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Abstract

The Main Street Lending Program was created to support credit to small and medium-sized businesses and nonprofit organizations that were harmed by the pandemic, particularly those that were unsupported by other pandemic-response programs. It was the most direct involvement in the business loan market by the Federal Reserve since the 1930s and 1940s. Main Street operated by buying 95 percent participations in standardized loans from lenders (mostly banks) and sharing the credit risk with them. It would end up supporting loans to more than 2,400 borrowers and co-borrowers across the United States, with an average loan size of $9.5 million and total volume of $17.5 billion. This article describes the facility's goals, its design, the challenges and constraints that shaped its reach, and the characteristics of its borrowers and lenders. We conclude with some lessons learned for future policymakers and facility designers.

Key words: Main Street Lending Program, COVID-19, credit demand, bank loans, bank capital, small businesses, Federal Reserve lending programs

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1. Introduction

In March 2020, it became clear that the COVID-19 pandemic would cause widespread economic disruptions that would harm many U.S. businesses and households. Moreover, there was acute uncertainty about the duration and ultimate severity of the economic and financial harm. Many businesses with the ability to draw down on their existing credit lines did so—either to cover revenue shortfalls or to boost cash holdings as a precautionary measure. At the same time, banks appeared to be tightening the supply of new credit in response to the resulting uncertainty.

These conditions motivated the Federal Reserve and the Department of the Treasury to create the Main Street Lending Program (Main Street), first announced at the end of March 2020. As one of several credit facilities set up in response to the pandemic, Main Street was intended in particular to help those businesses that were too small to benefit from the Federal Reserve's corporate credit programs but too large to qualify for the loans and grants available through the Paycheck Protection Program (PPP). Filling that support gap was uniquely challenging because the targeted firms depend primarily on bank loans (versus bonds) that are highly differentiated ("bespoke") and largely untraded. Reaching that corner of credit markets required an entirely new type of credit facility built from the ground up. It was also, incidentally, the most direct intervention by the Federal Reserve in the bank loan market since it lent directly to businesses briefly in the 1930s and 1940s (Sablik, 2013). Despite the challenges, Main Street wound up supporting more than 2,400 borrowers and co-borrowers across the United States with loans totaling $17.5 billion, the most of any Federal Reserve credit purchase facility.[1]

This article tells the story of Main Street so far. We first revisit the credit conditions in spring 2020 that motivated the decision by Federal Reserve and the Treasury to embark on such a program. Second, we describe how Main Street was designed to support credit supply by purchasing loan participations from banks and other lenders and sharing credit risk with them. Third, we analyze the reach of Main Street, including take-up, characteristics of borrowers and

[1] See "Funding, Credit, Liquidity, and Loan Facilities," https://www.federalreserve.gov/funding-credit-liquidity-and-loan-facilities.htm. The comparison excludes liquidity facilities, some of which had larger peak outstanding amounts, e.g. the PPP Liquidity Facility, the Money Market Mutual Fund Liquidity Facility, and the Primary Dealer Credit Facility.

lenders, and factors that likely limited its take-up, such as certain program features and much weaker loan demand after a surge in the spring. We conclude with some lessons learned for future policy makers and facility designers. We caution that some of these lessons are preliminary, since most Main Street loans are still outstanding.

2. Bank Credit Conditions in the Spring of 2020

A crucial goal of Main Street was to reach the "missing middle" of firms, those too large for PPP support but too small to benefit from the Federal Reserve's support of the corporate bond market.[2] There are tens of thousands of U.S. firms with more than 500 employees (the PPP cutoff), yet they are not rated to issue bonds.[3] Indeed, most firms in the United States outside the largest do not issue bonds or commercial paper.[4] These firms instead depend on banks (or other intermediaries) for credit; so the story of Main Street begins with bank credit conditions in the spring of 2020. By most indications, bank credit was tight, with firms demanding additional credit at the same time that banks were contracting supply. And since the missing middle depends on banks, the apparent crunch would likely affect them most.

The need for credit was suggested by the remarkable, if temporary, surge in bank business lending in the spring (Chart 1). Commerical and industrial loans on banks' books rose by over a half a trillion dollars in the first few months of the pandemic. The Federal Reserve's Senior Loan Officers Survey (SLOOS) also indicated increasing demand for loans at the time. The surge in demand was important in motivating Main Street, but the eventual reversal figures later in how Main Street played out.

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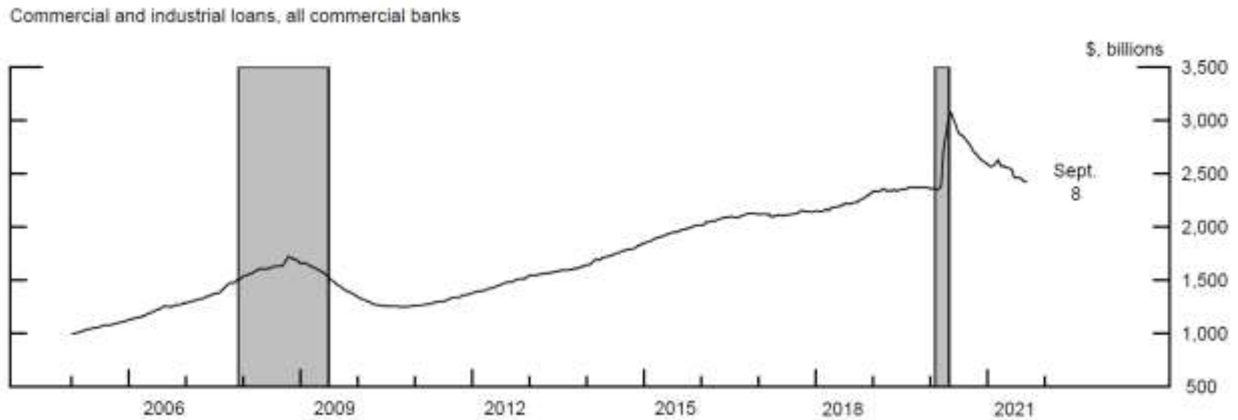
[2] We use "missing middle" as short-hand for medium-sized firms that depend on banks (or other intermediaries) for credit and that are too large for PPP loans. Note, though, that there is no standard cross-industry definition of "small," "medium-sized," or "mid-sized," and the definitions in our analysis vary somewhat according to the data we cover. The cutoffs for Main Street are discussed in the next section.

[3] Based on 2018 Census data, firms with between 500 and 5000 employees employ about 23 million people.

[4] Most of these firms are private and cannot access public debt markets. Even among the publicly traded firms covered in the Compustat database, the smaller firms (which are still larger than most private firms) rely more on bank financing (Rauh and Sufi, 2010). Calomiris, Himmelberg, and Wachtel (1995) find that only 20 percent of manufacturing firms in the Compustat database have a bond or a commercial paper rating.

Chart 1: Business Loans at Banks Surged in the Spring of 2020

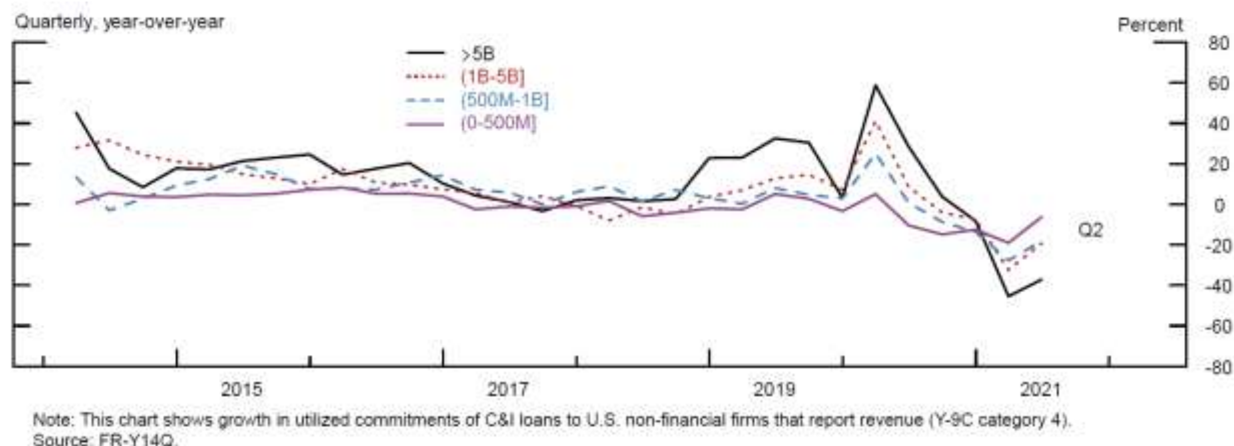


Source: H.8 Assets and Liabilities of Commercial Banks in the United States.

Much of this borrowing reflected firms drawing against their credit lines with banks. Larger firms were most able to increase their borrowing in this way. Most corporate firms have committed lines from a bank for working capital and to back their commerical paper. Those firms switch betweeen bank and public debt according to which is cheaper; they are not very bank dependent because they have alternatives. In contrast, more detailed, firm-level data suggested at the time that some of the credit needs of smaller firms might be going unmet, despite the surge in total credit. As shown in Chart 2, commitment borrowing by firms with less

than $5 billion in annual sales (the eventual revenue cutoff at Main Street) grew notably more slowly than for larger firms above that cutoff.[5]

Chart 2: Lower Commitment Borrowing by Firms with Less Than $5 billion in Revenues

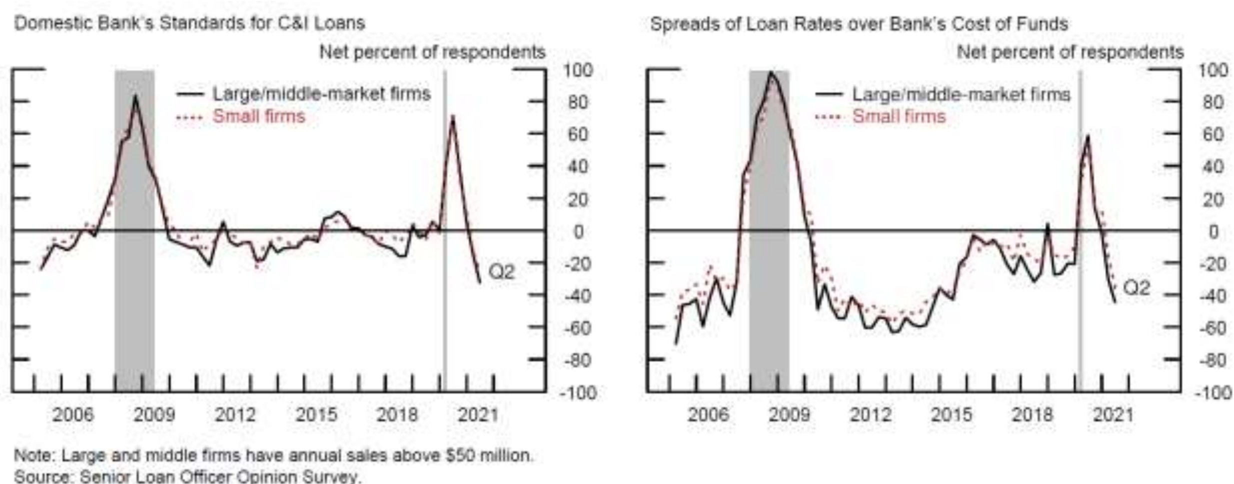


At the same time that loan demand was increasing, banks appeared to be contracting supply. The SLOOS revealed that banks raised risk premiums (Chart 3, left panel) and tightened standards for new loans (right panel) in the first half of 2020. "Standards" includes the sorts of loan terms, such as covenants and collateral requirements, that distinguish loans from less bespoke ("vanilla") bonds.

While banks reportedly tightened credit equally for firms of all sizes, it is important to note that bank-dependent firms would be more affected than larger firms with access to public debt markets, supported by the Federal Reserve's corporate facilities.[6] The SLOOS in the spring of 2020 also revealed that banks were tightening primarily because of the "less favorable or more uncertain economic outlook" and "reduced tolerance for risk." Though not surprising, that risk aversion and uncertainty informed the design of Main Street.

[5] Chodorow-Reich et al. (2021) find that this difference reflects the reality that smaller firms were less likely to have credit lines or faced stricter (pre-COVID) terms that limited their takedowns.
[6] The SLOOS defines small firms as those with annual sales of less than $50 million. Large and middle-market firms have sales greater than $50 million.

Chart 3: Banks Tightened Credit Supply in the Spring of 2020



It was this picture of surging demand and contracting supply in the spring of 2020 that led the Federal Reserve to declare its intention to create a program to support credit to small and medium-sized firms.[7] The actual program that emerged in the second half of 2020 is the topic of the next section.

3. The Design of Main Street

Designing Main Street was a complex undertaking. This section describes the overall objectives of Main Street, the structure of the program, including key considerations that shaped its design, and its implementation. As policymakers set out to design the program, they focused on creating facilities that would make credit available to a sufficiently wide scope of firms affected by the pandemic but, at the same time, limit risk to taxpayers. While a number of policy, legal, and operational considerations shaped the program, the need to strike this careful balance underpinned all of the key design decisions.

[7] See "Federal Reserve Announces Extensive New Measures to Support the Economy," https://www.federalreserve.gov/newsevents/pressreleases/monetary20200323b.htm. Note that the Board announced its intention to establish Main Street before the passage of the Coronavirus Aid, Relief, and Economic Security Act (CARES Act), and Congress, in the CARES Act, expressly gave the Board wide discretion in designing a program to "support lending to small and mid-sized businesses on such terms and conditions as the Board may set consistent with section 13(3)." 15 U.S.C. § 9042(c)(3)(D)(ii).

Program Objectives and Key Considerations

With Main Street, the Federal Reserve and the Treasury sought to provide credit support to small and medium-sized businesses and nonprofits impacted by the pandemic. The goal of Main Street was to help businesses and nonprofits that faced credit constraints but were in sound financial condition prior to the pandemic and had good post-pandemic prospects, so that they were in a position to benefit from—and be able to repay—a loan. As already noted, Main Street was intended to complement the Federal Reserve's corporate credit and municipal lending facilities that were launched to support larger businesses, states, and municipalities.

Several characteristics of the market for loans to small and medium-sized businesses highlighted above created challenges. These loans are not traded like bonds or securitized like mortgages; such markets (which tend to bring infrastructure, ratings, real-time prices, and a degree of standardization) could otherwise have provided convenient on-ramps for program design. Moreover, loans to small and medium-sized firms are some of the more individually tailored (bespoke) financial contracts—more bespoke than traded bonds or residential mortgages. Owing to the importance of relationship lending for these businesses, policymakers were left without a readily available, standardized set of loan terms or credit metrics that could easily be converted into a program term sheet and quickly scaled for thousands of businesses.

Additionally, it was difficult to predict the scale and scope of demand for the program from the outset, but conditions in the spring of 2020 pointed to large potential demand. While the Federal Reserve is very experienced in credit analysis for its supervision and monetary policy functions, it would have needed to hire a large number of loan officers to directly originate and process loans to the thousands of companies that could potentially have qualified. Hiring such personnel quickly and in sufficient numbers from the banking sector, which was itself facing unprecedented demand for loans was impractical—thus necessitating a role for private lenders. The swift onset of the pandemic and the fact that the Federal Reserve lacked previous experience setting up a small and medium-sized business credit support program also created design complications.

The program was authorized under section 13(3), as amended, of the Federal Reserve Act and was capitalized, in part, by funds appropriated under the CARES Act; each act influenced the specific design of the Main Street facilities. Section 13(3) provides lending authority but

prohibits loans to "insolvent" borrowers and requires that the lending Reserve Bank be "indorsed or otherwise secured" to its satisfaction.[8] (See Box A for a brief history of Federal Reserve credit policy directed specifically to businesses under section 13(3).) The application of the CARES Act set forth eligible borrower criteria and placed limits on borrowers' ability to distribute capital or set compensation above given thresholds.[9]

Program Design

With these economic, operational, and legal considerations as a backdrop, policymakers at the Federal Reserve and the Treasury settled on a loan participation program to support the supply of credit. Banks would be able to sell 95 percent stakes in eligible loans at par to the Main Street special purpose vehicle (SPV), with the credit risk shared between the SPV and lenders pro rata.

The loan participation model was chosen for three reasons. First, it leveraged lenders' existing infrastructure for originating, monitoring, and servicing loans as well as their expertise in assessing and controlling risk—expertise that is often local and specialized.

Second, since the participation model required purchasing the bulk of the loans and sharing risks with lenders, it helped mitigate the acute economic uncertainty and risk aversion that was driving the tightening credit supply in the spring. As an added benefit, removing 95 percent of the loan amounts from banks' balance sheets would also free up bank capital to recognize losses and maintain lending outside the Main Street program.[10]

Third, the participation model allowed for an appropriate balance between reach and risk. The substantial risk-bearing by the Federal Reserve promoted reach, while the residual bank risk-bearing maintained some economic incentives for lenders to control risk. To complement these incentives and further minimize the risk of adverse selection—the possibility that banks would

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[8] 12 U.S.C. § 343(3).
[9] See 15 U.S.C. § 9042, 9054.
[10] Lack of regulatory capital or lack of funding at banks were not considered the primary constraints on lending at the time. Had either been, a very different type of program might have been deemed appropriate, such as a funding for lending initiative. However, these factors did not appear to be as important as heightened risk aversion. Although more bank capital, or a greater distance from regulatory capital requirements, can generally help reduce banks' risk aversion somewhat, it is far from clear that this could have overcome the extreme uncertainty encountered in 2020.

offload their worst new loans to Main Street—the Main Street program also limited borrower leverage and imposed requirements for priority and collateral.

The program was executed through an SPV set up by the Federal Reserve Bank of Boston that was funded with a loss-absorbing tranche of Treasury equity (i.e., CARES Act funds), as well as loans from the Reserve Bank. Given the widespread uncertainty at launch, Main Street was created with a sizable maximum capacity of up to $600 billion in participations in case that much support would be needed.

Main Street officially began purchasing loan participations on July 6, 2020. It offered to purchase participations in three distinct types of loans: New Loans, Priority Loans, and Expanded Loans. These purchases would be made through three separate facilities: Main Street New Loan Facility (MSNLF), Main Street Priority Loan Facility (MSPLF), and Main Street Expanded Loan Facility (MSELF), respectively. While certain terms were common across all three loan types, they also had important differences, including loan size, permissible leverage levels, and collateralization requirements to accommodate a range of borrower and lender circumstances. The term sheets were posted for public feedback and were adjusted in response to such feedback several times, both before and after the start of operations, as discussed below. The final loan terms for the for-profit facilities are shown in Table 1.

Loan Terms

While the terms for small and medium-sized business loans are generally tailored to the facts and circumstances of the borrower, some Main Street loan terms were standardized to allow the program to function while balancing reach and risk. For example, standardized interest rates and loan maturities enabled Main Street to purchase participations at par without the need to develop a complex loan pricing model. An interest rate of LIBOR plus 300 basis points with zero prepayment penalty implemented the Regulation A requirement that Federal Reserve emergency lending be extended at a sufficiently high rate of interest relative to non-stressed conditions to provide an incentive for rapid repayment when conditions normalize. In keeping with the objective of helping borrowers bridge the pandemic, Main Street loans were given an amortization schedule that back-loaded loan repayment, deferral of interest and principal payments for a year (principal payments were later deferred for two years), and a five-year loan

term. The deferral was intended to alleviate short-term financial strain on Main Street borrowers.

Table 1. Key Main Street Loan Terms of For-Profit Facilities (Final Terms)

	Characteristics of Main Street For-Profit Business Loan Types		
	New Loan Facility	Priority Loan Facility	Expanded Loan Facility
Loan Term	5 years		
Principal Payments	Principal deferred for two years. Years 3-5: 15%, 15%, 70%		
Interest Payments	Deferred for one year		
Interest Rate	1- or 3-month LIBOR + 3%		
Loan Size	$100,000 to $35 million	$100,000 to $50 million	$10 million to $300 million
Maximum Combined Debt to Adjusted 2019 EBITDA (including principal amount of Main Street loan)	4 times	6 times	6 times
Lender Participation Rate	5%		
Federal Reserve Participation Rate	95%		
Prepayment Allowed	Yes, without penalty		
Business Size Limits	15,000 employees or fewer, or 2019 revenues of $5 billion or less		

Lenders had discretion over loan size up to a limit, either a nominal dollar limit or a leverage limit, whichever was smaller. The leverage limit, which turned out to be more binding, was a primary mechanism for limiting risk to the program. When added to the borrower's existing debt, the Main Street loan could not exceed four (MSNLF) or six (MSPLF, MSELF) times the borrower's 2019 adjusted earnings before interest, taxes, depreciation, and amortization (EBITDA). In addition to limiting the size of Main Street loans for participants, these leverage limits also had the effect of excluding some highly levered firms altogether. The choice to use 2019 EBITDA was motivated by the program's goal to help borrowers that were temporarily suffering from the pandemic but that had been fundamentally solvent prior to the onset of the pandemic.

In addition to the leverage limits and the lender's risk retention, the tradeoff between risk and reach was also managed through security and priority requirements. All Main Street loans

were prohibited from being contractually subordinated to any existing borrower debt in terms of priority in bankruptcy. While priority and expanded loans allowed higher leverage than new loans, they were required to be senior to, or pari passu with, all existing borrower debt in terms of collateral securing the loans, except for mortgage debt (as defined by the program). Lenders were ultimately responsible for determining that borrowers were in sound condition prior to the crisis and had strong post-pandemic prospects that would enable repayment of the Main Street loan.

Finally, the program allowed borrowers to refinance existing debt, but only in a single facility, the MSPLF, and only when the refinanced debt was owed to a different lender, to avoid the risk that lenders would shift poorly performing debt on their own books to the program.

Borrowers

To target small and medium-sized businesses, eligibility was limited to firms with fewer than 15,000 employees or less than $5 billion in annual revenues (including affiliates).[11] To help those businesses that lacked access to an alternative support program, these caps were deliberately set above those used for the PPP (500 employees) or other Small Business Administration (SBA) lending (with size thresholds that vary by industry) but lower than the level at which a company might generally have access to financing in capital markets, and thus be supported by the Federal Reserve's corporate credit facilities. The aforementioned nominal loan size limits, all well above the $10 million maximum for the PPP, played a similar role. In other words, Main Street was intended to fill a gap in credit support for the "missing middle."

In defining eligibility criteria, the Board also referenced the SBA's exclusion of "ineligible businesses"—a list of categories formulated especially to place reasonable limits on the types of companies that could receive government-backed business lending.[12] This framework, particularly the ineligible business definition, was designed to mitigate fraud risk and

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[11] As noted previously, there is no standard U.S. definition of "small or "medium-sized."

[12] By using the SBA's framework, the Board was able to quickly implement definitions that had been promulgated pursuant to notice-and-comment rulemaking, tested in bank-intermediated government lending, and elucidated through SBA guidance. Further, these definitions were familiar to many lenders and had been recently incorporated into provisions of the PPP established under the CARES Act.

limit evasion of facility restrictions.[13] Further, Main Street program borrowers were subject to the requirements for participants in direct loan programs set forth in the CARES Act. In particular, a borrower needed to commit to follow compensation, stock repurchase, and capital distribution restrictions under section 4003(c)(3)(A)(ii) of the Act. These requirements would remain in place until a year after the Main Street loan was fully repaid.

Lenders

All Main Street facilities relied on private lenders and their existing underwriting infrastructure to apply appropriate expertise and enable the program to scale rapidly. In contrast to the PPP, which allowed a broad set of eligible lenders to supply its forgivable loans, the Main Street program limited eligible lenders to federally regulated and supervised organizations, including banks and credit unions, to ensure that Main Street lenders' underwriting standards and "know your customer" / anti-money laundering practices were subject to strong and ongoing supervisory oversight.[14] While a wider set of eligible lenders might have extended the reach of the program, the use of established and well-regulated banking organizations and credit unions was viewed as an important way to control potential taxpayer risks in the program. As it turns out, virtually all of the participating lenders were commercial banks (as we discuss later), so for brevity we will often refer to eligible lenders simply as "banks."

Under the program terms, lenders were expected to underwrite Main Street loans using their existing underwriting practices. Subsequent program guidance provided through FAQs also clarified supervisory expectations. Lenders were directed to underwrite Main Street loans by looking at borrowers' pre-pandemic financial condition and post-pandemic prospects.[15]

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[13] Borrowers certified their eligibility for program loans through the Borrower Certifications and Covenants. The use of certifications for purposes of borrower compliance with program requirements has a foundation in the statutory text of both the Federal Reserve Act and the CARES Act. (12 U.S.C. § 343(3)(B)(ii); 15 U.S.C. § 9042(c)(3)(D)(ii), 9054(c)). In general, the Borrower Certifications require the borrowers to establish their own eligibility, although lenders had an obligation to conduct due diligence with respect to the borrower's formation under law.

[14] The following organizations could be an eligible lender: a U.S. federally insured depository institution (including a bank, savings association, or credit union), a U.S. branch or agency of a foreign bank, a U.S. bank holding company, a U.S. savings and loan holding company, a U.S. intermediate holding company of a foreign banking organization, or a U.S. subsidiary of any of the foregoing. These entities all have existing supervisory relationships with the Federal Reserve or other federal regulators.

[15] Lenders generally had to establish their eligibility at the time of their registration through Lender Registration Certifications and Covenants, while the Lender Transaction-Specific Certifications and Covenants primarily required lenders to establish that a particular loan was eligible for sale to the Main Street SPV.

Lender Incentives and the Participation Agreement

Several incentives for banks to participate were built into the program, since, to be successful, Main Street required the active participation of lenders. First, as discussed above, the risk-sharing with Main Street allowed banks to help existing and new customers without taking on much new credit risk or needing to significantly expand their own balance sheets. Second, to cover lenders' loan origination and servicing costs and further boost incentives, lenders were able to benefit from fees: an origination fee of up to 1 percent (on the full principal) and an annual servicing fee of 0.25 percent of the Main Street SPV's loan share.[16] Given the banks' limited initial investment, these fees, together with banks' 5 percent share in interest and principal repayments, in principle, enabled a lender to receive reasonable returns even under the most adverse credit scenarios considered (discussed further below). That said, for loans with significant origination or servicing costs, the lender's return would be lower. While data on origination and servicing costs are scant, commercial and industrial (C&I) loan fees can be significant, possibly suggesting that such costs are also significant. For example, in the market for syndicated term loans to businesses, upfront fees (where observed) average about 80 basis points, with considerable variation around that average (Berg, Saunders, and Steffen, 2016). In addition, lender incentives in the MSELF were complicated due to interactions with the loan that was being expanded, including the possibility that the collateral on the existing loan was diluted.[17]

To operationalize the loan participation model, the Federal Reserve created a loan participation agreement based on market-standard models, with adjustments for certain features of the program. The market-standard provisions were generally familiar to lenders that use participations or engage in syndicated lending; this was intended to help smooth the on-ramp for many potential lenders. While these documents were less familiar to the program's smaller borrowers, they played an important function in the program because their provisions were generally viewed as facilitating a "true sale," which (among other things) enabled lenders to

[16] MSNLF and MSPLF loans under $250,000 were permitted to have an origination fee of up to 2 percent, while MSELF loans (which entailed a $10 million minimum loan size) featured an origination fee of up to 75 basis points.
[17] Analysis predicted that MSELF participation would generally still be attractive to the lender provided the loan expansion reduced the borrower's probability of default. This proviso was broadly in line with the program's goal of helping borrowers hit hard by the pandemic but otherwise in sound financial condition.

move 95 percent of the loan amounts off their balance sheets for purposes of bank capital rules, thus promoting lender participation by freeing up regulatory capital.

In comment letters and outreach, lenders expressed concerns that the Federal Reserve would "put back" nonperforming loans to the lenders by arguing that the loans were originated imprudently. To alleviate such concerns and promote participation, the Federal Reserve added a clause to the agreement preventing put-backs. The Federal Reserve also waived and disclaimed its rights to special priority in bankruptcy among unsecured lenders to enhance the efficacy of the program and provide certainty to lenders and borrowers.

Income and Loss Projections during the Design Phase

Section 13(3) of the Federal Reserve Act and the CARES Act required that the Federal Reserve's investment be appropriately secured and that taxpayers be protected. Accordingly, when deciding on loan terms, risk-sharing arrangements, and fees, the Federal Reserve and Treasury had to gauge the effect of these choices on the potential gains or losses from Main Street's operations. To do so, staff projected bounds for the SPV's net income under various credit risk scenarios and design choices, akin to a stress test. Multiple scenarios, with varying degrees of adversity, were used, both to ensure that the statutory taxpayer-protection requirement would be satisfied under a range of adverse conditions and because at the time that the program was being designed the economic outlook was extremely uncertain. The appendix describes the scenarios and projections in more detail.

The results of these projections also guided the decision to cap SPV "leverage" at 8-to-1. Given Treasury's planned $75 billion equity investment, the net leverage cap dictated a maximum program size of $600 billion. With that cap, even under adverse scenarios, the Federal Reserve was projected to incur zero losses.

Infrastructure

Once the design was generally decided on, the next step was to build, from the ground up, the technological infrastructure and risk control mechanisms needed to operate the program. The loans in which Main Street would be participating could not simply be purchased "in the market" as with the corporate credit programs, so the Federal Reserve Bank of Boston (which

operates the program) had to create an electronic portal through which banks could register and submit loans for participation. To address the risk of fraud or processing mistakes, multi-step processes that would verify lender registrations and loan documents had to be developed. All told, building this infrastructure from scratch was a complicated task given the lack of an existing blueprint, and this complexity slowed the launch relative to other credit facilities implemented by the Federal Reserve or loan programs in other countries that were built on existing infrastructure. (See Box B for more details on how other central banks and governments facilitated the flow of credit to small and medium-sized businesses).

When submitting a loan, lenders uploaded the loan agreements and other relevant loan documents to the portal. Automated eligibility checks were augmented by a manual review for adherence to certain core program requirements; the review was done by Federal Reserve Bank of Boston staff and hired vendors, including the Main Street credit administrator and external counsel. Importantly, the SPV did not re-underwrite Main Street loans.

Additional Program Adjustments

In an effort to respond to the credit needs of nonprofit organizations and smaller borrowers, a need that became increasingly apparent in summer and early fall 2020, Main Street was amended to introduce two facilities for small and medium-sized nonprofit organizations—the Nonprofit Organization New Loan Facility (NONLF) and the Nonprofit Organization Expanded Loan Facility (NOELF) —and to enable the facilities' participation in smaller loans.

The nonprofit sector was particularly hard hit by the social-distancing requirements put in place to slow the pace of the pandemic. Demands for their services (for example, care for COVID-19 patients, online learning, and social services) spiked at the same time key sources of income (such as elective surgical procedures, tuition, donations) declined or were at risk of declining. Designing a program for this sector presented additional challenges, given that many nonprofits were designed to minimize rather than maximize earnings, making it difficult to meet the program's pre-pandemic leverage thresholds, and many had limited experience managing longer-term debt. The terms of the nonprofit facilities sought to balance these challenges by

setting out different and additional eligibility requirements to capture those for which a loan product would be most beneficial.[18]

Similarly, policymakers received repeated feedback during the life of the program that some small businesses and nonprofits would benefit from a loan smaller than the minimum size permitted originally. In response, the program was adjusted to allow for loans as low as $100,000 in the MSNLF, MSPLF, and NONLF. The program fees were also adjusted upward for the smallest loans, in order to compensate lenders for the proportionally larger potential cost associated with originating small loans.

4. Main Street Activity

Over its six-month run, Main Street purchased 1,830 loans with a combined principal amount of $17.5 billion, more than any of the Fed's other debt-purchase programs. Its volume, although small relative to capacity, was a meaningful addition to the flow of credit—roughly comparable, for example, to the amount of lending by the largest banks (those with consolidated assets greater than $100 billion) over the second half of 2020 to borrowers with similar characteristics, that is, within the eligibility parameters but outside the Main Street program. This section describes Main Street activity and its limits, in detail, including loan, lender, and borrower characteristics.

A look at the portfolio yields the following high-level observations. The average loan was $9.5 million, substantially larger than the average PPP loan, suggesting the program supported firms too large for PPP loans. Loan size was often dictated by the program's leverage limits defined above (of four and six times EBITDA). The lenders were nearly all commercial banks. Most active lenders were in the $250 million to $10 billion asset-size range, although the largest banks (those with assets of more than $1 trillion) also participated to some extent. The program's reach was wide, with borrowers from nearly every state, and state-level activity tended to correlate positively with COVID-19 cases and increases in a state's unemployment rate. Borrowers were, on average, somewhat riskier than the typical borrower found in the

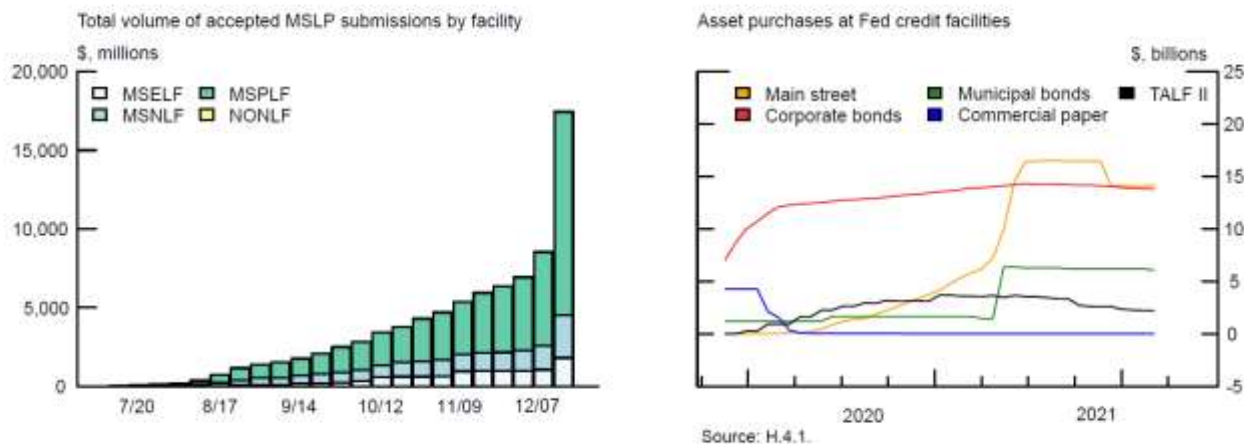
[18] The terms of for the non-profit facilities can be found at https://www.federalreserve.gov/newsevents/pressreleases/files/monetary20201229a4.pdf and https://www.federalreserve.gov/newsevents/pressreleases/files/monetary20201229a5.pdf.

portfolios of the largest banks, possibly reflecting differences between the types of borrowers that seek loans from the largest banks and those that seek loans from other banks (that is, those with assets of less than $1 trillion).

Overall Activity

The program began accepting participations on July 6, 2020, and ended on January 8, 2021. Activity grew modestly but steadily until early December, when it surged in advance of the December 14 deadline for submitting new participations (see Chart 4, left panel). Roughly half of the overall volume of the program occurred in the final month of the program.[19] All told, the late surge in loan purchases pushed Main Street's volume above that of any debt purchase (versus liquidity) facility created by the Federal Reserve during the pandemic (right panel).[20]

Chart 4: Loan Purchases at Main Street (Left Panel) and Other Credit Facilities (Right Panel)



[19] It is unclear whether the rush was a function only of the impending closure or whether it also reflected the time required by lenders to originate Main Street loans. Discussions with lenders active in the program indicated that familiarizing themselves and their clients with the legal and operational elements of the program required a considerable investment in time. Both likely contributed to a backloading of the loan participations, with by far the largest volumes occurring in the programs waning days.

[20] The announcements of the Corporate Credit and Municipal Facilities had significant real-time effects on prices, and thus yields, of existing corporate and municipal bonds. Such bonds are actively traded in secondary markets, so that such announcement effects can be observed. Notably, price impact was seen even outside the range of bonds that would later be purchased by these facilities. In contrast, there is no active secondary market for business loans of the type targeted by Main Street. Thus, there was no way to gauge the announcement effect of Main Street in a similar fashion.

Main Street loans also constituted a meaningful addition to the overall flow of credit during the program's active phase. As shown by Bräuning and Paligorova (2021), the cumulative volume of Main Street lending was about 60 percent of the volume of term loans originated during the same time span by large banks (FR-Y14Q filers) to borrowers of similar size and leverage (that is, borrowers with less than $5 billion in annual revenues and leverage below six times EBITDA). Moreover, focusing on smaller firms (those with less than $50 million in EBITDA), Main Street lending substantially exceeded the supply of credit by the largest banks to borrowers of comparable size. When also imposing the 6x EBITDA leverage limit in the Y-14 data, Main Street lending was about twice as large as lending by the largest banks to comparable borrowers.[21]

At the same time, Main Street volumes were low when compared with the surge in C&I lending from credit line drawdowns in March 2020, or when compared with the maximum capacity of the program, as noted. In part, this reflected much weaker loan demand after the launch of the program in July 2020, as discussed in Section 2. Reach was likely also constrained by certain program features, a theme we return to below.

Table 2: Loan Volume (in millions) and Count, by Loan Type and Size.

	Expanded Loans		New Loans		Priority Loans		Non-profit Loans		**Total**	
Loan Size	Volume	Count	Volume	Count	Volume	Count	Volume	Count	**Volume**	**Count**
≤250K			4	19	0.3	2	0.2	1	**5**	**22**
250-500K			26	68	12	28	0.9	2	**39**	**98**
500K-1M			95	118	65	82	1	2	**161**	**202**
1-10M	20	2	1,221	350	3,034	671	40	10	**4,314**	**1,033**
10-35M	238	10	1,349	61	5,809	304			**7,396**	**375**
35-50M	81	2			3,997	86			**4,078**	**88**
>50M	1,466	12			0	0			**1,466**	**12**
All Loans	**1,805**	**26**	**2,695**	**616**	**12,917**	**1,173**	**42**	**15**	**17,459**	**1,830**

Note: Entries may not sum to total due to rounding.

[21] The comparison is not perfect since loans with balances below $1 million are not required to be reported in the FR-Y14Q schedule. In addition, very small firms are more likely to borrow from smaller banks. However, as Chodorow-Reich et al. (2020) show, FR-Y14Q loans represent 82 percent of the total C&I bank credit.

Table 2 summarizes the Main Street purchases by loan type and size. The bottom line shows that priority loans and new loans turned out to be more in demand than expanded loans. The 1,173 priority loans accounted for nearly three-quarters (74 percent) of total volume while the 616 new loans made up 15.5 percent. The 26 expanded loans accounted for the balance. As stated above, expanded loans entailed modifying existing credit agreements, which may have reduced demand for these loans. The Nonprofit New Loan Facility (NONLF) was very small both in the number and volume of loans and the Nonprofit Extended Loan Facility (NOELF) was not used at all.

Table 3 summarizes the size distribution of loans made across the different facilities. Most loans were in the range of $1 million to $50 million, with an average of $9.5 million and median of about $4 million. In comparison, the average PPP loan was just $101,000, suggesting that Main Street succeeded in targeting firms that were too large for the PPP but too small to access the bond market. At the program's inception, the minimum loan size was $250,000, but this threshold was lowered to $100,000 for certain facilities on October 30 to better target support for small businesses. There were, however, only 22 loans smaller than or equal to $250,000 at the end of the program. On the other end of the size distribution, there were a small number of loans made through the MSELF that were larger than $50 million, together totaling $1.5 billion—almost 10 percent of the overall Main Street volume. The largest loan made through this facility was $300 million, the maximum loan size for expanded loans.

Table 3: Main Street Loan Size Distribution, by Type

	Loan Size (in millions)							
	Mean	**Min**	**p10**	**p25**	**p50**	**p75**	**p90**	**Max**
Expanded Loans	69.4	10.0	11.0	22.0	40.5	90.0	148.0	300.0
New Loans	4.4	0.1	0.4	0.8	2.0	4.5	10.0	35.0
Priority Loans	11.0	0.1	1.1	2.4	6.0	14.8	30.0	50.0
Non-profit Loans	2.8	0.2	0.4	0.6	2.5	5.0	5.0	8.5
All Facilities	**9.5**	**0.1**	**0.7**	**1.5**	**4.0**	**10.6**	**25.0**	**300.0**

Borrower Characteristics

Altogether, 2,453 borrowers and co-borrowers took out a total of 1,830 loans.[22] Table 4 profiles borrowers in terms of revenue, leverage, and assets as of 2019. The average revenue was $33.9 million. The pre-pandemic levels of leverage were relatively low, with the average being just above one multiple of EBITDA. Borrowers' average asset size was $26.2 million, consistent with the program's target of reaching medium-sized firms. The last row shows that average revenue for Main Street borrowers dropped almost $20 million from 2019:Q1 to 2020:Q2. Moreover, 50 percent of Main Street borrowers saw their revenue decline at least $5 million during the first two quarters of the pandemic. This illustrates that Main Street helped many borrowers that were hit hard by the pandemic but were solvent and viable businesses before the crisis started.

Table 4: Main Street Borrower Financial Characteristics

Metric	Count	Mean	p25	p50	p75
2019 Revenue ($; Millions)	1,830	33.9	3.9	11.5	31.8
2019 Leverage	1,830	1.1	0.0	0.6	1.8
Assets ($; Millions)	1,830	26.2	1.5	6.3	21.6
Decline in Revenue: 2019 to 2020q2 ($; Millions)	1,649	19.4	1.3	5.0	15.4

Main Street supported borrowers across a diverse range of industries (see Table 5). The top industries by loan volume were accommodation and food services; manufacturing; real estate and rental and leasing; mining, quarrying, and oil and gas extraction; and transportation and warehousing. The least active industries in terms of both loan volume and counts were utilities, agriculture and forestry, and public administration.

Table 5: Main Street Borrowers by Industry

Industry	Volume ($, Millions)	% of Volume	Loan Count	% of Loan Count
Accommodation and Food Services	2,182	12.5	268	14.6
Manufacturing	1,711	9.8	169	9.2
Real Estate	1,659	9.5	141	7.7
Mining, Oil and Gas Extraction	1,468	8.4	90	4.9

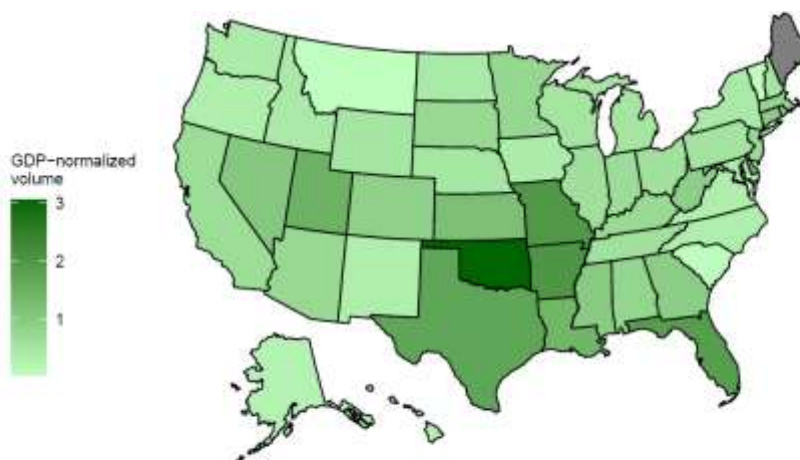
[22] The number of borrowers exceeds the number of loans because some Main Street loans had multiple borrowers that, in most cases, consisted of subsidiaries of the same parent firm.

Transportation	1,397	8.0	107	5.8
Arts and Recreation	1,242	7.1	117	6.4
Professional Services	1,159	6.6	171	9.3
Construction	1,132	6.5	166	9.1
Wholesale Trade	961	5.5	112	6.1
Information	907	5.2	92	5.0
Health and Social Care	837	4.8	71	3.9
Administrative Support Services	796	4.6	60	3.3
Retail Trade	618	3.5	92	5.0
Other Services	352	2.0	64	3.5
Educational Services	307	1.8	26	1.4
Finance and Insurance	237	1.4	49	2.7
Management	230	1.3	18	1.0
Utilities	186	1.1	8	0.4
Agriculture and Forestry	76	0.4	8	0.4
Public Administration	1	0.01	1	0.1
Total	**17,459**	**100**	**1,830**	**100**

Note: Entries may not sum to total due to rounding.

The geographic reach of Main Street borrowers was also wide, with borrowers in nearly every state. The most active states by volume were Texas ($3.1 billion), Florida ($2.1 billion), California ($2.1 billion), New York ($700 million), and Missouri ($700 million).[23] It is also useful to look at loan volumes relative to state GDP, as shown in Chart 5. Using this normalization, the top five states were Oklahoma, Arkansas, Missouri, Florida, and Texas.

Chart 5 Main Street Borrower Volume Normalized by State GDP, across U.S. States



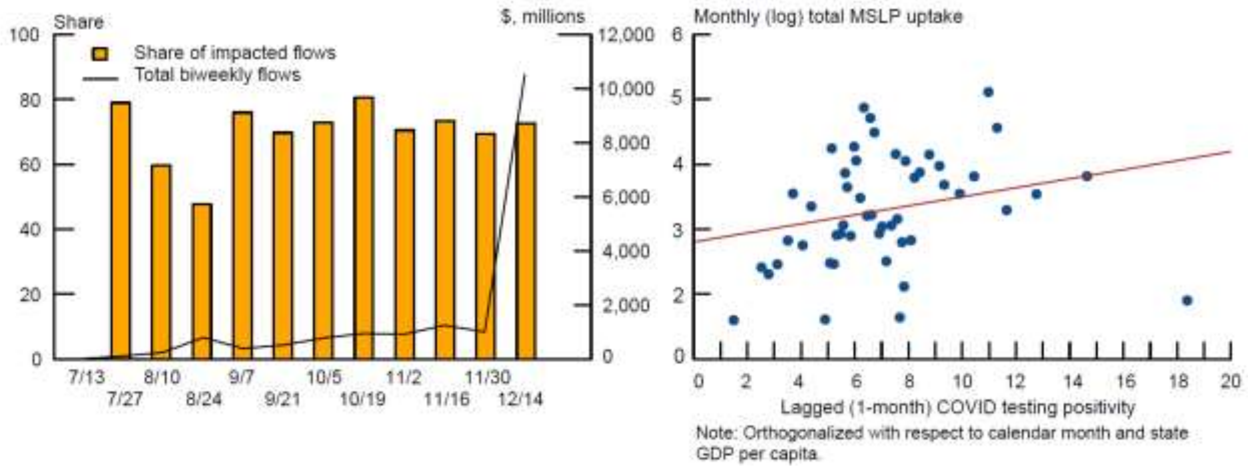
[23] Conversely, the U.S. Virgin Islands, Maine, Montana, and Vermont all had volumes totaling less than $10 million.

Chart 6 provides further evidence suggesting that Main Street reached borrowers in industries and regions that were hit hard by the pandemic. The left panel shows that 72 percent of the total Main Street lending went to COVID-affected industries.[24] The right panel shows that state-level Main Street borrowing in any month was positively correlated with the previous month's COVID-19 positivity rate in the borrower's state, controlling for state GDP per capita and time fixed effects.[25] This suggests funds were deployed to industries and states where pandemic conditions were particularly severe.

[24] COVID-19 impacted industries include entertainment and recreation, oil and gas, real estate, retail, and transportation services.

[25] We find similar results when we use other measures of economic slowdown, such as unemployment claims, and population mobility measures as shown by Bräuning, Fillat, and Wang (2021).

Chart 6: Percentage of Bi-weekly Main Street Loan Flow to Affected Industries (left panel). Relationship Between State-Level COVID-19 Positivity Rate and Main Street Uptake (right panel)

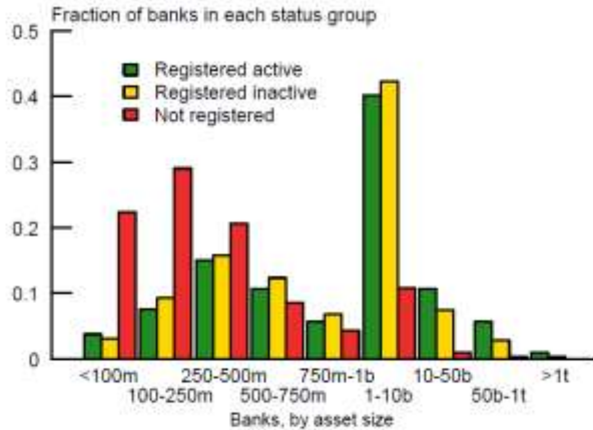


Lender Characteristics

A total of 643 lenders successfully registered to participate in the Main Street Program, all but 27 of which were commercial banks. That represents about 1 in 7 of all FDIC-insured banks, a meaningful share "of the market" for a six-month program. About half of these banks (316) sold loans to Main Street, while 327 did not actively participate despite being registered.

Chart 7 shows that Main Street lending activity was dominated by banks that were small to medium-sized when measured in terms of total assets. Most active banks were in the $250 million to $750 million range or $1 billion to $50 billion size range (left panel). The share of registered lenders increases with each size group (right panel, green and yellow portions of the bars). Very small banks (less than $250 million in assets) were underrepresented.

Chart 7: Lenders Size Distribution by Registration Status



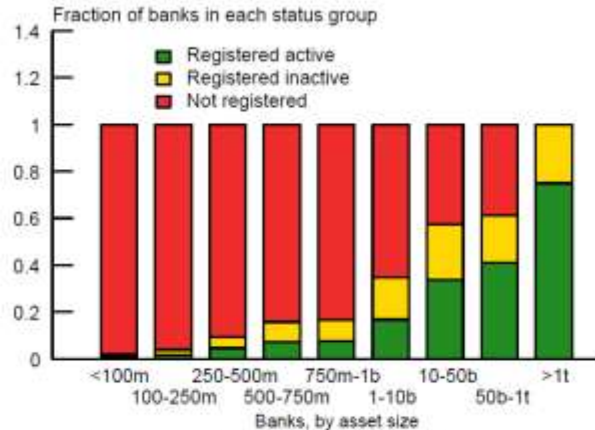
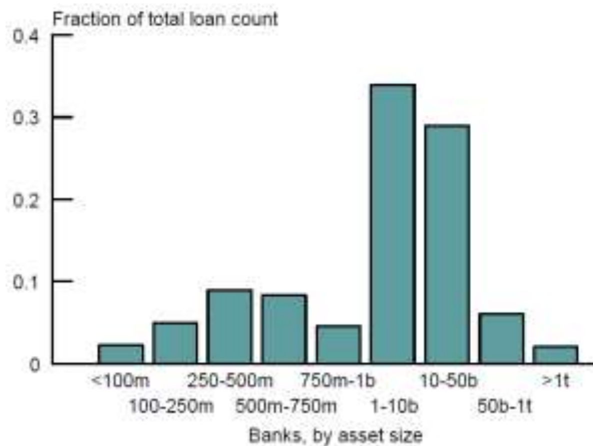
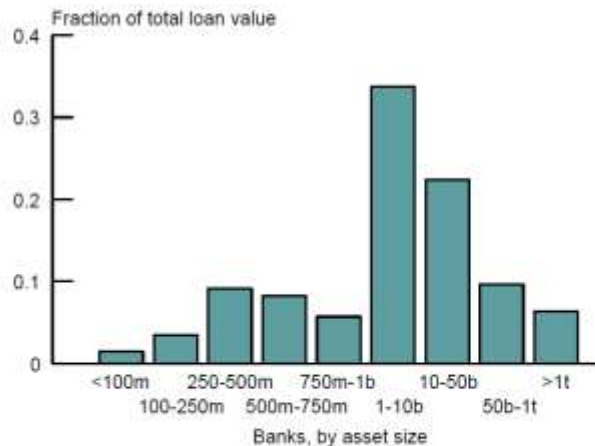


Chart 8 shows lending intensity by bank asset size. Banks in the $1 billion to $10 billion asset-size category account for 34 percent of the total number of loans and 34 percent of the total volume of loans; banks in the $10 billion to $50 billion asset-size group account for 29 percent of loans and 21 percent of volume; and banks in the $250 million to $750 million size group account for 17 percent of loans and volume. While the volume of Main Street loans issued by banks with assets of $1 billion or more account for 55 percent of the total Main Street lending, these banks' total assets represent 95 percent of the U.S. banking system's assets.

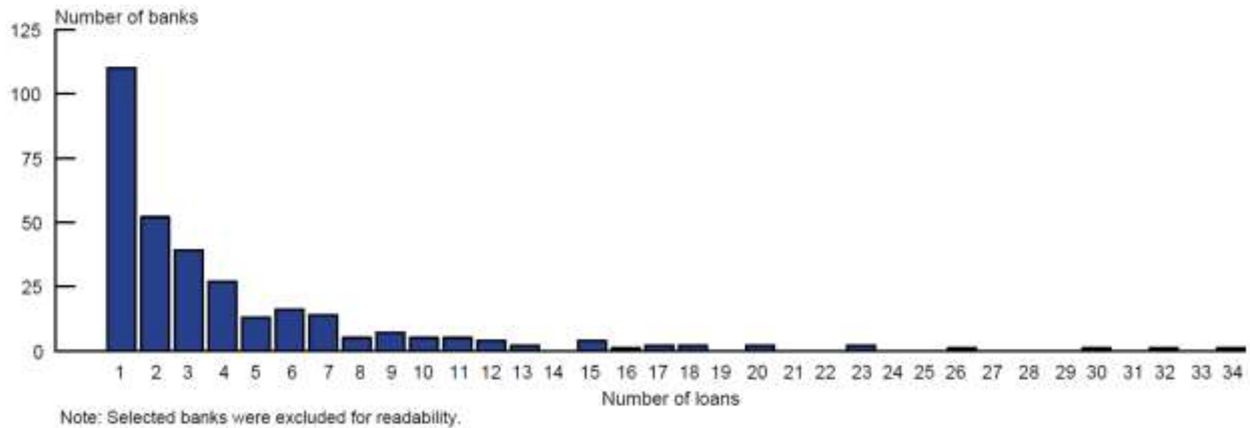
Chart 8: Main Street Lender Activity by Lender Size





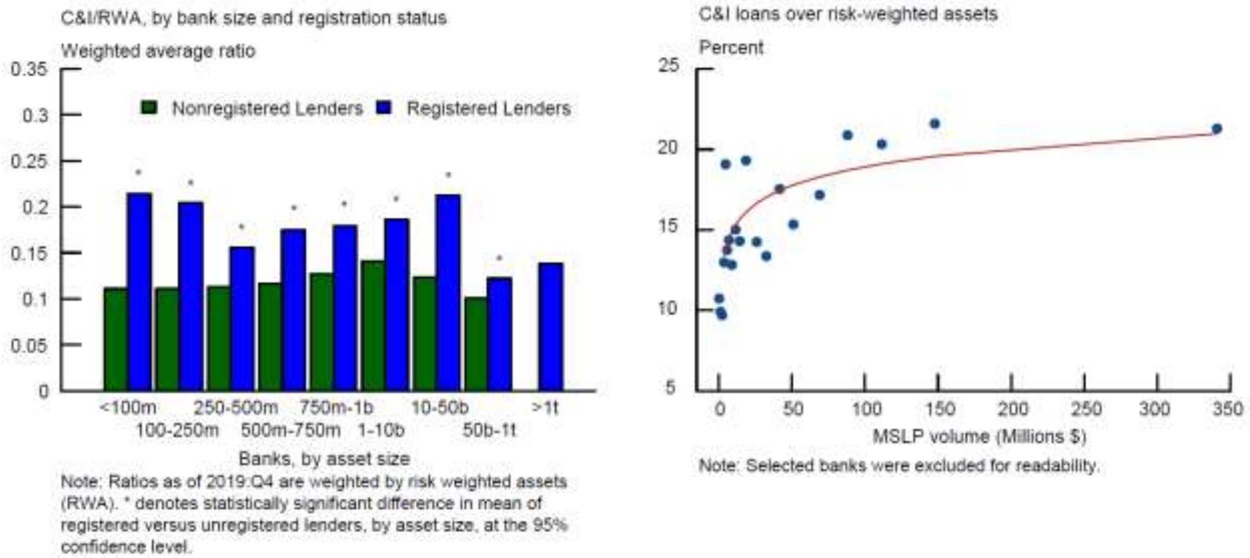
Most banks active in the program sold just one or two loan participations (Chart 9). The banks that sold multiple participations tended to sell fewer than 10, though several lenders sold more than 20, and there were a few extremely active participants that sold more than 30 loans, suggesting once a lender had experience with the loan process, scale was possible.

Chart 9: Number of Loans Sold per Bank



Registered banks tended to have a higher concentration on C&I lending than non-registered banks, regardless of their size. The left panel of Chart 10 shows that differences in C&I concentration between registered and nonregistered lenders are significant for any size bin. Moreover, the panel on the right shows that the intensive margin is positively correlated with the concentration. Banks that were more active in the Main Street program tended to have a higher concentration in C&I lending measured before pandemic.

Chart 10: C&I Loan Concentration by Main Street Registration (left) and Active Banks (right)



Program Features and Take-up

Many of Main Street's features were chosen to balance the tradeoff between the reach of the program and the riskiness of the loans made to borrowers. This section takes a very preliminary look at how the program performed in terms of striking that balance—preliminary since the ultimate credit performance of the Main Street loans is not yet known.

Regarding determinants of reach, Table 6 shows that loan size was more often limited by the leverage cap than by the nominal maximum loan size. About 30 percent of borrowers were within 5 percent of the relevant leverage limit. In addition, on the extensive margin, the leverage limits also completely excluded some potential borrowers with high leverage. Conversely, less than 4 percent of borrowers were within 5 percent of the loan size upper limit, also across all three facilities.

Table 6: Share of Loans by Distance from the Leverage and (Nominal) Loan Size limits.

	Leverage Limit			Nominal Max Loan Size Limit		
Facility	**At Limit**	**Within 1%**	**Within 5%**	**At Limit**	**Within 1%**	**Within 5%**
Expanded Loans	3.8	11.5	26.9	3.8	3.8	3.8
New Loans	5.7	21.6	31.7	2.1	2.1	2.1
Priority Loans	5.9	18.6	29.2	3.8	4.1	4.4
Non-profit Loans	0.0	0.0	0.0	0.0	0.0	0.0
All Facilities	**5.8**	**19.5**	**30.0**	**3.2**	**3.4**	**3.6**

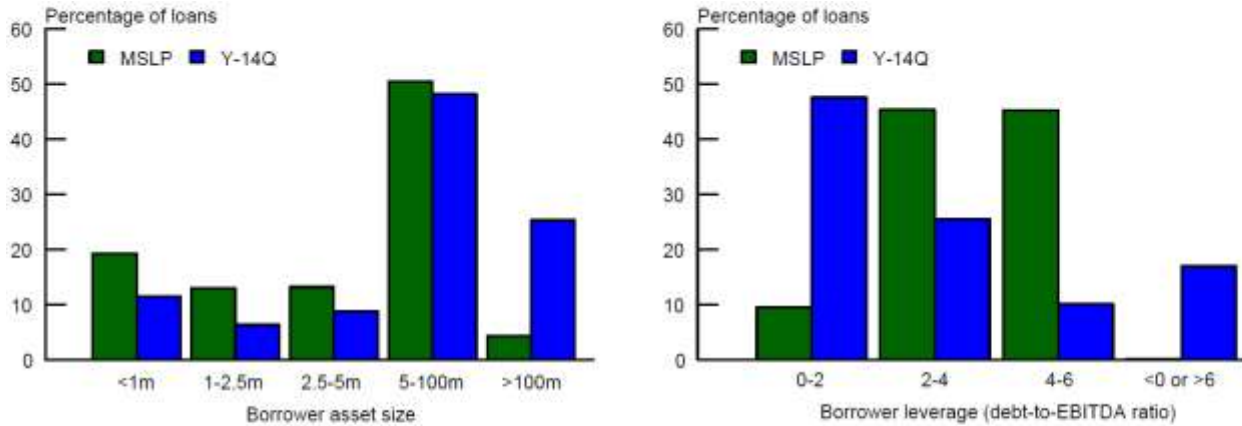
Although it is still too early to fully assess the riskiness of loans made through the Main Street program, it is nonetheless informative to compare the characteristics of Main Street loans with those of a set of similar loans made outside of the program. For loans made outside the program, we use loan-level data from the Federal Reserve's Y-14Q (Y-14) data covering the largest banks that were subject to stress tests over the same time period as the Main Street program.[26]

Chart 11 (left panel) shows that Main Street borrowers tended to be smaller and more leveraged than a large bank's typical C&I borrower.[27] About half of Main Street loans went to firms with total assets in the range of $5 million to $100 million, very comparable to the fraction of large bank C&I lending to firms of that size. However, 25 percent of large bank C&I loan volume went to borrowers with total assets exceeding $100 million, whereas Main Street borrowers of that size represent only 4.3 percent of the loan volume. The right panel shows that Main Street borrowers also tended to be more leveraged. Almost half of Y-14 borrowers had leverage between zero times and two times EBITDA. In contrast, almost 90 percent of Main Street loans went to borrowers with leverage between two times and six times EBITDA. While most large-bank borrowers tended to have leverage within program limits, the fraction with

[26] Banks with $100 billion or more in consolidated assets are required to submit these data. The Y-14 data contain extensive supervisory information about the borrowers and about the loans, allowing us to compare the distribution of lending to Main Street borrowers and the rest of Y-14 borrowers along several dimensions. Information on borrower and loan characteristics is limited in the Main Street data, but it is much more comprehensive in the Y-14.
[27] We consider only potentially eligible borrowers in the Y-14 data, for comparability. Hence, the largest firms, those with revenue greater than $5 billion, are excluded from our comparison.

leverage exceeding those limits (that is, exceeding six times EBITDA, or with zero or negative EBITDA) was still significant (16.9 percent).

Chart 11: Main Street and 14Q Borrower Size and Leverage



For a deeper analysis, we name-matched Main Street borrowers to those also present in the Y-14 to come up with a set of 149 borrowers that have a loan both in the Y-14 (as of 2019:Q4) and through the Main Street program. This matched dataset, though small, provides a more detailed understanding of the borrower risk profile and terms for loans made through Main Street compared with loans made outside of Main Street, but to the same borrower.

Chart 12: Ratings of MLSP Borrowers in the Y14 and all Y14 Borrowers

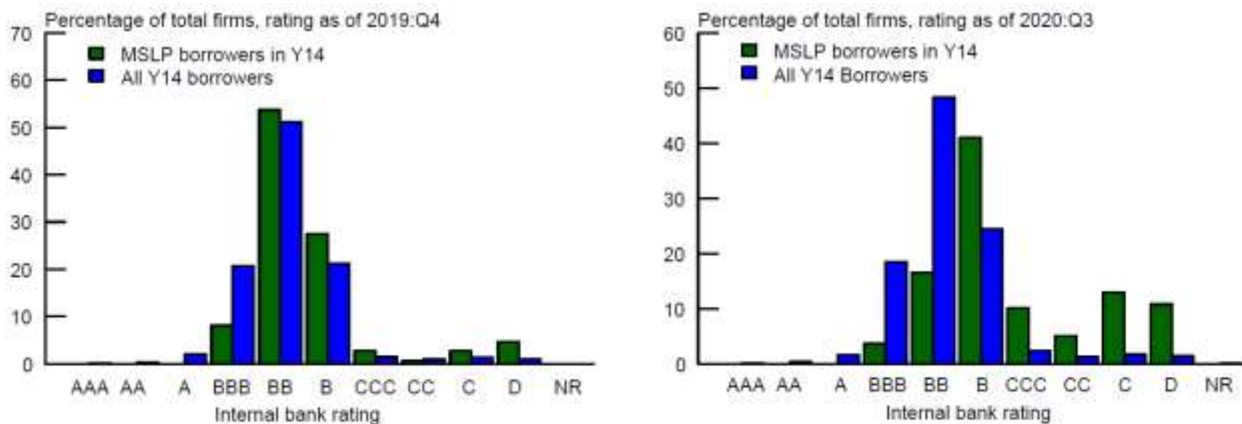
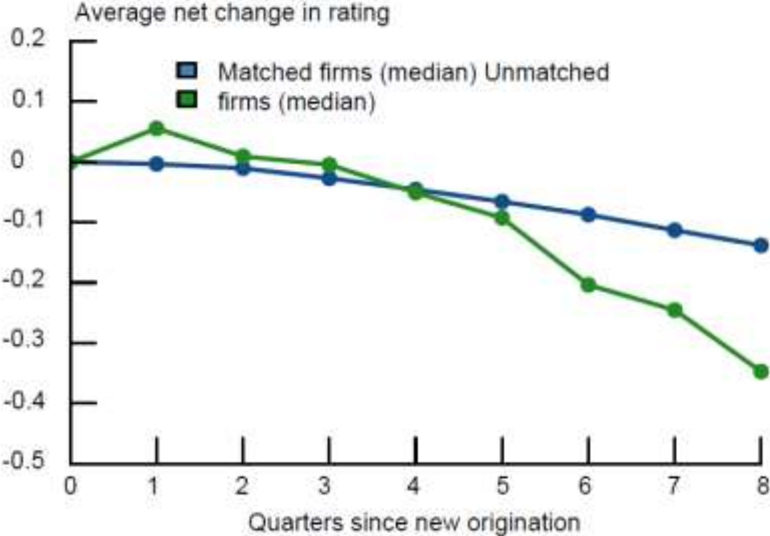


Chart 12 compares internal bank ratings for our matched sample of Main Street borrowers that are also found in the Y-14 (green bars) and borrowers from the Y-14 more

generally (blue bars).[28] The left panel shows the distribution of ratings for the two groups was roughly similar before the pandemic. The panel on the right shows that during the pandemic, the distribution of ratings for Main Street borrowers was considerably skewed toward worse credit quality relative to Y14 borrowers more generally. Moreover, Chart 13 shows the evolution of ratings after origination for Main Street-matched borrowers compared with the rest of Y14 borrowers. Main Street borrowers show a significantly faster deterioration of credit quality according to the banks' own internal rating systems. As a caveat, note that the internal rating given by the Y-14 bank may not coincide with the Main Street lender's rating of that same borrower.

Chart 13: Changes in Credit Risk Ratings for Main Street Borrowers in the Y14 and all Y14 Borrowers



Because the Y14 has data on loan spreads, we can compare the pricing of loans made outside Main Street to the uniform pricing (LIBOR + 300) on all Main Street loans. Table 7 shows (unsurprisingly) that smaller, more leveraged Y-14 firms paid higher spreads on average prior to the onset of the pandemic, with an interquartile range of 150 to 255 basis points over LIBOR. Spreads were slightly higher in the second quarter of 2020, when restrictive health

[28] Regarding the risk profile, Main Street participants are (by design) too small to have access to market finance and therefore to be rated by rating agencies. However, Y14 banks are required to disclose borrower-level internal ratings as well as the correspondence to a common scale for comparison purposes. In our matched sample of 149 borrowers, we find that 139 Main Street borrowers had loans outstanding with internal (bank) ratings in 2020:Q3.

policy measures were in effect. Before the pandemic, 13.5 percent of the bank loans paid a spread over LIBOR higher than 300 basis points, rising to 16.5 percent in 2020:Q2. This rise occurred despite tighter (non-price) lending standards and the shift to safer borrowers by banks during the spring and summer, as noted previously. Most Y-14 borrowers were able to secure lending below 300 basis points even during the crisis, which may explain the initial slow pace of uptake in the Main Street facilities by companies that already had banking relationships with large financial institutions (Y-14 lenders). However, the lack of comparable data from smaller lenders that do not file Y14 data and the lack of data indicating the number of loan requests denied by lenders make it difficult to draw conclusions about the impact of Main Street pricing on program demand.

The profile so far suggests that Main Street borrowers were, on average, riskier than comparable Y-14 borrowers. This is not entirely surprising, as higher-quality borrowers were probably able to secure credit at a lower rate through their already established relationship with a Y-14 lender. These conclusions also need to be taken with caution as the matched sample represents a small fraction of all Main Street borrowers and a tiny fraction of Y-14 borrowers overall. The differences noted may also reflect differences between the types of borrowers at small and medium-sized banks (that were most active in Main Street) relative to the types of borrowers at the large banks covered in the Y-14.

In sum, Main Street borrowers historically paid higher spreads for bank loans and experienced more severe rating downgrades than a comparable reference group (Y-14). Additionally, the fact that riskier borrowers were able to obtain credit from Main Street facilities can be interpreted as consistent with program objectives, since the goal of Main Street was to share risk with banks during the severe economic downturn caused by the pandemic. In the initial months borrowing was driven by more highly levered firms, but the scope of lending increased over time to reach less levered firms. However, leverage ended up being the binding constraint for most of the borrowers, and this was true across all industries. Finally, the program reached industries and geographies that were most affected by the economic effects of the pandemic.

Table 7: Loan Spreads Relative to LIBOR on Newly Originated Y-14 Term Loans , by Date and Size-Eligible Borrower Characteristics

	2019Q4						2020Q2					
	Mean	Median	p25	p75	Percent of Total Loans >300 BPS	Percent of Total Volume >300 BPS	Mean	Median	p25	p75	Percent of Total Loans >300 BPS	Percent of Total Volume >300 BPS
Panel A: Total Assets												
Less Than $1M	2.47	2.25	1.75	2.78	17.4%	10.5%	2.09	2.14	1.27	2.63	4.3%	3.4%
Between $1M and $2.5M	2.38	2.20	1.75	2.75	11.3%	5.1%	2.75	2.30	2.01	2.93	8.3%	1.3%
Between $2.5M and $5M	2.43	2.27	1.75	2.86	14.1%	15.0%	2.62	2.45	2.00	3.00	23.1%	17.5%
Between $5M and $100M	2.26	2.00	1.64	2.75	15.2%	18.8%	2.44	2.20	1.50	2.75	18.2%	26.6%
Greater than $100M	1.96	1.63	1.36	2.25	9.5%	11.2%	2.22	1.85	1.50	2.50	15.8%	14.3%
Total (Size of Assets)	**2.21**	**2.00**	**1.50**	**2.55**	**13.5%**	**13.8%**	**2.35**	**2.00**	**1.58**	**2.75**	**16.5%**	**16.4%**
Panel B: Leverage												
Between 0 and 2	2.16	2.00	1.50	2.60	12.4%	11.3%	2.15	2.00	1.52	2.50	10.8%	13.0%
Between 2 and 4	2.11	1.97	1.50	2.50	10.5%	15.1%	2.48	2.25	1.83	2.98	13.5%	19.0%
Between 4 and 6	2.29	2.25	1.59	2.50	13.6%	10.2%	2.20	1.75	1.50	2.50	17.9%	5.6%
Less than 0 or Greater than 6	2.38	2.00	1.60	2.75	19.7%	17.7%	2.57	1.88	1.25	3.50	31.6%	31.2%
Total (Leverage)	**2.20**	**2.00**	**1.50**	**2.54**	**13.4%**	**13.4%**	**2.32**	**2.00**	**1.50**	**2.75**	**16.5%**	**16.9%**
Total (Aggregate)	**2.21**	**2.00**	**1.50**	**2.57**	**13.8%**	**14.2%**	**2.30**	**2.00**	**1.56**	**2.61**	**15.6%**	**15.9%**

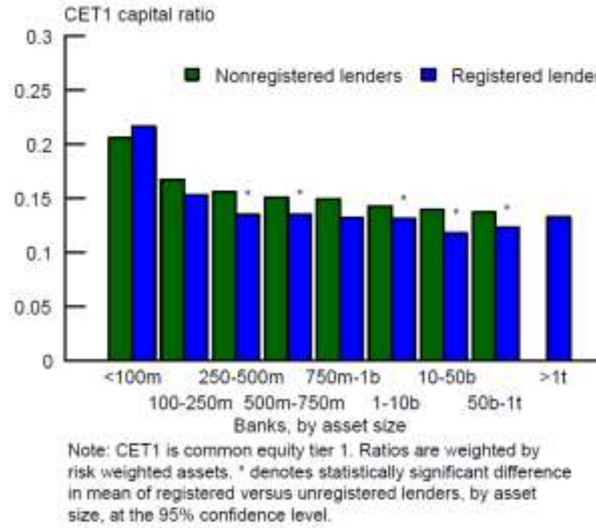
Capital Channel

Main Street loans allowed banks to preserve capital buffers, since banks are required to maintain capital against only their retained (5 percent) share. An implication is that, apart from risk-sharing, Main Street might have also supported lending through a capital channel whereby banks benefit from originating loans, but do not pay the full capital cost of carrying those loans on their balance sheets.

Chart 14 shows that registered banks tended to have lower capital ratios than nonregistered banks across all but the smallest size category. These differences are statistically significant for all but the smallest size groups. Moreover, there is a significant difference in capital ratios between banks that actively participated and those that did not register or registered but were not active. To investigate the capital channel further, we calculated the aggregate reduction in required capital facilitated by the Main Street program for all active banks and found it to be a modest 0.24 percent.[29] The median capital savings across banks is 1.1 percent, the average is 10.2 percent (reflecting outliers), and the interquartile range is 0.23 to 6.8 percent. Looking across bank size groups, the largest percentage reductions in required capital were at smaller banks. For example, the 43 active banks in the $100 million to $250 million size group save 53 percent on average, with a median saving of 12.8 percent. For the largest banks (more than $50 billion), the reductions are insignificant.

[29] We compute the reduction in risk-weighted assets (RWA) as the volume of Main Street loans removed from the banks' balance sheets through the sale of participations (that is, 95 percent of their total Main Street volume). Because risk-based capital requirements are expressed as fractions of RWA, the percentage reduction in RWA also equals the percentage reduction in required capital (CET1, tier 1, and total).

Chart 14: Capital Ratios by Registration Status and Lender Size



All told, the evidence presented here supports the capital channel. For the largest banks, the capital channel may have provided an incentive to actively participate but, in practice, capital savings were likely modest. In contrast, the capital savings for smaller banks that used the program more intensely were estimated to be more substantial. Minoiu et al. (2021) also find evidence in favor of the capital channel using a more sophisticated multivariate regression framework.

5. Lessons Learned and Conclusions

With most Main Street loans still outstanding, it is too early to discuss definitive lessons. In particular, the credit performance of the loans is not yet known. However, now that Main Street has stopped purchasing loan participations, we attempt to outline a few conclusions and preliminary lessons learned.

The program helped many borrowers hit hard by the pandemic.

Main Street facilitated more than 1,800 loans to businesses across the nation, representing a wide range of industries. Volume, at about $17 billion in total, was modest relative to the maximum size of the program, but it represented a meaningful addition to the flow of bank credit while the program was in operation, leading Main Street to become the largest credit purchase

facility operated by the Fed.[30] Moreover, many Main Street borrowers were hit hard by the pandemic, and lenders indicated that they made loans they would not otherwise have made, in line the goals of the program.

Speed is essential, but setting up a novel loan purchase program takes months.

Loan demand was most pronounced in the spring of 2020, before Main Street was operational. Looking at the experience across PPP and similar programs abroad, about half to three-fourths of the uptake occurred by the end of the second quarter of 2020.[31] This pattern suggests that, in a crisis, speed of execution may need to be prioritized to ensure that support is available when needed. With Main Street, about four months passed between its announcement and the first loan purchase, longer than other emergency lending programs of the Federal Reserve (Morgan and Clampitt, 2021).

The length of the roll-out time reflected the unprecedented nature of the program: The Federal Reserve had not operated a credit program for small and medium-sized businesses since the 1940s, and it had never deployed a program to purchase loan participations. So there was no blueprint, as there was for most other emergency programs rolled out by the Federal Reserve in response to the pandemic. In addition, the program was operationally complex, reflecting the bespoke nature of the C&I loan market for small and medium-sized businesses, and necessitated development of many legal agreements and roughly 100 pages of FAQs in coordination with the Treasury. The program also required the development of information-technology, credit-risk, and accounting systems to execute the purchase of loan participations, all of which took time to build. Even with this experience, any future loan participation program (or direct lending

[30] See Chart 4 and "Funding, Credit, Liquidity, and Loan Facilities," https://www.federalreserve.gov/funding-credit-liquidity-and-loan-facilities.htm. The comparison excludes liquidity facilities, some of which had larger peak outstanding amounts.

[31] The U.K.'s Coronavirus Business Interruption Loan Scheme (CBILS) and Bounce Back Loan Scheme (BBLS), France's Prêt Garanti par l'État (PGE), and the U.S.'s Paycheck Protection Program saw, respectively, 48%, 63%, 76%, and 65% of their total uptake by the end of 2020:Q2. See, for CBILS, https://www.gov.uk/government/collections/hm-treasury-coronavirus-covid-19-business-loan-scheme-statistics#Bounce-Back-Loan-Scheme, for BBLS, https://www.gov.uk/government/collections/hm-treasury-coronavirus-covid-19-business-loan-scheme-statistics#Bounce-Back-Loan-Scheme, for PGE, https://www.data.gouv.fr/fr/datasets/donnees-relatives-aux-prets-garantis-par-letat-dans-le-cadre-de-lepidemie-de-covid-19/, and for PPP, https://www.sba.gov/funding-programs/loans/covid-19-relief-options/paycheck-protection-program/ppp-data.

program) would likely require more time to operationalize than other market-based emergency lending programs. Finally, policymakers made several adjustments along the way to refine the program in response to feedback and evolving conditions. These changes meant lenders had to incorporate new aspects of the program in their origination process, which created some delays in underwriting. The changes also introduced new operational elements that required time to incorporate.

The program's structure and complexity limited its attractiveness to lenders and borrowers

The program's participation structure, which was designed to be consistent with Federal Reserve authorities and to give banks an incentive to undertake a degree of risk-screening through banks' risk retention, likely limited lender appetite to underwrite loans to riskier borrowers, compared with, for example, a full loan guarantee program. Most lenders entered the pandemic with stronger balance sheets and more lending capacity than in past economic downturns. This cushion prevented a more severe reduction in loan supply than might otherwise have occurred and reduced demand for programs without loan forgiveness.[32] Additionally, the complexity of the program likely made origination and servicing costs large, and hence the lender's return may have been attractive only for larger loans, safer borrowers, or at high volumes. Indeed, many banks indicated that they preferred to lend outside the program when possible to avoid its administrative and operational complexities, including the program's certifications and covenants as well as perceived uncertainty about partnering with the government in the event of future workout situations. Further, lenders cited the reporting requirements over the life of the loan, necessary to track credit quality, as a significant deterrent to smaller borrowers not accustomed to providing regular quarterly financial statements as part of a lending arrangement. Finally, for lenders who did participate, the program's complexity necessitated an investment in new processes that delayed underwriting. The surge at the close of the program provides some evidence that the program pipeline among participating lenders had been building up over time.

[32] According to a special Senior Loan Officer Opinion Survey on Main Street, a vast majority of nonregistered banks reported their ability to address the credit needs of Main Street-sized borrowers without participating in the program as an important or very important reason for not registering. See https://www.federalreserve.gov/data/sloos/sloos-202009.htm

Binding leverage limits, relatively inflexible loan terms, security and priority requirements, and limits on refinancing all limited risk, but did so at the expense of the program's reach.

The leverage limits were a binding constraint on loan size for many borrowers and likely excluded some vulnerable borrowers with an ability to repay, such as those with higher leverage levels that traditionally relied on asset-based borrowing. This was particularly true for the nonprofit facilities, where potential borrowers, which operate with low earnings in normal times, were required to meet a large number of financial and operational thresholds to be eligible for the program. In addition, the loan terms offered little flexibility, including no allowance for revolving credit facilities. Allowing some flexibility on the loan interest rate might have created room for more risk-based pricing—that is, loan rates that reflected lenders' assessment of borrowers' risk.[33] Credit programs in the United Kingdom and France allowed for more flexibility on rates than Main Street. At the same time, such flexibility would have increased complexity further, and high interest rates may not have been viewed as consistent with the program's goals. The requirement in some facilities that Main Street loans be senior to or pari passu with the borrower's other loans in terms of security may also have discouraged lenders from expanding credit to their existing borrowers. Finally, lenders and borrowers repeatedly asked for greater flexibility to refinance existing loans through the program, particularly those that were maturing in the near term. While refinancing limits were important in reducing the risk that lenders would simply shift their existing exposure to risky borrowers to Main Street, additional options for lenders to rollover maturing debt would likely have fostered broader program reach.

[33] English and Liang (2020) have argued for more flexibility in Main Street's loan terms, including their interest rates and banks' risk retention share.

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Box A: The Federal Reserve's Historical Experience with Direct Lending to Businesses

The Main Street program represented the first time since World War II that the Federal Reserve actively pursued policies to direct bank lending to the nonfinancial business sector. The origins of the Fed's previous experience with direct lending to businesses traces back to the addition of Section 13(3) to the Federal Reserve Act, which occurred during the Great Depression.[34]

In January 1932 legislation was passed to create the Reconstruction Finance Corporation (RFC), which was designed to make short-term loans to banks and other financial institutions collateralized by real bills (short-term debt from businesses). The creation of the RFC was a means of injecting capital into the weakened banking system, however, the RFC's ability to extend loans outside of the banking system was limited. Recognizing this, a Congress passed a bill in the summer of 1932 that added Section 13 paragraph 3 to the Federal Reserve Act.

In 1933, Congress further expanded the lending authority of the Federal Reserve by adding Section 13(b) to the Federal Reserve Act in June 1934.[35] Section 13(b) allowed Reserve Banks to directly extend loans to businesses within their districts for periods of up to five years. It also gave the Reserve Banks the ability to participate in loans with lending institutions, provided those lending institutions retained 20 percent of the risk of the loan. In contrast with Main Street, no limitations were placed on the size of an individual loan. This Great Depression–era facility was funded in equal part by the surplus of the Reserve Banks as of mid-1934 and the Treasury. All told, nearly $280 million (or, $5.4 billion in 2020 dollars) was made available for Reserve Bank lending, with each of the 12 Districts being apportioned a partial amount of the total. Relative to the overall size of the economy, this quantity of funding was about 0.5 percent of GDP in 1934. In comparison, Main Street's capacity as a share of 2020 GDP was about six times as large.[36]

By May 1935, roughly a year after the passage of Section 13(b), the Federal Reserve System had approved 961 loans issued directly to businesses totaling $43.9 million ($847.9 million measured in 2020 dollars). Interestingly, as a share of contemporaneous GDP, this uptake is nearly identical to Main Street's. Because each Reserve Bank had access to funds, lending was, by design, dispersed geographically across all 12 Districts. In addition, the loans went to a broad range of industries including manufacturing, wholesale and retail trade, as well as a number of other industries such as construction, mining, lodging, and transportation—many of the same industries that took Main Street loans.[37] All told, loan volume peaked at about $60 million by the end of 1935 ($1.2 billion in 2020 dollars). With peak volume amounting more than 15 percent of the total funds available, utilization was much higher relative to Main

[34] For an extensive treatment of this history see Hackley (1973).
[35] For useful summaries of the history of Section 13(b), see Fettig (2002) and Sablik (2013).
[36] With Treasury's equity commitment and the SPV's leverage cap, up to $600 billion was potentially available through Main Street, about 3 percent of the size of the $20.9 trillion U.S. economy in 2020.
[37] See Sablik (2013) for more details on the industry composition of 13(b) loans as of mid-1935.

Street.[38] The lower utilization likely reflects that Main Street operated for only about six months and, in addition, that the program designs differed notably.

Lending activity by the Federal Reserve to nonfinancial businesses gradually declined after 1935 as expanded lending through the RFC made direct loans from the Federal Reserve less attractive. Section 13(b) remained in place and, in fact, activity peaked again in 1942 when the Federal Reserve was called upon to make industrial loans during World War II. The role of the Federal Reserve in allocating credit to businesses remained a hotly debated issue throughout the 1950s, but ultimately Section 13(b) was repealed in 1958. The 13(3) powers, however, remained part of the Federal Reserve Act and played an important role in implementing Main Street in response to the COVID-19 pandemic.

[38] Main Street loan volume totaled $17.4 billion at the end of 2020, about 3 percent of the $600 billion in total available funding.

Box B: Lending Programs to Support Non-financial Businesses During the Pandemic: The International Experience

The COVID-19 pandemic had a significant effect on small- to medium-sized businesses not only in the United States, but in countries throughout the world. Accordingly, an important aspect of the policy response in many countries involved creating lending programs, some of which were similar to Main Street, to support the flow of credit to households and non-financial businesses.

The most similar international programs were the Bounce Back Loan Scheme (BBLS) and the Coronavirus Business Interruption Loan Scheme (CBILS), both implemented in the United Kingdom, as well as the Prêt Garanti par l'Etat (PGE) implemented in France. In the broadest sense, the intent of these programs was to facilitate lending to nonfinancial businesses that were hit hard by the pandemic and that, absent support, could potentially be forced to reduce employment and economic activity.[39] One common feature of all three of these programs is that the loans were either fully or partially backed by government guarantees of repayment in the event that the borrower defaults. This feature significantly reduces the amount of exposure a bank faces and, as a result, makes participation more attractive. In contrast, the strong desire to protect taxpayers by not guaranteeing loans made the Main Street program different from the BBLS, the CBILS, or the PGE.

Beyond these lending programs, many central banks acted unilaterally (that is, not in conjunction with the country's Treasury or the Ministry of Finance) to promote credit to certain segments of the credit market. In this regard, the most common policy response was to establish a funding-for-lending scheme, whereby the central bank provides low-cost funding to banks that then use those funds to extend loans to a targeted set of borrowers (small and medium sized enterprises, or SMEs).[40] Examples of targeted funding-for-lending programs introduced by foreign central banks include those implemented by the Bank of England (the Term Funding Scheme with Additional Incentives for SMEs), the Bank of Japan (the New Fund-Provisioning Measure to Support Financing Mainly of Small and Medium-Sized Firms), the European Central Bank (the modified Targeted Longer-Term Refinancing Operations III), the Reserve Bank of Australia (the Term Funding Facility), and the Sveriges Riksbank (Loans to Banks for Onward Lending to Companies).

The Main Street Lending Program is very different from a funding-for-lending scheme. In the simplest terms, the difference boils down to what creates the incentive for a participating bank to increase lending to a targeted set of borrowers. Under a funding-for-lending scheme this incentive comes from low-cost funding provided by the central bank, while under Main Street it comes from the opportunity to originate a loan and sell a large portion of the risk to the Federal Reserve while still retaining the servicing rights.

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[39] See Briggs and Walker (2020) for a fuller discussion.

[40] See Cantu, C., et. al., (2021) and Cavallino and DeFiore (2021).

Appendix: Income and Loss Projections during the Design Phase

To ensure compliance with the requirements of section 13(3) of the Federal Reserve Act, the Federal Reserve had to assess potential gains and losses from Main Street's operations. These projections were akin to a stress test, starting with the development of several credit risk scenarios. At the time the program was being designed, still early in the pandemic, the economic outlook was extremely uncertain. It was impossible to know how long the economic disruptions would last or how deep the economic damage would be. Against that background, staff considered a range of loan-loss scenarios. As in a stress test, some of the scenarios were intended to be fairly conservative—severe yet plausible.

One approach was to consider the worst cumulative gross charge-off rates on bank C&I loans that had been historically observed over any four or five-year period. This resulted in elevated projected loss rates.[41] Still, in light of the unprecedentedly severe nature of the downturn, Main Street's goal of helping borrowers hit hard by the pandemic, and the risk of adverse selection in the program's portfolio, it seemed prudent to consider more severe scenarios with loss rates two to three times the (historically) worst case.

A second approach relied on results from severely adverse scenarios in the Federal Reserve's stress tests of large banks in 2018 and 2019.[42] Staff used the projected loss rates on unsecured and non-investment-grade loans, which seemed consistent with Main Street's targeting of small and medium-sized business borrowers, for which an investment-grade rating is less common than for large corporate borrowers. In addition, staff also considered the 75th percentile of loan losses across all unsecured, non-investment-grade business loans, which suggested substantially higher loss rates, in the range of 10 to 20 percent.[43]

A third approach employed forecasts of default rates by a major credit rating agency for the institutional leveraged loan market. These forecasts incorporated early estimates of the effects of COVID-19–related disruptions on credit performance. Leveraged lending is generally riskier than the broad class of lending eligible for Main Street, so this approach was also plausibly conservative. After some adjustments, this resulted in a scenario with a 14 percent default rate over the term of the loans. To obtain loan loss rates from default rates, assumptions

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[41] Maximum cumulative gross charge-offs rates amounted to 7.4 percent for a 4-year period (2007.Q2 through 2011.Q1), and 8.7 percent for a 5-year period (2006.Q3 through 2011.Q2). These rates were calculated using the Call Reports, where the relevant data are available from 1985 onward. Gross rates, which exclude recoveries, were used for robustness.

[42] From each of these stress test, staff used the portfolio-average loss rate on unsecured, non-investment-grade business loans, taking the weighted average of financial and non-financial borrowers, which resulted in loan loss rates of 8.3 and 5.4 percent for the 2018 and 2019 CCARs, respectively. The weights used are the shares of each sector of the stress tested banks' total unsecured non-investment-grade business loans. See "Dodd-Frank Act Stress Test 2019: Supervisory Stress Test Methodology," Board of Governors of the Federal Reserve, March 2019, https://www.federalreserve.gov/publications/files/2019-march-supervisory-stress-test-methodology.pdf, and "Dodd-Frank Act Stress Test 2020: Supervisory Stress Test Methodology," Board of Governors of the Federal Reserve, March 2020, https://www.federalreserve.gov/publications/files/2020-march-supervisory-stress-test-methodology.pdf.

[43] Specifically, the loan loss rates calculated from the 2018 and 2019 stress tests were 17.2 and 11.5 percent, respectively.

for the loss-given-default (LGD) were needed. Given the likelihood of stressed economic conditions, at least for the coming months or years, the projections assumed relatively high LGDs, in the 60 to 90 percent range.[44] Again, multiples ultimately up to two times the default rates were also considered for robustness (holding LGDs constant).

With these credit scenarios in hand, staff was able to project gains and losses for Main Street under alternative design choices for the loan terms, fees, and risk-sharing arrangement. Defaults were assumed to be concentrated at the end of year two of the loan, when the first principal repayment becomes due. The less adverse scenarios, including the worst historically observed C&I loan charge-off rate and the stress testing portfolio-average losses, were projected to result in net gains for the Main Street SPV, with interest income outweighing credit losses. However, the more adverse scenarios were projected to result in net losses to the Main Street SPV and therefore to the Treasury's equity investment.

These projections guided the decision to cap SPV "leverage" at 8-to-1. Given the Treasury's planned $75 billion equity investment, the leverage cap dictated a maximum program size of $600 billion. With that leverage, even under the more adverse scenarios, the Federal Reserve was projected to incur zero losses.

[44] Reflecting the higher priority and security embedded in the terms of the PLF and ELF facilities, LGDs were set as 90percent for NLF, 75 percent for PLF, and 60 percent for ELF. This implied loss rates ranging from 8.4 to 12.7 percent.