rating agencies have been an area of ongoing policy concern since the 2007-2009 financial crisis (see **Appendix A** for more details). Reacting specifically to pandemic-induced downgrade pressure, some observers suggest that rating agencies should stop assigning ratings for a few months. These observers believe that, although rating agencies are technically accurate in downgrading companies due to pandemic-related earnings impairment, doing so during a pandemic is not sensible.[46]

During the pandemic, rating agencies' influence has been reduced because bond investors are no longer tightly following the assigned credit ratings to price their trades. For example, high-yield issuer Netflix was trading at investment-grade price levels in April, reflecting investors' different views about the issuer's debt repayment capability.[47] Conversely, a portion of investment-grade BBB bonds' prices moved prior to rating agencies' downgrades to trade at high-yield levels, further illustrating the decoupling of actual bond pricing from credit ratings during the crisis.[48] This decoupling reflects that some investors are forming their own judgements about a company's credit quality independent of the bond ratings. Credit ratings' reduced influence during the crisis could alleviate some policy concerns, because assuming some ratings are flawed, investors at least are not placing blind faith in the credit rating agencies.

Funds

Investment funds are pooled investment vehicles that consolidate money from investors and manage it for a fee. Public funds, such as mutual funds and exchange-traded funds, are broadly

[44] For more on ETFs, see CRS Report R45318, *Exchange-Traded Funds (ETFs): Issues for Congress*, by Eva Su.

[45] For more on the Paycheck Protection Program, see CRS Insight IN11374, *The Paycheck Protection Program (PPP) and Larger Borrowers: Oversight Efforts and Options for Congress*, by Sean Lowry; and Federal Reserve Board, "Federal Reserve Board Announces It Is Expanding the Scope and Eligibility for the Main Street Lending Program," press release, April 30, 2020, at https://www.federalreserve.gov/newsevents/pressreleases/monetary20200430a.htm.

[46] Matt Levine, "Money Stuff: Investors Want a Cure, Not a Winner," Bloomberg, April 24, 2020, at https://www.bloomberg.com/news/newsletters/2020-04-24/money-stuff-investors-want-a-cure-not-a-winner.

[47] Molly Smith, "Netflix to Borrow another $1 Billion with Record High Cash," Bloomberg, April 22, 2020, at https://www.bloomberg.com/news/articles/2020-04-22/netflix-to-borrow-another-1-billion-with-cash-at-record-high.

[48] Joe Rennison, "U.S. Investors Brace for Ratings Downgrades as Turmoil Deepens," *Financial Times*, March 16, 2020, at https://www.ft.com/content/470cbfdc-6528-11ea-a6cd-df28cc3c6a68.

accessible to investors of all types.[49] Nearly half, or 44.8%, of all U.S. households own some form of public fund.[50] Mutual funds are the most widely used investment funds.[51] They are also called *open-ended funds*, referring to their continuous offering of shares.

Mutual Fund Redemptions and Run Risk

When fund investors want to get their money back, they normally redeem their mutual fund shares or sell their ETF shares in open market trading. In a redemption, investors sell shares back to the fund at per share net asset value (NAV), which equals the fund's assets minus liabilities.

Many public funds, including mutual funds, may be susceptible to sudden large redemptions (runs) if investors have an incentive to redeem shares before others do when there is a perception that the fund could suffer a loss. Such requests can trigger run-risk concerns. Under normal market conditions, fund managers balance the cash outflow for share redemption with cash inflow from share purchases, prepayments, and asset maturity. Funds also have other liquid investments set aside to meet redemption needs. But if a fund continuously experiences only outflow, or if the size of the unanticipated redemption requests becomes too large, the fund would have to sell its portfolio holdings to meet redemptions. These forced asset sells may be executed at less than optimal timing, potentially harming the fund's returns. If this scenario occurred at a large scale, these runs could destabilize the financial system. The run risk is more evident for funds that hold less-liquid underlying portfolio assets.

Money market mutual funds (MMFs) in particular demonstrated during the 2007-2009 financial crisis that they could experience runs and cause dislocation in funding markets. MMFs are a type of mutual fund that invests in short-maturity, high credit-quality debt, such as Treasuries, municipal bonds, commercial paper, and certificates of deposit. They are also common investment options for households and businesses. On September 15, 2008, Lehman Brothers Holdings Inc., an investment bank, filed for bankruptcy. The next day, one prominent MMF—the Reserve Primary Fund—saw its per share price fall from $1.00 to $0.97 after writing off its Lehman debt. This event triggered an array of market reactions, including investors' redemptions of more than $250 billion throughout the MMF industry within a few days of the bankruptcy. The consequences of these actions were potentially so dire to U.S. financial stability that the government ultimately intervened.[52]

During the pandemic-induced economic lockdown, many cash-strapped investors have approached mutual funds and MMFs with redemption requests. In March 2020, as investors rushed to make withdrawals, some mutual funds faced liquidity shortages and were under threat to unload assets at a loss to meet redemptions.[53]

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[49] For more details on different types of funds and the asset management industry, see CRS Report R45957, *Capital Markets: Asset Management and Related Policy Issues*, by Eva Su.

[50] Investment Company Institute, *2019 Investment Company Fact Book*, at https://ici.org/pdf/2019_factbook.pdf.

[51] For a comprehensive overview of fund types and the asset management industry, see CRS Report R45957, *Capital Markets: Asset Management and Related Policy Issues*, by Eva Su.

[52] For more details, see CRS In Focus IF11320, *Money Market Mutual Funds: A Financial Stability Case Study*, by Eva Su.

[53] Dave Michaels, Justin Baer, and Paul Kiernan, "SEC Gives Relief to Mutual Funds Facing Redemption Issues," *Wall Street Journal*, March 24, 2020, at https://www.wsj.com/articles/sec-gives-relief-to-mutual-funds-facing-redemption-issues-11585076903.

Money Market Mutual Funds

The broader category of mutual funds holds around $21 trillion in net assets.[54] In general, mutual funds are mostly comprised of longer-term investments that make up many households' retirement portfolios. As a subset of the larger mutual fund world, MMFs hold more than $4 trillion in net assets. Unlike many other mutual funds, MMFs are mainly used for short-term investments and corporate financing.

The main types of MMFs are (1) prime, which include investments in corporate debt, certificates of deposit, and repurchase agreements; (2) tax-exempt, also referred to as *municipal*, which invest in national or state municipal securities that are free of national or state income tax; and (3) government and Treasury, which invest in securities backed by the creditworthiness of the U.S. government. The main types of MMFs are then further divided into those held by individual investors (retail) or those held by organizations (institutional).[55] As **Figure 14** illustrates, in March 2020, while the ultra-safe government and Treasury MMFs received large inflows from investors seeking safety during the pandemic crisis, corporate and municipal MMFs lost 11% and 6% of their net assets within one month, respectively.[56] These actions further escalated market pressure and induced federal government liquidity interventions.

Figure 14. Money Market Mutual Fund Net Assets Changes in March 2020

(in $billions)

Category	Fund Type	2020-03	Change	2020-02
Prime	Subtotal	984.8	↓124.5	1,109.3
	Institutional	558.9	↓76.7	635.6
	Retail	425.9	↓47.8	473.7
Tax Exempt	Subtotal	132.0	↓9.0	141.0
	Retail	116.7	↓8.6	125.3
	Institutional	15.3	↓0.4	15.7
Government & Treasury	Subtotal	3,621.9	↑838.3	2,783.6
	Government	2,425.2	↑495.1	1,930.1
	Treasury	1,196.7	↑343.2	853.5
Total	**Total**	4,738.7	↑704.8	4,033.9

Source: SEC, *Money Market Fund Statistics Form N-MFP Data, period ending March 2020 Filings Received through April 13, 2020*, at https://www.sec.gov/files/mmf-statistics-2020-03.pdf.

Exchange-Traded Funds

Exchange-traded funds (ETFs) are also pooled investment vehicles that gather and invest money from a variety of investors. Unlike mutual funds, ETF shares can trade on securities exchanges like a stock, thus technically not facing the same type of redemption risks as mutual funds. However, ETFs can face "liquidity mismatch," in which ETF shares trade at different price levels than the ETF's underlying portfolio's per share NAV (a fund's assets minus liabilities). The

[54] Investment Company Institute, *2020 Investment Company Fact Book*, at https://ici.org/pdf/2020_factbook.pdf#page=2.

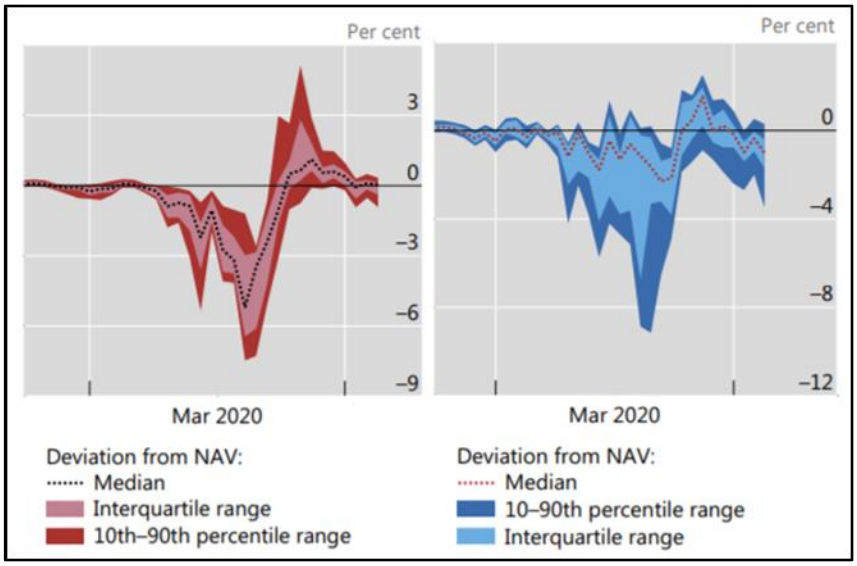
[55] SEC, "Money Market Funds," at https://www.sec.gov/answers/mfmmkt.htm.

[56] For more details, see SEC, *Money Market Fund Statistics Form N-MFP Data, period ending March 2020 Filings Received through April 13, 2020*, at https://www.sec.gov/files/mmf-statistics-2020-03.pdf.

effects of liquidity mismatch and ETF NAV gaps are a subject of long-term policy debate. Some argue that ETF NAV gaps during market stress are evidence of ETF shares providing faster price discovery than underlying bonds.[57] Others are concerned the liquidity mismatch could pose a threat to financial stability.[58]

Figure 15. Bond ETF NAV Gaps in March 2020

(investment-grade ETFs [left] and high-yield ETFs [right])



Source: Bank for International Settlements, *The Recent Distress in Corporate Bond Markets: Cues from ETFs*, April 14, 2020, at https://www.bis.org/publ/bisbull06.pdf.

Note: Includes both U.S. and European ETFs.

During the high market volatility experienced in March 2020, large gaps opened up between ETF shares and the NAV of their holdings in an unprecedented manner, an indication of stress (**Figure 15**).[59] In this short period, certain large bond ETFs saw both their widest discounts and widest premium to NAV since inception. An ETF gap with discount to NAV means that ETF shares are worth less than their underlying holdings, a situation that would not occur under normal market conditions.

Selected Policy Responses

As previously discussed, policymakers have introduced market-wide actions and rescue packages to calm volatility. For the fund market in particular, direct policy responses include federal government liquidity intervention and SEC temporary exemption of interfund lending.

[57] Sirio Aramonte and Fernando Avalos, *The Recent Stress in Corporate Bond Markets: Cues from ETFs*, Bank for International Settlements, BIS Bulletin no. 6, April 14, 2020, at https://www.bis.org/publ/bisbull06.pdf. For more on the definition of price discovery, see James Chen, "Price Discovery," Investopedia, April 30, 2019, at https://www.investopedia.com/terms/p/pricediscovery.asp.

[58] For more on the liquidity mismatch-related policy debates, see CRS Report R45318, *Exchange-Traded Funds (ETFs): Issues for Congress*, by Eva Su, p. 13.

[59] Sirio Aramonte and Fernando Avalos, *The Recent Stress in Corporate Bond Markets: Cues from ETFs*.

Federal Government Liquidity Support

For the MMF market, rather than waiting for signs of the situation becoming critical, on March 18, 2020, the Fed created an MMF liquidity facility based on a facility it had deployed during the 2007-2009 financial crisis. This facility would extend nonrecourse loans to banks and other eligible financial institutions to purchase certain types of assets from MMFs. After this announcement, MMFs have seen waves of inflows, which indicates that the Fed's interventions may have smoothed conditions in certain short-term credit markets.

For bond ETFs, on March 23, 2020, the Fed established a Secondary Market Corporate Credit Facility that can buy certain ETFs that provide broad exposure to investment-grade bonds.[60] The Fed expanded the program on April 9, 2020, to include certain high-yield bond ETFs as well.[61] Before any actual purchases took place, the ETF market already showed signs of stabilization. Bond ETFs experienced strong inflows immediately following the announcement, and some ETFs reportedly ceased trading at discounts to their NAV.[62]

SEC Temporary Exemption of Interfund Lending

The SEC used a different approach to enhance fund liquidity. On March 23, 2020, it temporarily relaxed interfund lending rules for certain funds to expand liquidity and ease their redemption pressure.[63] The SEC provided exemptions for registered open-end management investment companies (excluding MMFs) and certain insurance company separate accounts. This type of borrowing is normally restricted. These temporary exemptions provide more sources of liquidity from the funds' affiliates. For example, individual mutual funds under redemption pressure can borrow from their parent companies, which often manage a family of different funds, to ease liquidity pressure.

The interfund lending exemption is temporary, rather than permanent, because it has advantages as well as drawbacks. Some academics argue that interfund lending might increase investments in illiquid assets; reduce fund investors' run-like behavior; and mitigate asset fire sales after extreme investor redemptions.[64] But other academics point out that interfund lending might transfer risks from riskier funds to safer funds and create conflicts of interest concerns.[65] Such "cross-fund subsidization" can lead fund managers to enhance the safety and return of higher-risk funds at the expense of lower-risk and lower-return funds.[66]

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[60] Federal Reserve Board, "Federal Reserve Announces Extensive New Measures to Support the Economy," press release, March 23, 2020, at https://www.federalreserve.gov/newsevents/pressreleases/monetary20200323b.htm.

[61] Federal Reserve Board, *Secondary Market Corporate Credit Facility Term Sheet*, April 9, 2020, at https://www.federalreserve.gov/newsevents/pressreleases/files/monetary20200409a2.pdf.

[62] Katherine Greifeld, "Fed's Ability to Buy ETFs May Help Ensure It Never Needs To," Bloomberg, April 15, 2020, at https://www.bloomberg.com/news/articles/2020-04-15/fed-didn-t-actually-have-to-buy-anything-to-rescue-bond-etfs.

[63] SEC, "SEC Provides Temporary Additional Flexibility to Registered Investment Companies Affected by Coronavirus," press release, March 23, 2020, at https://www.sec.gov/news/press-release/2020-70.

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Conclusion

Periods of abnormally high capital markets volatility have occurred throughout financial history. The uncertainties that have triggered such events have ranged widely, from pandemics to financial system breakdowns to geopolitical risks. Despite the different causes, levels of policy actions in response have largely depended on the size of the harm and how widely risks have spread. In some situations, risks built up in expected patterns, and outcomes under stress were not much of a surprise, no matter what the triggering event was. In other situations, heightened stress revealed unexpected areas of vulnerability, and unprecedented policy solutions were needed to address them. In the case of the COVID-19-induced capital markets selloffs, market dislocations have been broadly felt, and the policy response has included some expected actions and uses of existing tools, as well as new developments and new policy solutions. Despite the signs that these policy actions have stabilized the markets to an extent, uncertainties surrounding the pandemic continue to pose threats to capital markets. If the threats unfold, capital markets conditions could change rapidly. Given the challenges of controlling the pandemic, how and when the COVID-19 crisis could end will decide the parameters for further policy responses.

Capital Markets and COVID-19 Product Series

This report is part of a series of CRS products addressing capital markets and COVID-19. The other products in this line are listed below:

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Appendix A. Credit Rating Agency-Related Policy Debates

Credit rating agencies have been an area of ongoing policy concern since the 2007-2009 financial crisis. Some argue that credit rating agencies could potentially inflate credit ratings to make it easier for corporations to borrow, which could harm corporate debt investors. Observers recall the 2007-2009 financial crisis, when credit rating agencies allegedly inappropriately assigned high ratings to risky securities, misled investors, and amplified the financial crisis. As a result, the rating agencies paid billion-dollar settlements and received tightened regulation.[67] But a decade later, the industry's high concentration and "issuer pays" business model, which are the main sources of criticism, remain largely unchanged.

Rating inflation, market concentration, and conflicts of interest are key elements of policy discussions about the rating agencies. The three largest rating agencies—S&P, Moody's, and Fitch—account for 95% of all outstanding credit ratings (**Figure A-1**).[68] These rating agencies are generally paid by the bond issuers to which they assign ratings, referred to as an "issuer pays" business model. Some believe this business model incentivizes the agencies to provide higher credit ratings in exchange for revenue and market share.[69] Smaller rating agencies do exist, but a recent analysis suggests that they are fueling, instead of reducing, potential rate inflation (**Figure A-2**).[70] The smaller agencies disputed the research.

Some in Congress have expressed concern over the implementation of alternative mechanisms to mitigate conflicts of interest and reduce rating inflation risk. For example, draft legislation in 2010 and a letter to the SEC from a bipartisan group of Senators in February 2020 discussed the issue.[71] Per the Dodd-Frank Act mandate, the SEC studied multiple alternative approaches and issued a report detailing the evaluations in 2012, but none of the business model changes were implemented.[72] One example of a proposed solution is the Franken-Wicker Amendment from a decade ago, which suggested the creation of a separate entity under the SEC to randomly assign credit rating agencies to bond issuers.[73]

[67] For more details on current rating agency oversight, see SEC, *Annual Report on Nationally Recognized Statistical Rating Organizations*, January 2020, at https://www.sec.gov/files/2019-annual-report-on-nrsros.pdf.

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Figure A-1. Credit Rating Agency Market Share Distribution

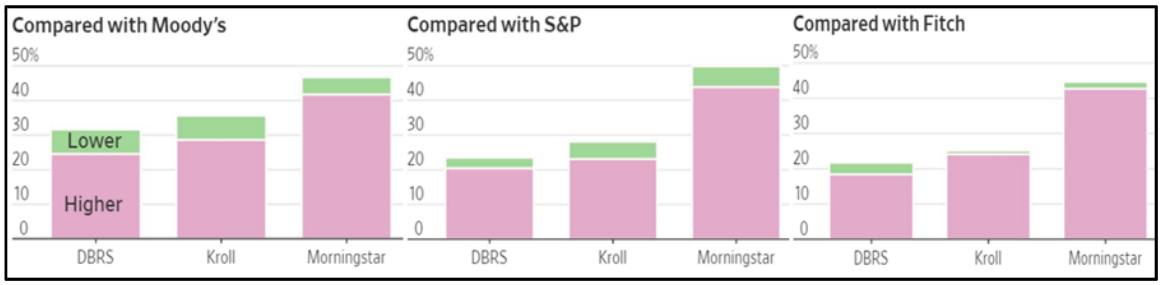
NRSRO	Financial Institutions	Insurance Companies	Corporate Issuers	Asset-Backed Securities	Government Securities	Total Ratings
A.M. Best	N/R	34.8%	0.9%	0.0%	N/R	0.4%
DBRS	7.8%	0.8%	2.4%	10.7%	1.2%	2.4%
EJR	6.6%	4.4%	6.5%	N/R	N/R	0.9%
Fitch	23.3%	15.8%	16.5%	21.9%	11.6%	13.5%
HR Ratings	0.4%	N/R	0.2%	N/R	0.0%	0.1%
JCR	0.6%	0.3%	2.2%	N/R	0.0%	0.2%
KBRA	0.6%	0.3%	0.0%	7.5%	0.0%	0.6%
Moody's	23.5%	11.9%	25.1%	33.3%	33.8%	32.3%
Morningstar	0.0%	N/R	0.1%	2.1%	N/R	0.2%
S&P	37.2%	31.7%	46.0%	24.5%	53.4%	49.5%

Source: SEC, *Annual Report on Nationally Recognized Statistical Rating Organizations*, January 2020, at https://www.sec.gov/files/2019-annual-report-on-nrsros.pdf#page=14.

Note: NRSRO = nationally recognized statistical rating organization.

Figure A-2. Comparisons of Ratings: Three Largest vs. Smaller Rating Agencies

(rating differences when two firms rated the same bond)



Source: *Wall Street Journal* analysis of Finsight.com data. Cezary Podkul and Gunjan Banerji, "Inflated Bond Ratings Helped Spur the Financial Crisis. They Are Back." *Wall Street Journal*, August 7, 2019, at https://www.wsj.com/articles/inflated-bond-ratings-helped-spur-the-financial-crisis-theyre-back-11565194951.

Note: Debt includes securities backed by commercial mortgages, residential mortgages, credit cards, auto loans, student loans, equipment, and other esoteric business debts.

Appendix B. Capital Markets and Federal Reserve Emergency Facilities

Table B-1. Selected Capital Markets Segments Supported by Federal Reserve Funding, Credit, Liquidity, and Loan Facilities

Selected Capital Markets Segments	Examples of Related Federal Reserve Facilities	Market Reactions Following the Announcements
Corporate Bonds	The Fed announced in March its intention to purchase higher credit quality investment-grade bonds for the first time through the Primary Market Corporate Credit Facility (**PMCCF**) and Secondary Market Corporate Credit Facility (**SMCCF**). The programs were extended to fallen angels in April by including companies that lost investment-grade credit ratings after March 22, 2020. The Fed updated **SMCCF** on June 15, 2020, to spell out the plan to purchase bonds using an internally developed broad, diversified market index.	At the first announcement of **PMCCF** and **SMCCF**'s creation, the bond market rebounded, but high-yield bonds, which did not receive the announced support, stabilized less. Following the announcement of the expansion, prices for high-yield bonds rose substantially, possibly signaling the restoration of the market to some extent. Both investment-grade and high-yield bond markets reportedly reacted positively after the Fed disclosed more details on its index-based buying strategy.
Asset-Backed Securities (ABS)—Collateralized Loan Obligations (CLOs)	The Fed established the Term Asset-Backed Securities Loan Facility (**TALF**) on March 23, 2020, to support ABS flow of credit to consumers and businesses. It expanded **TALF** to provide funding for CLO investors (and indirectly leveraged loans) in April. Certain senior tranche AAA-rated static CLOs could qualify for **TALF**. Static CLOs are CLOs that do not include a period of reinvestment of collateral proceeds. The eligible CLOs must have been newly issued, on or after March 23, 2020. The Fed expanded **TALF** again on May 12, 2020, to include CLOs backed by eligible leveraged loans from earlier periods, including loans originated on or after January 1, 2019.	While higher-rated CLOs rebounded to a large extent, the lower-tranche CLOs, which are designed to absorb losses for the collateral pools, did not recover at the same level.
Municipal Bonds	The Fed included certain municipal bonds with short maturities in some of its early liquidity facilities—the Money Market Mutual Fund Liquidity Facility (**MMLF**) and the Commercial Paper Funding Facility (**CPFF**). It later expanded its support of state and local governments on April 9 by announcing a program devoted specifically to municipal debt, purchasing certain longer-term bonds issued by states, cities, and counties—the Municipal Liquidity Facility (**MLF**).	Following the Fed announcements, certain municipal bonds' pricing pressure appears to have been reduced. Some broad measures of the market—for example, the 10-year municipal bond yields—declined substantially from the March selloff levels.
Money Market Mutual Funds (MMF)	The Fed created the **MMLF** based on a facility it had deployed during the 2007-2009 financial crisis. MMF assets that could serve as eligible collaterals include U.S. Treasuries, government-sponsored enterprise debt, high quality asset-backed and unsecured commercial paper, certain certificates of deposit, and certain municipal debt.	After the announcement on March 18, 2020, certain MMFs (prime and municipal) that were previously facing redemption pressure saw waves of inflows. The conditions for MMFs and the related underlying short-term credit markets have eased since the announcement.

Selected Capital Markets Segments	Examples of Related Federal Reserve Facilities	Market Reactions Following the Announcements
Exchange-Traded Funds (ETF)	For bond ETFs, on March 23, 2020, the Fed established the **SMCCF**, which can buy certain ETFs that provide broad exposure to investment-grade bonds. It expanded the program on April 9, 2020, to include certain high-yield bond ETFs as well.	Before any actual purchases took place, the ETF market already showed signs of stabilization. Bond ETFs experienced strong inflows immediately following the announcement, and some ETFs reportedly ceased trading at discounts to their net asset value.

Source: Congressional Research Service based on Federal Reserve disclosures.

Notes: The table provides general examples. It is not inclusive of all related emergency lending actions and market events. The market reactions capture changes in market activities; they do not suggest exact causal relationships. See **Figure 13** for changes in market conditions following the related emergency facility announcements. Market conditions often changed before any actual purchases took place (e.g., TALF, SMCCF, PMCCF, and MLF). For more details on individual programs, see Federal Reserve Board, "Funding, Credit, Liquidity, and Loan Facilities," at https://www.federalreserve.gov/funding-credit-liquidity-and-loan-facilities.htm and CRS Insight IN11327, *Federal Reserve: Emergency Lending in Response to COVID-19*, by Marc Labonte.

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