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The Commercial Paper Funding Facility

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Abstract

The Federal Reserve reestablished the Commercial Paper Funding Facility (CPFF 2020) in response to the disruptions in the commercial paper market triggered by the COVID-19 pandemic and subsequent economic shutdowns. The CPFF 2020 was designed to support market functioning and provide a liquidity backstop for the commercial paper market. This paper provides an overview of the CPFF 2020, including detailing the facility's design, documenting its usage, and describing its impact on commercial paper markets. In addition, we compare the market conditions and facility design in CPFF 2020 to that of the original CPFF facility.

Key words: Federal Reserve, commercial paper market, CPFF, Federal Reserve lending facilities

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1. Introduction

In March 2020, commercial paper markets experienced disruptions related to the outbreak of COVID-19 and associated shutdowns. Investor flows out of money market funds were exacerbated by uncertainty about the impact of COVID-19 on businesses. Anecdotally, commercial paper investors were unwilling to extend credit to issuers except at very short maturities (less than five days). This reduction in the availability of credit coincided with yield spread increases even for the highest rated issuers across the maturity spectrum. The shock to the market negatively impacted companies that needed to refinance their maturing commercial paper, exacerbated in 2020 by an increase in liquidity needed to fund operational disruptions.

In light of these events, on March 17, 2020, the Federal Reserve announced the Commercial Paper Funding Facility (CPFF 2020), designed to support market functioning and provide a liquidity backstop for the commercial paper market.[1] The CPFF 2020 was a temporary liquidity facility authorized under Section 13(3) of the Federal Reserve Act and backed by $10 billion in equity from the U.S. Treasury using the Exchange Stabilization Fund. It marked the reestablishment of a facility that originally operated from October 27, 2008, through February 1, 2010, in response to the Global Financial Crisis (GFC). While in both 2008 and 2020, there were concerns about companies need to fund operations, in 2020, concerns were highest about the ability of nonfinancial companies to issue commercial paper to fund operations, while in 2008, the roll-over of asset backed commercial paper was a key concern.

The CPFF 2020 began its purchase operations on April 14, 2020. Over the course of its life, the facility purchased a total of $4.285 billion in three-month commercial paper from a range of nonfinancial, financial, and asset-backed commercial paper issuers who used the facility primarily in the first few weeks of its operation. The CPFF 2020's active purchase period ended on March 31, 2021, with no outstanding commercial paper holdings. The facility was dissolved July 8, 2021, after returning the full sum of the Treasury's equity contribution (plus $4.8 million in interest earnings) and distributing the facility's $49.1 million in profits to the Treasury and New York Fed. Conditions in the commercial paper market improved considerably in the weeks following the announcement that the CPFF 2020 would be established. Spreads returned to more normal levels and companies were once again able to issue at longer maturities. The boost to confidence provided by the CPFF 2020, as well as other actions taken by the Federal Reserve in March, appear to have contributed to this improvement in market functioning.

Adrian et al (2011) offer an extensive discussion of the 2008 CPFF, including background on the commercial paper market and the economics of the facility. We focus in this work on differences in the commercial paper market relative to the last decade as well as elucidate lessons learned from the COVID-19 shock, which had very different dynamics than did the financial crisis when the CPFF was originally used. Despite the different origins of the 2008 and 2020 disruptions, as in 2008, the CPFF 2020 served to stabilize commercial paper market conditions by providing a backstop to issuers who felt the strains of liquidity shortages in the marketplace. The paper proceeds as follows: Section 2 offers

[1] The Federal Reserve also announced the Primary Dealer Credit facility on March 17, 2020, as well as supervisory guidance on the use of capital and liquidity buffers for banks. A comprehensive list of the Federal Reserve's actions in response to the pandemic can be found here The Fed - Coronavirus Disease 2019 (COVID-19) (federalreserve.gov), and is described in Clarida, Duygan-Bump and Scotti (2021) as well as in this volume.

background on the commercial paper market, Section 3 on the operation and design of the facility and Section 4 concludes.

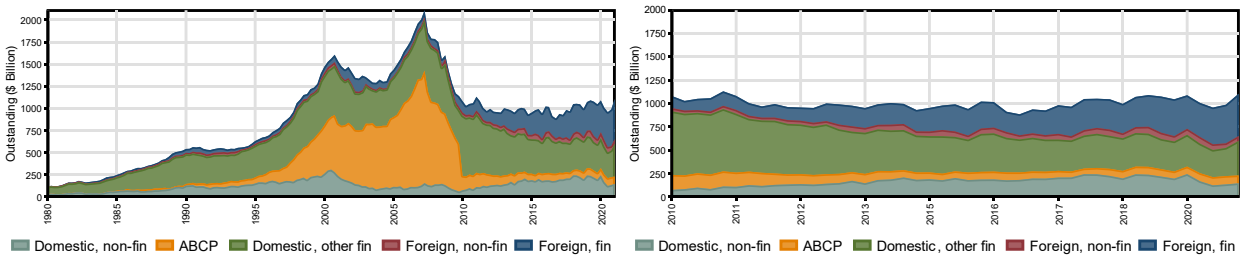
2. Background of Commercial Paper Market

As explained in Adrian et al (2011), the commercial paper (CP) market is used by banks, nonbank financial institutions, and nonfinancial corporations. In addition, some municipalities also issue commercial paper. Although commercial paper is a short-term instrument, it is typically issued as part of an ongoing program. It is often used to finance cash needs that change throughout the year, for example, funding a large equipment purchase or to smooth lumpy payments from customers. Since CP is traditionally unsecured and not backed by collateral, typically only high credit quality firms are able to fund through this market.[2] Investors in the CP market include prime money funds and other buyers who seek assets with short maturities.

A. Recent Evolution of Commercial Paper Market

Figure 1 reviews the historical patterns of commercial paper outstanding across different types of commercial paper issuers. The commercial paper market peaked in the middle of 2007 with outstanding paper of $2.1 trillion. The market has subsequently declined substantially, with approximately $1.1 trillion of outstanding in Q1 2020. The biggest change since the financial crisis is the sharp fall in issuance of asset-backed commercial paper (ABCP), which no longer makes up a large share of the market. Since most ABCP was arranged to provide funding to financial institutions, this means that the share of bank and other financial issuers is much smaller than it was in 2007. In contrast, foreign issuers and, in particular, foreign financial institutions have become an increasingly larger share of the market. Issuance by domestic nonfinancial companies has continued to expand but remains somewhat below the early 2000s peak.

Figure 1. Commercial paper outstanding by issuer type. Source: Flow of Funds, Table L.209

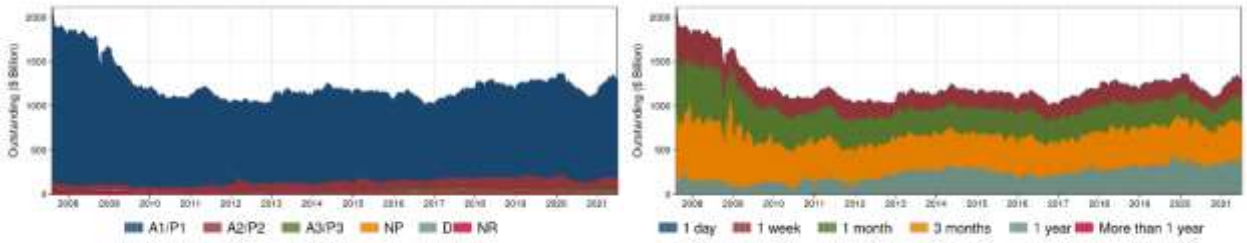


Focusing on commercial paper outstanding over the last 10 years, the left panel of Figure 2 below shows the distribution of amount outstanding by issuer credit rating. Although the highest rated category – A1/P1/F1 – represents the largest portion of the amount outstanding throughout, the amount outstanding in the slightly riskier A2/P2/F2 credit rating category has been increasing subsequent to the GFC.

[2] An exception to this is Asset Backed Commercial Paper which played a large role in the 2008 financial crisis.

The right panel of Figure 2 focuses on the amount outstanding by remaining time to maturity. Generally, most issuance has a one-day maturity.[3] Outstanding CP at any point in time tends to be mostly of a three month maturity, and Figure 2 shows that the profile of the commercial paper outstanding had shifted more towards riskier issuers and to longer maturity contracts in the period between the GFC and the start of the pandemic. The largest portion of the amount outstanding in 2020 had remaining time to maturity between 1 month and 3 months.

Figure 2. Commercial paper outstanding by credit rating and maturity. Source: DTCC. An issuer is designated A1/P1 if its short-term rating is A1/P1/F1 according to at least one major rating agency. Consistent with the eligibility criteria for CPFF2020, if the issuer is rated by multiple rating agencies, the issuer must receive a short-term rating of A1/P1/F1 from at least two agencies to be included in the ratings category in this chart.



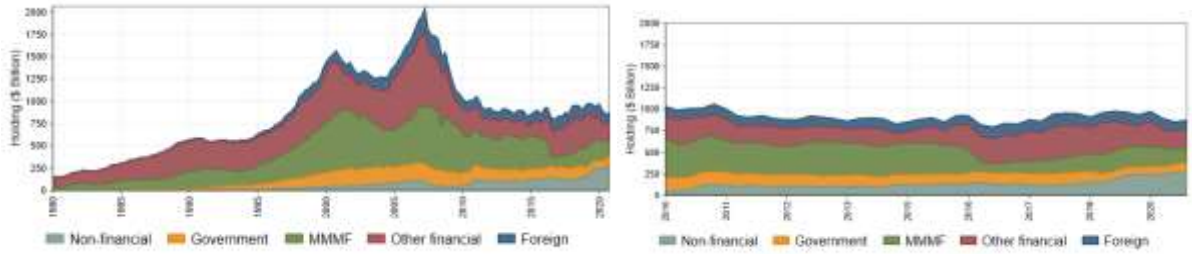
B. Lenders in the Commercial Paper Market

Historically, money market mutual funds (MMMFs) have been the largest single investor in the CP market. One of the biggest changes to the CP investor base came in response to changing MMMF regulation. In 2010, the SEC first amended Rule 2a-7 to require prime MMMFs to invest in even higher quality assets with shorter maturities. In 2014, in a further attempt to make the industry more resilient to financial shocks, the SEC approved a new set of rules for prime and muni MMMFs. These rules, which came into effect in October 2016, imposed floating net asset values (NAVs), fund management gates and the possibility of redemption fees. There was a corresponding shift in assets from prime funds to government funds (see Cipriani and La Spada for more details), and a decrease in the share of CP outstanding held by MMMFs. Figure 3 characterizes the commercial paper market from the perspective of the investors.

Since that one-time fall, the share of CP held by MMMFs gradually increased, and holdings by other institutions have been mostly stable since the financial crisis.

[3] Note, however, that since 1 day paper by definition matures within a day, there is very little amount outstanding of 1 day commercial paper, as reflected in the thin blue area in the right chart of Figure 2.

Figure 3. Commercial paper holdings by institution type. Source: Flow of Funds, Table L.209

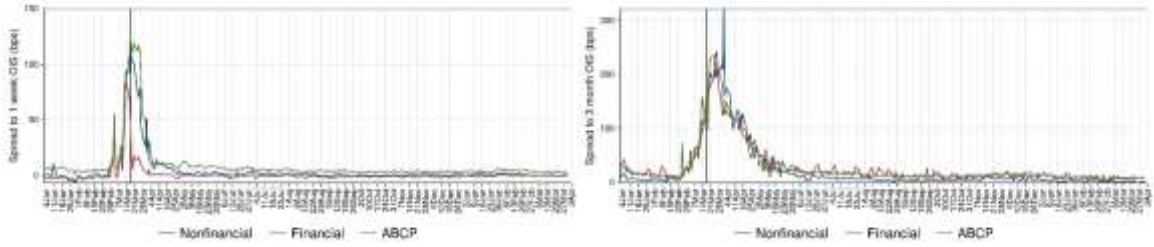


C. Commercial Paper Market Stress in 2020

Figure 4 plots the recent time series of the spread to matched-maturity overnight index swap (OIS) for commercial paper issued by A1/P1/F1 nonfinancial, financial and ABCP issuers. At the beginning of March, spreads on this most highly rated paper increased sharply, particularly for longer maturity commercial paper. In contrast to the GFC, the increase in spreads was particularly high for nonfinancial issuers. As in past episodes of dysfunction in these markets, a combination of liquidity risk and jump to default risk was manifested, reflecting concerns about the underlying credit quality of issuers based on their potential exposure to ramifications of the COVID-19 pandemic.

Nonfinancial three-month paper spreads to three-month OIS averaged 18 bp in 2019, and typically were below spreads for financials and ABCP. By March 17,2020, spreads had increased tenfold, subsequently peaking above 300 bp by the end of March. Anecdotally, concerns were raised about the difficulty of longer term CP issuance, although no fall in issuance is visible in the data. Such concerns are consistent with the decline in the amount of CP outstanding that began in March 2020, as can be seen in Figure 2.

Figure 4. Spreads on A1/P1 paper rose sharply at the beginning of March. Source: DTCC



Note: An issuer is designated A1/P1 if its short-term rating is A1/P1/F1 according to at least one major rating agency. If the issuer is rated by multiple rating agencies, the issuer must receive a short-term rating of A1/P1/F1 from at least two agencies. The two vertical red lines correspond to March 17 and March 23.

3. CPFF Design and Operation

The design and operation of the original version of the CPFF is described in detail in section 3 of Adrian et al (2011). The authors highlight that the effectiveness of the facility as a liquidity backstop owed to its simplicity in usage, compliance with existing market conventions, accessibility to a large cross-section of the commercial paper market, minimization of credit risk taken by the Reserve Bank, carefully calibrated pricing, and quick implementation.

The 2020 version of the CPFF (CPFF 2020) sought to capitalize on the previous CPFF by drawing on the legal, trading, investment, custodial, administrative, and risk management blueprints from the prior experience.

A. 2020 Organization

The design and operation of CPFF 2020 were generally similar to the original GFC-era facility.

As in the 2008 program, CPFF 2020 operated through a dedicated funding vehicle— CP Funding Facility II LLC (CPFF II LLC)—that was established solely to purchase eligible, three-month commercial paper from eligible issuers, providing a sufficiently long maturity for borrowers to avoid continuous rollover risk. Eligible issuers were highly-rated U.S. entities, including nonfinancial corporations, banks, state and local governments, and ABCP programs. CPFF II LLC obtained loans from the New York Fed to fund its commercial paper purchases and pledged its assets, including the purchased commercial paper, as collateral to secure any loans.

Also as in the 2008 program, CPFF 2020 operated through existing market structures. Issuers sold paper to the facility through commercial paper dealers, who served as agents between the New York Fed and the commercial paper issuers, drawing on the dealers' existing relationships with the hundreds of issuers in the commercial paper market and their experience underwriting, placing, and making markets in this market. Trade execution was conducted electronically on a platform commonly used for the primary issuance of commercial paper, with straight-through processing requiring little manual intervention. A daily purchase operation with same-day settlement assured issuers that the CPFF could meet any unexpected liquidity need.

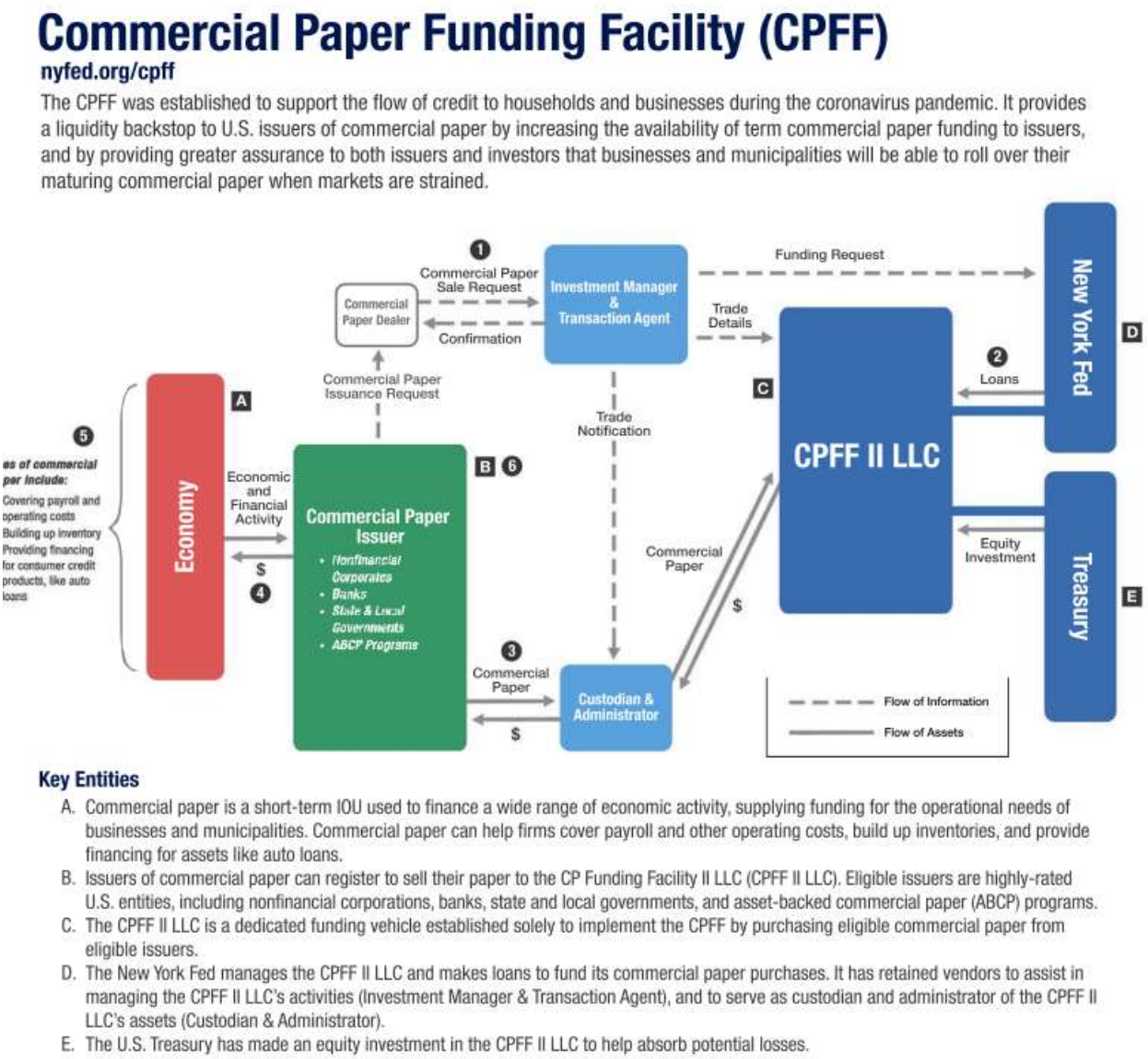
Pricing of the facility was again set as a spread to the three-month OIS rate although the 2020 facility was set at a narrower spread of 110 basis points for top-tier paper and a spread of 200 basis points for tier-two paper (discussed more below). In addition, as in the 2008 facility issuers paid an upfront 10 basis point registration fee.

Once again, the New York Fed secured the services of experienced market participants to build the infrastructure needed to run the facility. These included the services of Pacific Investment Management Company, LLC (PIMCO), which served as CPFF II LLC's transaction agent and investment manager, and State Street Bank & Trust Company (State Street), which served as the custodian and accounting administrator. Transactions all cleared through the market's standard clearing mechanisms through the Depository Trust Company.

The key players in the transaction and flow of funds are explained further in Figure 5.[4]

[4] This is a stylized diagram that does not include several other players in the full end-to-end clearing and settlement process.

Figure 5. Schematic of key linkages in the CPFF.



Key Entities

A. Commercial paper is a short-term IOU used to finance a wide range of economic activity, supplying funding for the operational needs of businesses and municipalities. Commercial paper can help firms cover payroll and other operating costs, build up inventories, and provide financing for assets like auto loans.

B. Issuers of commercial paper can register to sell their paper to the CP Funding Facility II LLC (CPFF II LLC). Eligible issuers are highly-rated U.S. entities, including nonfinancial corporations, banks, state and local governments, and asset-backed commercial paper (ABCP) programs.

C. The CPFF II LLC is a dedicated funding vehicle established solely to implement the CPFF by purchasing eligible commercial paper from eligible issuers.

D. The New York Fed manages the CPFF II LLC and makes loans to fund its commercial paper purchases. It has retained vendors to assist in managing the CPFF II LLC's activities (Investment Manager & Transaction Agent), and to serve as custodian and administrator of the CPFF II LLC's assets (Custodian & Administrator).

E. The U.S. Treasury has made an equity investment in the CPFF II LLC to help absorb potential losses.

B. Differences from 2008 Facility

While the overall design and structure of the CPFF 2020 replicated that of the original program, CPFF 2020 operated with several distinct differences, which reflected in part the unprecedented uncertainty and potentially broad impact of the pandemic, initiatives to expand participation and diversification in Federal Reserve programs, and clearer risk-sharing arrangements with the U.S. Treasury. Some of the key differences follow.[5]

[5] For a comprehensive overview of terms and conditions, frequently asked questions, announcements, agreements, and operational details relating to the CPFF, see Commercial Paper Funding Facility - FEDERAL RESERVE BANK of NEW YORK (newyorkfed.org).

- **Downgrade exception:** To minimize credit risk offered by a backstop facility, the Federal Reserve generally limited purchases to top-tier commercial paper, rated A1/P1/F1 or higher, consistent with 2a-7 fund conventions. Recognizing the uncertainty and concerns about market dynamics as the pandemic spread in the U.S., a limited-use exception was added for issuers that met the top-tier eligibility requirement when the facility was announced. These were subsequently downgraded to no lower than A2/P2/F2. Such downgraded issuers would be allowed to make a one-time sale to the facility, effectively allowing them to roll maturing paper with the facility while they worked to secure alternative funding sources. Additional support for corporate bond issuers that were rated investment grade as of March 23 was provided by the Corporate Credit Facilities which became active later in 2020.

- **Municipal commercial paper:** State and local governments and related entities faced a severe tightening in market conditions because of pandemic-induced uncertainty on revenues and strains on expenditures. On March 23, 2020, to facilitate the flow of credit to municipalities, municipal commercial paper was added as eligible for CPFF purchases, at the same time the Money Market Liquidity Fund (MMLF) was expanded to accept a wider range of municipal instruments for secondary market purchases. Both actions provided support before the Federal Reserve and Treasury Department announced in early April the establishment of a $500 billion Municipal Liquidity Facility to support state and local governments more directly.

- **Pricing structure:** While the 2008 version of the program offered different spreads for the prices at which the facility would buy unsecured versus asset-backed commercial paper (and considered a credit surcharge for paper that did not carry a government guarantee), CPFF 2020 offered to purchase both unsecured and asset-backed commercial paper at the same price. The initial terms and conditions were for price of Tier 1 paper to be the three-month OIS rate plus 200 basis points, which was equal to the all-in pricing offered in the 2008 program. Downgraded paper would be subject to a higher price. The spread on the Tier 1 price was subsequently lowered to 110 basis points (and the spread for Tier 2 paper was set at 200 basis points), in order to be more consistent with pricing offered for other facilities active at the same time and in consideration of prevailing market conditions.

- **Equity capital:** The U.S. Treasury, using the Exchange Stabilization Fund, provided a $10 billion equity investment in the CPFF II LLC. While the original CPFF did not have formalized credit protection, ensuring this arrangement at inception helped to secure the facility to the Federal Reserve's satisfaction—a requirement for all 13(3) lending—and reinforced cooperation between the Federal Reserve and Treasury in addressing the urgent needs of this crisis. The size of the equity investment for the facility was calibrated based on historical A1/P1/F1 extreme downgrade probabilities.[6] This equity was additive to the 10 basis point registration fee that issuers paid up front, which together with any earnings, would absorb potential credit losses.

[6] Specifically, the historical worst-case frequency of downgrade to non-prime within 1 year. Note that, historically, no A1/P1/F1 paper has defaulted.

- **Expanded ratings agencies:** CPFF 2020, like the 2008 version, was launched with program terms that would accept credit ratings only from Fitch Ratings, Inc., Moody's Investors Service, Inc., and S&P Global Ratings. On May 26, 2020, the Federal Reserve expanded the set of nationally recognized statistical rating organizations (NRSROs) whose ratings would be accepted in determining the eligibility of commercial paper—adding DBRS, Inc., Kroll Bond Rating Agency, Inc., and only with respect to insurance companies, A.M. Best Rating Services, Inc.—to the extent the issuer also had a qualifying rating from one of the original three NRSROs.

- **Expanded counterparties:** Finally, while both versions of the CPFF were launched with a structure that relied on primary dealers as the intermediaries between issuers and the facility, on July 23, 2020, the Federal Reserve launched an initiative to broaden the set of broker dealers who would be eligible to transact with the CPFF. This initiative was expected to increase the operational capacity of the facility while supporting equal opportunity for and diversity in the operation of the facility. Between September 9, 2020, and February 4, 2021, seven non-primary dealer commercial paper dealers who met designated eligibility requirements (including size restrictions, transaction capabilities, financial condition, compliance controls, and equal opportunity and diversity efforts), were added to the program as CPFF Dealers.

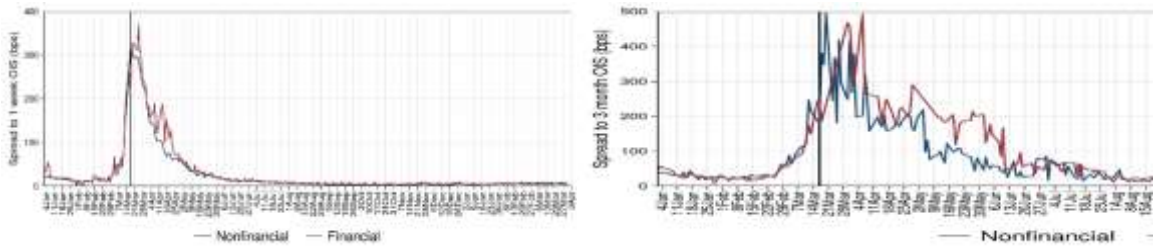
Other terms of the program, including issuer capacity limits and registration provisions, were the same as the 2008 program. Counterparty risk management also functioned essentially the same, with penalty pricing associated with lending rates analogous to setting haircuts on a nonrecourse loan.

4. Impact of the Facility

As shown in Figure 4, for the shortest maturity issuances, spreads to one week OIS on one week A1/P1 paper started declining immediately at the facility announcement on March 17, with the spread on nonfinancial commercial paper declining from 117 basis points (bps) on March 17 to 11 bps on April 14 (when the facility commenced purchases), and the spread on financial commercial paper declining from 46 bps on March 17 to 1 bp on April 14. The response of spreads on longer maturity commercial paper continued rising after the facility announcement, with the spreads to 3-month OIS on 3-month A1/P1 nonfinancial commercial paper peaking at 322 bps on April 1, before declining to 125 bps by April 14. Similarly, the spreads to three-month OIS on 3-month A1/P1 financial commercial paper started to decline on March 26 from 242 bps to 98 bps on April 14.

While the facility only accepted commercial paper from issuers rated A1/P1 as of the facility announcement date, by stabilizing the A1/P1 market the facility has had a positive impact on market functioning and liquidity for lower rated issuers as well. Figure 6 shows spreads to maturity-matched OIS for A2/P2 commercial paper.

Figure 6. A2/P2 market functioning also improves after CPFF announcement. Source: DTCC

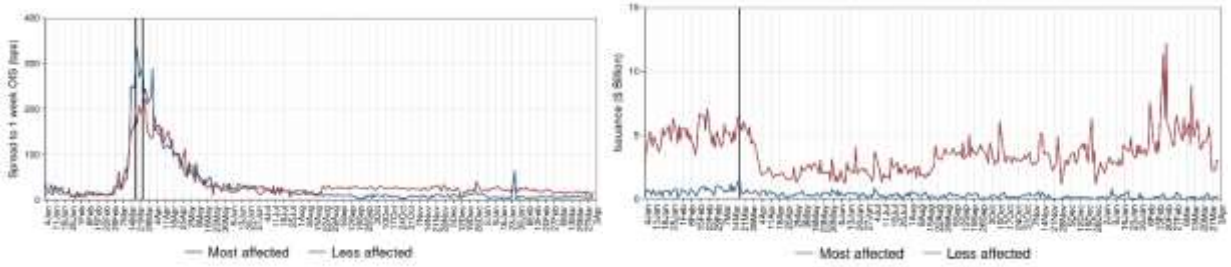


Note: An issuer is designated A2/P2 if its short-term rating is A2/P2/F2 according to at least one major rating agency. If the issuer is rated by multiple rating agencies, the issuer must receive a short-term rating of A2/P2/F2 from at least two agencies. The two vertical red lines correspond to March 17 and March 23.

As with the A1/P1 market, the shortest maturity spreads reacted almost immediately, with the spread on nonfinancial commercial paper declining from 322 bps on March 17 to 93 bps on April 14, and the spread on financial commercial paper declining from its peak of 373 bps on March 24 to 187 bps on April 14. The reaction of longer maturity spreads was less pronounced, with a modest 50 bps decline in the spread on nonfinancial three-month paper over the period from March 17 to April 14. Indeed, the right panel of Figure 5 shows that the spreads on three-month A2/P2 paper only went back to pre-pandemic levels toward the end of the summer of 2020. Thus, although the CPFF announcement helped to ameliorate stresses throughout the commercial paper market, the response of securities not eligible for direct purchases was more muted.

Inspecting the A1/P1 non-financial issuers in greater detail, we can examine whether market pricing for issuers in industries more likely to be directly affected by the COVID epidemic – such as airlines, department stores, restaurants, and hotels – has evolved in the same way as for issuers less likely to be directly affected. In particular, we group issuers into “most affected” and “less affected” based on the declines in payroll employment between January and April 2020 at the 3-digit NAICs industry level, with most affected issuers defined as those in industries which declined by 15% or more. Figure 7 shows that, although spreads on one week paper have declined for both sets of issuers since the facility announcement, the initial decline in spreads for more directly affected issuers was more modest. It was not until the economic outlook improved during the summer of 2020 that the spreads on most affected issuers caught-up to the spreads on less affected issuers. Indeed, towards the end of 2020, spreads on most affected issuers were below those of less affected industries. However, as can be seen in the right panel of Figure 7, issuance by most affected issuers has remained sluggish while issuance by less affected issuers has surpassed pre-pandemic levels.

Figure 7. Spreads on 1 week paper decline for different types of non-financial issuers.



Note: Source: DTCC. The two vertical red lines correspond to March 17 and March 23. Most affected issuers are those in industries with 15% or more decline in payroll employment between January and April 2020.

5. Lessons Learned

There are three main lessons learned from the CPFF 2020 – different crises require different actions, facility design needs to evolve with the market and the crisis, and experience speeds response.

First, considering the nature of the crisis, the 2008 dislocations in the commercial paper markets were driven by the financial sector, while the 2020 market dislocations were seen more at nonfinancial corporations. In addition, issuance in this market had moved away from ABCP. Therefore CPFF 2020's design did not differentiate between financial and nonfinancial issuers in pricing or other terms. In both episodes, the establishment of a backstop facility was effective in restoring normal market functioning.

Second, specific terms and conditions need to reflect the particulars of the given economic environment. Design elements that were substantially similar to the original program were adapted to the new situation (as discussed in the previous section, including a downgrade exception and including of muni issuers), and other elements that remained the same elicited different reactions (for example, some reactions from market participants about registration fees, which had the same structure as before, faced more resistance this time than last). Moreover, in considering the appropriate pricing and amount of required equity, the high credit quality and rare historical defaults of the market must be weighed against the specific circumstances under which the facility might be needed. However, ensuring pricing such that usage should naturally decline as conditions normalize is a key design feature.

The third lesson learned is the importance of operational readiness in setting up the facility and the importance of a quick and comprehensive response. It was much easier to revive a prior facility than to build one from scratch. The task of setting up CPFF 2020 was eased by the ability to make use of structure and implementation lessons from the 2008 CPFF. This is particularly important because the speed with which the Federal Reserve was able to announce the MMLF, CPFF, PDCF, reduction in the policy rate and the primary credit rate all supported critical access to credit to support employment.

Usage of CPFF 2020 was much lower than in 2008, with a maximum outstanding of the original CPFF at nearly $350 billion and the maximum outstanding of CPFF 2020 at $4.3 billion. However, facility usage is not a measure of its success, and this too is an important lesson – just because a facility is not used in scale doesn't mean that the facility was not useful. The existence of a backstop is sufficient to prevent runs from happening, ensuring access to funding to pay employees or other liquidity needs. The relatively low usage reflects the quicker speed of the market recovery in 2020 relative to 2008-9, as well as differences in market structure over the past decade, the differing nature of the two crises as well as

difference in banks' high levels of capital and ability to provide back-up credit. The rapid recovery in markets and relatively low usage reflected the importance of this timely response and availability of backstops in times of uncertainty. CPFF 2020 was one of numerous large-scale actions announced by the Federal Reserve to support the flow of credit to households and businesses during the pandemic—initially with facilities directed at short-term markets that had been used in the past, and then new credit programs that supported other critical segments of the market and economy.

6. Conclusion

The sudden deterioration in commercial paper markets in March of 2020 was similar to that of the financial crisis, and CPFF 2020 made available similar liquidity of last resort to this critical funding market, allowing the market to resume activity with relatively little usage of the facility. This reinforces that a facility need not be used to be successful. One key difference was in the extent of the dislocations at financial vs nonfinancial corporations. Another difference was the aggressiveness and comprehensiveness of the policy response, with complementary programs launched at the start of the crisis, and then subsequent to the CPFF announcement, the Federal Reserve announced additional corporate credit interventions targeting corporate bonds and municipal debt. It is hard to know to what extent those facilities contributed to the success of CPFF 2020.

With the CPFF 2020, the Fed has acted as a liquidity provider of last resort for the second time in commercial paper markets. Without changes to the ecosystem of money markets it seems likely that this role will continue to be required when very large shocks impact financial markets and have the potential to amplify declines in economic activity.