

2020

## Designing the Main Street Lending Program: Challenges and Options

William B. English  
*Yale University*

J. Nellie Liang  
*Brookings Institution*

Follow this and additional works at: <https://elischolar.library.yale.edu/journal-of-financial-crises>



Part of the [Finance Commons](#)

---

### Recommended Citation

English, William B. and Liang, J. Nellie (2020) "Designing the Main Street Lending Program: Challenges and Options," *Journal of Financial Crises*: Vol. 2 : Iss. 3, 1-40.

Available at: <https://elischolar.library.yale.edu/journal-of-financial-crises/vol2/iss3/1>

This Article is brought to you for free and open access by EliScholar – A Digital Platform for Scholarly Publishing at Yale. It has been accepted for inclusion in *Journal of Financial Crises* by an authorized editor of EliScholar – A Digital Platform for Scholarly Publishing at Yale. For more information, please contact [elischolar@yale.edu](mailto:elischolar@yale.edu).

---

## Designing the Main Street Lending Program: Challenges and Options

### Cover Page Footnote

The authors thank Scott Alvarez, Lauren Anderson, Francisco Covas, Betsy Duke, Trish Mosser, Jamie McAndrews, Bill Nelson, Simon Potter, Brian Sack, Jeremy Stein, and David Wessel for helpful comments and suggestions, and Manuel Alcalá Kovalski for helpful research assistance. We also thank Tim Guinnane and Benedikt Kolb for help with the German guarantee programs. All remaining errors are ours.

# Designing the Main Street Lending Program: Challenges and Options\*

William B. English<sup>†</sup>  
J. Nellie Liang<sup>‡,§</sup>

October 10, 2020, Revised October 14, 2020

## Abstract

The Main Street Lending Program (MSLP) was established by the Federal Reserve to provide loans to small and mid-sized firms and large below-investment-grade firms that were financially sound before the onset of the COVID-19 pandemic. The program, which was established under the Fed's Section 13(3) emergency authorities, is supported by capital from the U.S. Treasury and became operational in July 2020; however, utilization has been slight. We describe the economic challenges in designing a loan support program and evaluate the MSLP program in terms of how it manages significant asymmetric information, adverse selection, poor targeting, and moral hazard problems while protecting taxpayer funds. We contrast the MSLP with other possible approaches, such as subsidies or loan guarantees. We conclude by recommending changes to the program to increase its usage and effectiveness.

---

\* This paper was previously published by The Hutchins Center for Fiscal and Monetary Policy at Brookings as Hutchins Center Working Paper #64 (June 18, 2020).

<sup>†</sup> Professor in the Practice of Finance, Yale School of Management, [william.b.english@yale.edu](mailto:william.b.english@yale.edu).

<sup>‡</sup> Miriam K. Carliner Senior Fellow, Economic Studies, The Hutchins Center for Fiscal and Monetary Policy, Brookings Institution, [jnliang@brookings.edu](mailto:jnliang@brookings.edu).

<sup>§</sup> The authors thank Scott Alvarez, Lauren Anderson, Francisco Covas, Betsy Duke, Trish Mosser, Jamie McAndrews, Bill Nelson, Simon Potter, Brian Sack, Jeremy Stein, and David Wessel for helpful comments and suggestions, and Manuel Alcalá Kovalski for helpful research assistance. We also thank Tim Guinnane and Benedikt Kolb for help with the German guarantee programs. All remaining errors are ours.

## 1. Introduction

Unlike the 2008 financial crisis, the current economic crisis brought on by the COVID-19 pandemic reflects fundamental cash-flow problems for many businesses as revenues have almost completely stopped. Businesses will need substantial financial resources—from previous saving, direct government grants, or credit—to pay bills, survive the shutdown, and be ready to rehire workers quickly and restart spending. Extending credit can help some businesses manage the near-term shortfall in revenues, restructure operations, and prevent unnecessary failures at a time when bankruptcies will be costly.

The Main Street Lending Program (MSLP) was set up to provide loans to small and mid-sized firms and large below-investment-grade firms that were financially sound before the onset of the pandemic. The Coronavirus Aid, Relief, and Economic Security (CARES) Act authorizes the Federal Reserve to establish the program under its emergency authorities with capital provided by the U.S. Treasury.<sup>1</sup> However, the MSLP is a big step for the Federal Reserve, and a difficult one. Lending to risky firms is a significant challenge given U.S. aversion to government equity stakes in private businesses and the Fed's legal requirements to be secured to its satisfaction and to lend only to solvent firms.

The program was announced in April and was revised twice in response to feedback. It opened for business in July, but as of mid-September 2020 had extended less than \$2 billion of loans.<sup>2</sup> Domestic borrowers with fewer than 15,000 employees and less than \$5 billion in 2019 revenue are eligible to apply for loans under the program. Loans are made by banks, and the banks retain 5 percent of the loan and sell the remaining 95 percent to one of three Main Street facilities—the New Loan Facility, the Priority Loan Facility, and the Expanded Loan Facility. (See table 4 below for details.) These facilities vary by the type of loan they accept, determined mainly by loan size, borrower leverage, and whether the loan is new or expands an existing loan. All Main Street loans have a five-year maturity, defer interest payments for one year, defer principal payments for two years, can be prepaid without penalty, and have a loan rate of LIBOR plus three percentage points. Borrowers commit to limits on executive compensation, shareholder distributions, and employment.

Small-to-mid-sized businesses that could borrow from the Main Street program are an important part of the economy. There are more than 111,000 firms with between 100 and 10,000 employees (Census Bureau, 2017), and they employ 48 million people, about 38 percent of the aggregate private workforce. These firms are more reliant on loans than public bond markets, and some are too large for the Paycheck Protection Program (PPP)<sup>3</sup> which

---

<sup>1</sup> See the descriptions of the programs at <https://www.federalreserve.gov/monetarypolicy/mainstreetlending.htm>.

<sup>2</sup> The Federal Reserve publishes data on the use of its lending programs weekly on its H.4.1 Statistical Release. In recent weeks, the total volume of outstanding loans under the Main Street program has been about \$2 billion.

<sup>3</sup> The Paycheck Protection Program was established by the CARES Act to provide funding to small and medium-sized businesses. As of August 8, 2020, the program had lent \$525 billion to 5.2 million borrowers. Loans can be forgiven, in full or part, if borrowers follow certain use restrictions. See information on the PPP here: <https://www.sba.gov/funding-programs/loans/coronavirus-relief-options/paycheck-protection-program>.

provides SBA-guaranteed loans with possible forgiveness, or are too risky for programs established by the Treasury and Fed to support investment-grade corporations that issue commercial paper and corporate bonds.

The Main Street program will only succeed if it actually provides credit directly to borrowers in need. The mere announcement that Main Street loans are available cannot provide the same support to the loan market as the Commercial Paper Funding Facility (CPFF) does for the commercial paper market and the Primary Market Corporate Credit Facility (PMCCF) does for the corporate bond market. The CPFF and the PMCCF offer credit to high-rated firms that have recently issued commercial paper, or that issue in the corporate bond and syndicated loan markets. By ensuring these firms access to credit even at a higher-than-normal market rate, they reduce rollover risk, and risk spreads in the markets, even before any firms access the facilities. By contrast, because the potential borrowers under the MSLP differ widely in credit quality, the program cannot provide a guaranteed backstop, and so does not ease credit conditions broadly.

The Main Street program purchases loan participations from banks, rather than providing low-cost funds to banks or providing loan guarantees. It is designed to encourage banks to make loans they might not make on their own, primarily by easing balance sheet constraints rather than offsetting banks' reduced willingness to take risks. We describe the economic challenges in designing a loan support program and evaluate the Main Street program in terms of how it manages significant asymmetric information, adverse selection, poor targeting, and moral hazard problems while protecting taxpayer funds. The calibration of design features requires a difficult balance, and banks and businesses have shown little interest in the program thus far.<sup>4</sup> Banks generally say that MSLP program loans are loans they would make anyhow. Potential borrowers say that the loans do not meet their needs and that the program is burdensome.

We propose changes to the program in three areas to increase its usage and effectiveness. (Detailed recommendations are in Section 7.) First, to encourage greater use of the program by banks, the fees they get from the program could be increased. Such an increase would provide greater incentives for banks to make riskier loans than they would be willing to make in the absence of the program. Second, we propose that loan terms be more flexible and tailored to borrowers' needs and credit quality. For example, loan rates could be reduced for lower-risk loans, greater flexibility could be provided for loan maturities, smaller loans could be allowed to help increase participation by small banks and businesses, and loans to more highly leveraged firms could be allowed if banks retain a larger share of the loans. Finally, restrictions on borrowers under the program, particularly the requirement that they make efforts to maintain employment, could be eased. The restrictions on employment could limit the ability of firms to restructure their operations in light of changes in business practices and industry structure triggered by the coronavirus crisis. The Fed has already

---

<sup>4</sup> For example, some Senators raised concerns at a hearing on implementation of the CARES Act on June 2, 2020, that the Main Street program will not be used (see Ransom 2020). For similar concerns, see Mohsin and Scigliuzzo (2020) and Elliott, DePillis, and Kiel (2020).

made some changes to the original program along these lines, but we believe the current program still could be made more attractive for both banks and potential borrowers.

Adoption of our recommendations would pose additional risk to the funds that Treasury has provided to back this program, but we see those risks as likely justified in the current circumstances. Even with the recommended changes, the program may have limited demand, since many businesses need equity, not more credit, but equity cannot be provided in a lending program that would be offered by the Federal Reserve. In addition, banks may not want to make more loans without even greater protection, given the uncertain economic outlook. While the program could become more attractive to banks if the economy remains very weak and loan losses mount further, putting pressure on banks' balance sheet capacity, banks likely will still not be anxious to take on more risk in that scenario.

However, it is critical to provide support now for viable businesses that have large credit needs as a result of the crisis. The downturn is very deep, the risk of permanent harm to labor markets because of protracted high unemployment is high, and business activity is likely to resume more slowly than was thought when the CARES Act was signed. While the structure of the Main Street Program has significant benefits, particularly the use of the Fed to leverage Treasury capital, policymakers should be prepared for the possibility that an aggressive lending program consistent with the CARES Act may not be sufficient to help many businesses. In that case, Congress should be prepared to authorize other types of support beyond the Fed's emergency lending, such as loan guarantees or forgiveness. In addition, the Federal Reserve could implement a funding for lending program to encourage lending by providing low-cost funding to banks.

The remainder of this paper proceeds as follows: Section 2 describes characteristics of potential MSLP borrowers and why private lending is likely to be insufficient; Section 3 describes constraints for the Fed and Treasury, and information- and incentive-related challenges when designing a government lending program; and Section 4 presents three alternative types of government programs to increase lending, some of which have been used in other countries. Section 5 outlines the MSLP program and how it addresses the main design challenges, and Sections 6 and 7 present our assessment and recommendations to improve the odds of success.

## **2. Why a government program for these businesses?**

The government may want to help provide credit for small and medium-sized firms, as well as larger firms that are not investment-grade, for the same reasons that it is providing support for small businesses (through the Paycheck Protection Program) and larger, near-investment-grade and investment-grade businesses (through the Fed's commercial paper<sup>5</sup> and corporate bond<sup>6</sup> programs). That is, many viable firms with large declines in revenue

---

<sup>5</sup> The Fed announced the Commercial Paper Funding Facility on March 17, 2020. More information can be found here: <https://www.federalreserve.gov/monetarypolicy/cpff.htm>.

<sup>6</sup> The Fed announced the Primary Market Corporate Credit Facility (PMCCF) and the Secondary Market Corporate Credit Facility (SMCCF) on March 23, 2020. The PMCCF supports credit to employers through bonds and loan issuances. The SMCCF provides liquidity to the market for outstanding corporate bonds. Information

during the health emergency could fail if they don't have sufficient access to credit, which would slow the economic recovery as enterprise value is lost and workers need to look for and retrain for new jobs.

Private lending may be insufficient in this case because the social benefits from a more robust recovery and fewer inefficient bankruptcies will exceed the private benefits to banks from more loans. Banks may be wary of lending more because they don't want to expand their balance sheets or because they do not want to increase risky loans. Moreover, the risk on such loans is highly correlated with that of other similar loans already on banks' books, and this correlation is likely to be especially high in current circumstances, as the progress of the coronavirus will be an important driver of defaults on a wide range of both business and household credit.

We discuss below the employment and risk of potential Main Street borrowers, and reasons why private lending to them might be insufficient.

### **A. Employment and risk of potential Main Street borrowers**

***Employment of small and medium-sized businesses.*** Businesses that might access the MSLP employ a significant fraction of the labor force. Data from the Census Bureau show that in aggregate there were 128.6 million employees in almost 6 million firms in 2017 (Table 1). The vast majority of the firms are small with fewer than 100 employees, and combined they employ 33 percent of the aggregate workforce. But there are about 111,000 firms that have between 100 and 10,000 employees each, and they collectively have 48 million employees, 38 percent of the aggregate. Annual payroll expenses at these firms represent 40 percent of the aggregate. That is, the set of firms that fall between very small businesses, those with less than 100 employees, and the very large firms with more than 10,000 employees, represent roughly 40 percent of employment and payroll. Note that these data can only approximate what firms are eligible for MSLP because data are not provided for firms with between 10,000 and 15,000 employees, and revenues of these firms are not available by number of employees.<sup>7</sup>

While firms with between 100 and 500 employees are eligible for the PPP program, they may also be interested in an MSLP loan. These firms had an average annual payroll expense of \$9.9 million, so they could make use of a Main Street loan, given the minimum loan size of \$250,000. Their average payroll expenses are considerably higher than the average payroll of \$305,000 for firms with fewer than 100 employees. Indeed, the smaller firms may find PPP loans sufficient to their needs; the average PPP loan made was \$114,764, though 64 percent of the total number of loans was for less than \$50,000.<sup>8</sup>

---

on the PMCCF can be found here: <https://www.federalreserve.gov/monetarypolicy/pmccf.htm>, and information on the SCF can be accessed here: <https://www.federalreserve.gov/monetarypolicy/smccf.htm>.

<sup>7</sup> MSLP eligible applicants are limited to firms with less than 15,000 employees and no more than \$5 billion in revenue.

<sup>8</sup> While we don't know the characteristics of firms that received PPP loans, it appears they are mainly among the 5.88 million very small firms that would have fewer than 100 employees, with an average of seven

**Table 1. Firm Employment by Size**

Firm Employment Size	Number of Firms	Employment	Share of Employment	Annual Payroll (\$000)	Share of Payroll	Payroll per Firm (\$000)
<b>Total</b>	<b>5,996,900</b>	<b>128,591,812</b>	<b>100%</b>	<b>6,725,346,754</b>	<b>100%</b>	<b>1,121</b>
<5	3,698,086	5,937,081		276,569,783		75
5 to 99	2,186,317	36,507,469		1,520,676,007		318
<b>Subtotal &lt; 100</b>	<b>5,884,403</b>	<b>42,444,550</b>	<b>33%</b>	<b>1,797,245,790</b>	<b>27%</b>	<b>305</b>
100-499	92,358	18,111,531		914,291,189		9,899
500-999	10,082	7,000,139		369,884,610		36,688
1,000 to 2,499	5,887	9,042,640		520,748,082		88,457
2,500 to 9,999	3,070	14,253,746		889,750,821		289,821
<b>Subtotal 100-9,999</b>	<b>111,397</b>	<b>48,408,056</b>	<b>38%</b>	<b>2,694,674,702</b>	<b>40%</b>	<b>24,190</b>
10,000+	1,100	37,739,206	29%	2,233,426,262	33%	2,030,388

*Source: Statistics of U.S. Businesses (SUSB), Census Bureau, 2017. SUSB total excludes the self-employed, employees of private households, employees in the railroad and agricultural production sectors, and most government employees.*

**Risk of potential Main Street borrowers.** Data on the riskiness of the debt of small-to-mid-sized firms that might access the Main Street Program are fragmentary. But it is clear that these firms are much less risky than the smallest firms, those eligible for SBA-guaranteed loans, but riskier than firms that are rated investment-grade. Some of the larger firms that are not investment-grade that might want to access the MSLP may be speculative-grade risks, which tend to have higher default rates than the small-to-mid-sized firms because they have a need and the ability to raise large amounts of debt.

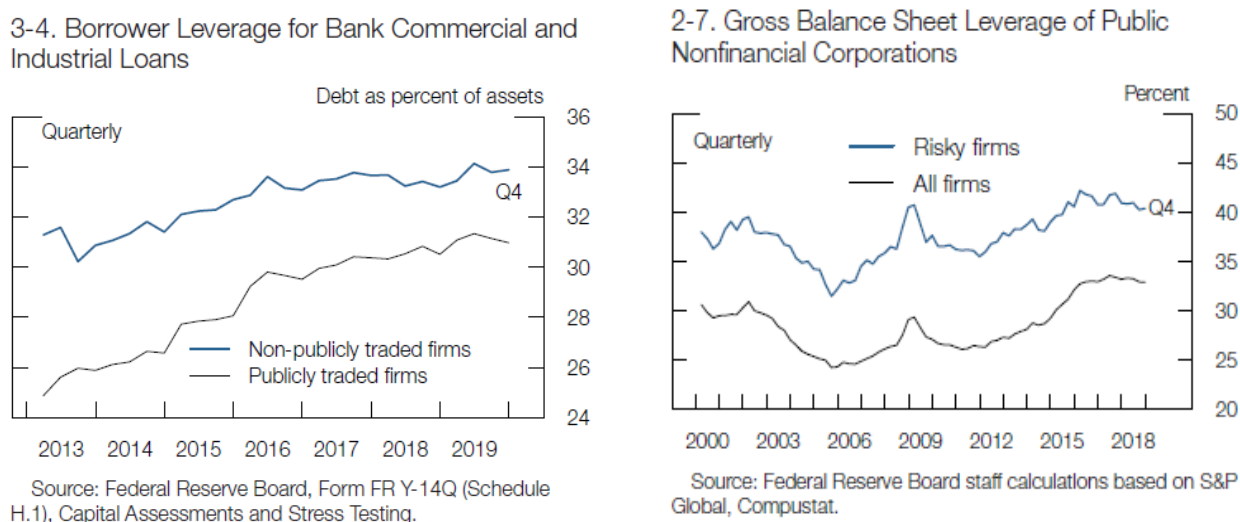
Data on debt-to-asset ratios and failure rates reflect this risk profile. The Federal Reserve's Financial Stability Report (May 2020) shows the debt-to-asset ratios of commercial and industrial (C&I) loan borrowers (from the banks that are required to undergo the Dodd-Frank stress tests, and hence file form FR Y-14Q). Reporting borrowers that are not publicly traded can be used to approximate the borrowers that might be interested in Main Street loans (Figure 1). As shown, these firms have somewhat higher debt-to-asset ratios than publicly traded firms that have C&I loans. The debt ratios of these firms have been rising in the past few years, though less rapidly than at publicly traded firms.

employees and an average payroll of \$305,000. The number of PPP loans reached 5.2 million by August 8, 2020, for total funds of \$525 billion. In terms of the distribution of loan sizes, 64 percent of the total number of loans were less than \$50,000, another 30 percent were between \$50,000 and \$350,000, and only 6 percent were above \$350,000. (See Small Business Administration, 2020.)



Comparing these ratios to those for all nonfinancial publicly traded companies, a debt-to-asset ratio of 34 percent in 2019 for non-public C&I loan borrowers is much lower than for speculative-grade firms, labeled as risky firms, which have had ratios of above 40 percent in recent years. These data suggest that many potential Main Street borrowers are less risky than speculative-grade firms but more risky than investment-grade companies.

**Figure 1. Borrower leverage for Bank C&I loans and publicly traded nonfinancial corporations**



Source: Federal Reserve Board Financial Stability Report, May 2020 and May 2019.

Loan delinquency rates also suggest that smaller business loans will have higher default rates than investment-grade bond issuers but may have lower default rates than speculative-grade bond issuers. PayNet reports, based on data for C&I loans provided by a sample of commercial banks, that default rates for small businesses averaged about 3 percent over 2006-2019, higher than the 1.7 percent default rate on all C&I loans at commercial banks, which includes loans to large publicly-traded firms.

For comparison, the average default rate on investment-grade corporate bonds was 0.12 percent from 1981-2017 but was 4.3 percent for speculative-grade corporate bonds over the same period (Standard and Poor's). This average default rate for speculative-grade firms is higher than that for loans to small-to-mid-sized borrowers that would access the MSLP.

In addition, data from the Census suggest there is a wide range in risk characteristics in the category of small-to-mid-sized firms (Table 2). The overall business failure rate peaked at 9.67 percent in 2009, dominated by the nearly 4.96 million small firms, those with less than 100 employees, which had a failure rate of 9.86 percent in 2009. But the failure rates drop off dramatically as firms get larger. The average failure rate for businesses with between 100 and 500 employees was 0.99 percent in 2009, and it was only 0.35 percent for businesses

with between 500 and 9,999 employees. These sharp distinctions by size group in 2009 are also evident for average failure rates during the twenty-year period 1994-2014.

**Table 2. Business Failure Rates<sup>9</sup>**

Firm Employment Size	Number of Firms 2014	Failure rate 2009 (%)	Failure rate 1994-2014 (%)
<b>Total</b>	5,060,326	<b>9.67</b>	<b>8.33</b>
< 100	4,955,252	9.86	8.48
100 to 499	84,541	0.99	0.98
500 to 9,999	19,163	0.35	0.30
<b>Subtotal 100-9,999</b>	103,704	<b>0.88</b>	<b>0.86</b>

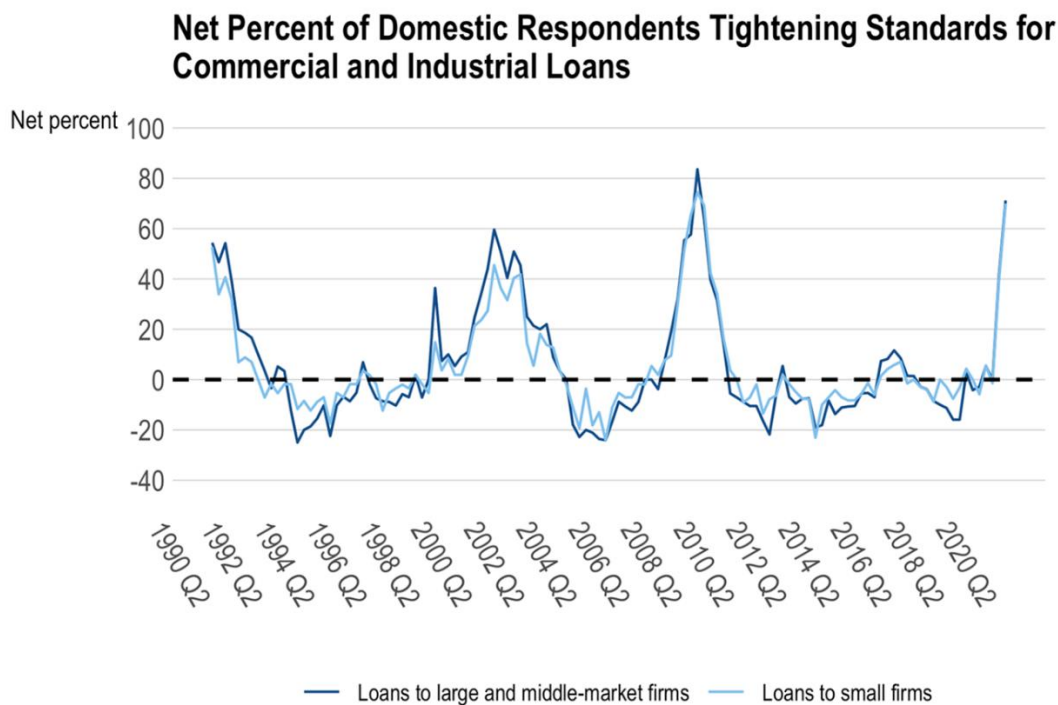
*Source: Census Bureau, Longitudinal Business Database 1977-2014.*

Overall, the loan default and failure data suggest that lending to small-to-mid-sized businesses with more modest needs for debt is less risky than lending to firms that issue speculative-grade bonds, though both are riskier than lending to investment-grade companies. Moreover, the losses on defaulted loans, which are generally more senior, tend to be lower than those on defaulted speculative-grade bonds.

### **B. Why might private lending not be sufficient?**

Given that these businesses are significant employers, policymakers would like to ensure that those that are harmed temporarily but can succeed after COVID-19 risks diminish have access to the credit they need to survive this difficult period. Unfortunately, however, a substantial fraction of banks have recently tightened their lending standards on loans to businesses, according to the July 2020 Senior Loan Officer Opinion Survey, suggesting that private lenders may not be willing and able to provide the needed credit (Figure 2).

<sup>9</sup> The number of failures for firms in this sample with more than 10,000 employees was missing for many years, so we do not report the failure rate for that category.

**Figure 2. Lending standards for C&I loans at commercial banks**

*Source: Board of Governors of the Federal Reserve System (US).*

There are four reasons why policymakers may believe that lending by banks to these firms is likely to prove insufficient.<sup>10</sup> The main reason is that the social benefits from a more robust economy and fewer inefficient bankruptcies will exceed the private benefits to banks and borrowers from more loans. That is, there are net positive externalities which arise by promoting a more rapid recovery in output and employment, given that levels currently are so depressed, and so encouraging a positive cycle of more spending and more employment. In addition, banks on their own do not capture the aggregate benefits to society if all banks lend more and a worse aggregate economic outcome is avoided.

Furthermore, additional lending may avoid a negative externality from having a large number of firms go bankrupt in a short interval. If that were to happen, the bankruptcy system could be overwhelmed, and the result could be that some firms that could have been reorganized in bankruptcy end up in liquidation, with a consequent social loss.<sup>11</sup> Moreover,

<sup>10</sup> Eligible lenders in the Main Street Lending Program are banking organizations, not all types of lenders. If bank balance sheet concerns are limiting banks' willingness to lend, then allowing nonbanks to have access to the program could increase usage. But nonbank lenders would have to be vetted to be sure that they had the ability to do the underwriting. However, given the many potential complications involved in the program, the Fed may see it as helpful to operate through entities overseen by the federal banking regulators.

<sup>11</sup> Miller and Stiglitz (2010) have argued that in financial crises there may need to be a temporary "Super Chapter 11" to quickly deal with a large number of bankruptcies in a way that limits harm to the economy.

the social costs of bankruptcy for smaller owner-manager firms may be relatively greater than the social costs for larger firms with outside equity holders (Brunnermeier and Krishnamurthy, 2020). More of a smaller firm's enterprise value may be attributed to owner know-how, and because personal assets may have been pledged to secure a bank loan, a small firm's failure likely would result in personal bankruptcy as well, making it difficult for the owner to restart the firm.

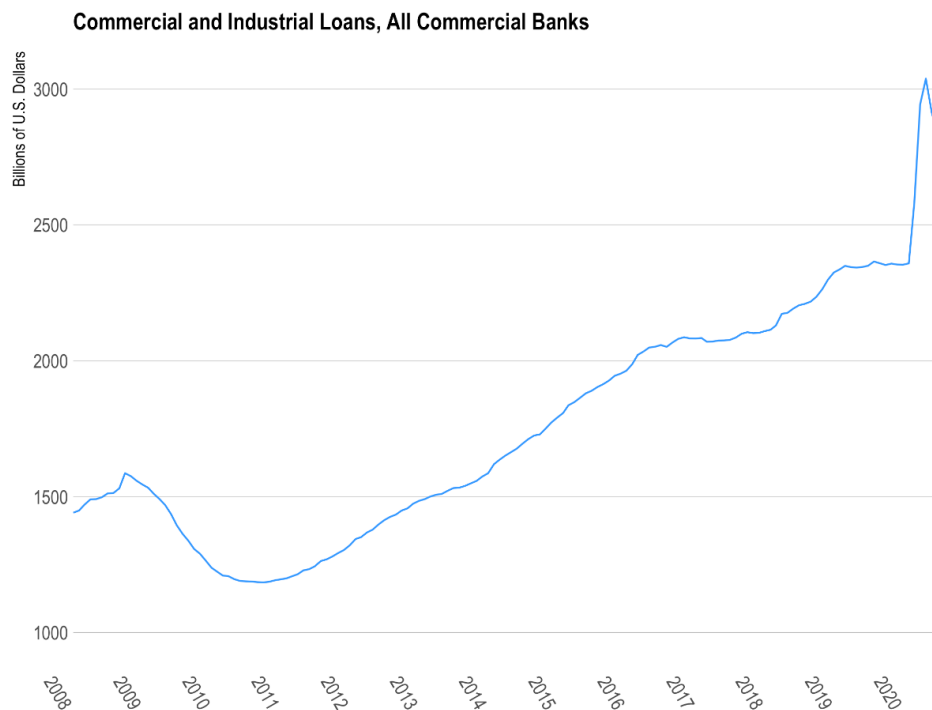
A second reason there may be insufficient lending is that banks' funding costs may be too high because of dysfunction in term-funding markets. Higher funding costs limit the profitability of lending, and a government program that provides lower cost funding could be helpful. The spread of the three-month LIBOR to OIS was elevated following the start of the pandemic, suggesting funding pressures for some banking institutions, although that spread subsequently fell back.

A third reason to be concerned about access to credit is that banks may lack the risk appetite to make additional loans. Banks no doubt are already expecting a big increase in loan losses because of the economic slowdown due to the virus, and the risks of new loans to borrowers harmed by the virus will be highly correlated with the existing risks. Banks may also be concerned about downside risks to loan quality given the elevated uncertainty about the economic growth trajectory, especially in the case of smaller and riskier firms. That uncertainty may make them even less willing to lend.

Finally, banks may face balance sheet constraints that limit their willingness to lend. The constraints could reflect capital regulation or pressures from creditors and counterparties. Banks have been operating with capital above regulatory and supervisory requirements, with the largest banks operating with a Tier 1 common equity (CET1) ratio of 12 percent on average in 2019, but loans rose sharply in March and April as businesses drew down existing credit lines (Figure 3).<sup>12</sup> Banks announced substantial loan loss provisions in the first quarter, though the full effects of loan losses on capital in coming quarters are still unknown. If a bank's CET1 ratio were to fall by enough that it fell into its regulatory buffers, such as the capital conservation buffer and GSIB capital buffer, it would be required to cut dividends, share repurchases, and compensation.

---

<sup>12</sup> The Federal Reserve estimates that business borrowers drew down significant amounts of their committed credit lines in March and April. C&I loans increased by about \$660 billion in those two months, and the Fed estimates that only a little more than half were by firms with investment-grade ratings. (Federal Reserve Financial Stability Report, May 2020, Box "Risks Associated with Banks' Corporate Credit Exposures through Credit Lines.")

**Figure 3. Commercial and Industrial Loans, All Commercial Banks**

Source: Board of Governors of the Federal Reserve System (US).

Moreover, new lending could push some of the largest banks into the next size category used to calculate the SIFI capital surcharge since size is one of the five components determining the size of the surcharge. Moving into the next category would raise its capital requirement by 50 basis points. This nonlinear effect may restrain banks' willingness to lend to marginal customers. As a consequence, banks may be unwilling to meet the demand for credit even from less risky firms.<sup>13</sup>

<sup>13</sup> Note that balance sheet constraints could be eased, at least partly, with regulatory changes. Indeed, federal regulators have provided some temporary changes in regulation to address such constraints. Leverage ratios for BHCs and bank subsidiaries were relaxed by permitting the deduction of Treasury securities and deposits at the Fed from exposure measures. In addition, under the new stress test capital buffer, they are not included as a minimum regulatory requirement. Also, loans under the MMLF and PPPLF are excluded from leverage ratio calculations. However, while regulators can take steps to ease these constraints, they cannot make banks lend.

### 3. Challenges when designing a business lending program

The design of a program to support bank lending to businesses in the current health crisis can be thought of as the solution to a constrained maximization problem. The objective is to increase loans to borrowers that can survive the health crisis and succeed after the crisis passes, but that would not otherwise be able to get a loan in the current environment. The constraints on the program include the legal restrictions on the Federal Reserve's emergency lending under section 13(3) of the Federal Reserve Act, as well as the ability and willingness of the Federal Reserve and Treasury to absorb losses in the conduct of the program. If policymakers are willing to take on more risk of loss, then they are more likely to succeed in boosting lending to the desired borrowers. The problem is complicated, however, by several information- and incentive-related problems that policy makers face, including asymmetric information, adverse selection, inefficient targeting of the support, and moral hazard.

#### A. Constraints on the Federal Reserve and Treasury

Section 13(3) of the Federal Reserve Act puts a number of conditions on the ability of the Federal Reserve to operate an emergency lending program. These conditions include (Federal Reserve 2020a):<sup>14</sup>

- The circumstances must be “unusual and exigent;”
- The program must be approved by the Secretary of the Treasury;
- Eligibility for the program must be “broad-based,” which the Federal Reserve has judged to mean that the program is open to at least five firms (Federal Reserve, 2015);
- Program borrowers must be “unable to secure adequate credit accommodations from other banking institutions;”
- Borrowers under the program must be solvent, and program lending cannot assist a “single and specific company” in avoiding bankruptcy;
- Loans under the program must be “[e]ndorsed or otherwise secured to the satisfaction of the [lending] Reserve Bank” and the Fed must take steps to ensure that the “security for emergency loans is sufficient to protect taxpayers from losses.”

In addition, the CARES Act requires that loans made under 13(3) programs in the current crisis cannot be forgiven. This requirement sets the 13(3) lending apart from the Paycheck

---

<sup>14</sup> One way to avoid the constraints that Section 13(3) imposes on the program would be to have the Treasury operate the program directly. Indeed, given the need for direct credit allocation and possible concerns about central bank independence, it may be desirable to not have the central bank involved in such programs. And, as discussed below, in the U.K. and Germany, programs to support business lending are run by national development banks. However, Congress would in any case decide on the statutory constraints on the program, and it may see the structure imposed by the Federal Reserve Act as helpful in limiting risk. Congress may also have felt that the Federal Reserve has expertise that would help make the program successful, and it may value the ability of the Federal Reserve to leverage the capital provided by the Treasury to increase the size of the lending program without increasing Treasury debt issuance.

Protection Program because PPP loans are intended to be essentially grants. With no loan forgiveness allowed, the 13(3) loans will be much less expensive for the government, but also much less attractive to the borrowers.

The first three of the 13(3) conditions are clearly satisfied in the current circumstances. The fourth is satisfied by a Fed requirement that borrowers certify their difficulty in obtaining credit from sources other than the Federal Reserve, and the fifth condition should be satisfied by any program aimed at firms that can survive the crisis if they obtain credit, which is the aim of the program. The final condition poses greater difficulty, since business loans involve significant risk, as noted earlier, and that risk is presumably increased in the current circumstances. However, in the CARES Act, Congress provided the Treasury with \$454 billion that it can use to provide security for loans made under the Federal Reserve's 13(3) lending programs. The decision as to how much capital to allocate to each lending program is up to the Treasury Secretary, who has the authority to allocate the funds authorized in the CARES Act.

The Treasury has considerable influence over an emergency lending program because the Fed must obtain the permission of the Treasury Secretary to establish any emergency lending program under section 13(3) and because the decision by the Treasury Secretary to allocate capital to a lending program constrains the size of the program given the 13(3) conditions, and allows the Treasury Secretary to condition the provision of capital on program terms that he judges acceptable, given his willingness to put the funds allocated at risk. Thus far, Treasury Secretary Mnuchin has indicated that he has only a limited tolerance for possible losses. In April, the Secretary noted that some of the Fed's programs would make money while others would lose money, but he indicated that, across the programs, "in a base case scenario...we recover our money." He added that "If Congress wanted me to lose all the money, that money would have been designed as subsidies and grants as opposed to credit support" (Davidson and Rubin 2020). At a subsequent Congressional hearing, however, the Secretary seemed somewhat more willing to risk taking losses, stating that "our intention is that we expect to take some losses on these facilities...That is our base case scenario" (Timiraos and Davidson 2020). Based on these comments, the Secretary appears to be willing to commit capital to a program with a modest probability of taking losses, but he appears averse to committing taxpayer funds to back a program that is highly likely to have significant losses. Given the riskiness of business lending, particularly to small and medium-sized firms, this aversion to losses places significant constraints on the design of a program to support such lending.

In part, expectations for losses on 13(3) lending programs in this crisis may reflect the outcome following the financial crisis of 2007-09. In that period, the Federal Reserve extended \$600 billion of loans under Section 13(3) of the Federal Reserve Act. All of the loans were repaid in full, with interest. As a result, the Fed actually made \$7 billion on its broad-based 13(3) lending programs (Fleming and Klagge, 2011).<sup>15</sup> For the Troubled Assets Relief Program (TARP), the government earned \$29.5 billion from its commitments of \$269.6

---

<sup>15</sup> Including non-13(3) lending via the discount window, the Term Auction Facility, the Single-tranche Repo Program, and the Central Bank Liquidity Swap Lines, the Fed made a total of nearly \$13 billion (Fleming and Klagge 2011, Table 2).

billion to financial firms and the credit market programs (Liang, McConnell, and Swagel, 2020).

However, the current situation is very different. In 2007-09, the main problem was a loss of confidence in the financial sector and a consequent run on virtually all forms of short-term wholesale funding. In such a situation, the Federal Reserve could, by committing sufficient funds, slow and ultimately reverse the runs, and as confidence returned, the loans made by the Fed would be repaid. By contrast, the current situation is characterized by a health crisis that is forcing workers to stay home and businesses to close. The result is a massive loss of revenue for many businesses that is likely to leave many of them insolvent once the health crisis passes. Because the Federal Reserve can only provide credit, and not transfers, there are many businesses that the Fed's programs cannot help. As a consequence, aggressive lending is likely to lead to significant losses in this case.

### **B. Information- and incentive-related challenges**

In addition to the legal and financial constraints on the Fed's 13(3) lending, a business lending program must be designed to address four information- and incentive-related challenges. First, there is the problem of asymmetric information. Borrowers have private information about their prospects—for example, their likely viability once the coronavirus has ebbed—that the Federal Reserve and Treasury do not have. For larger public companies, considerable information can be obtained at relatively low cost, but for smaller and medium-sized firms, there is little information that is publicly available. Banks, through their customer relationships and long experience underwriting business loans, can make well-informed judgements about the outlook for potential borrowers. By contrast, the Federal Reserve and the Treasury have little experience in this area, and so a business lending program that requires the Federal Reserve and the Treasury to do the loan underwriting is likely to have a high level of losses. As a consequence, it may be beneficial to design the program to incentivize banks to participate and provide the loan underwriting needed to limit risk.

However, using banks to do the underwriting of program loans could lead to a second problem involving the behavior of banks—adverse selection. Specifically, banks may have an incentive to keep lower-risk loans on their own books and only pass to the program those loans that are high risk. Within limits, such behavior is desirable since it should help provide additional credit to the intended firms. However, if the program design is not calibrated appropriately, banks may not have an incentive to limit the risk of the loans that are made under the program, imposing very high losses on the Fed and the Treasury without a compensating macroeconomic benefit. Moreover, if the spread on program loans is very wide, then only very risky borrowers will be willing to participate, which could also result in excessive losses.

Some program designs, perhaps responding to the possibility of adverse selection, could suffer from a third problem—poor targeting. In this case, the borrowers receiving loans under the program may be those that do not need the support to survive the health crisis and continue to operate. Instead, banks may make loans that they would have been willing to make without the program, but then pass them to the program to benefit from fees or



other incentives. While such loans would likely be low risk, and so would not impose significant costs on the Treasury, they could crowd out loans to the firms for which the program is intended, reducing its effectiveness.

Finally, even an effective business lending program undertaken during the coronavirus crisis could lead to subsequent moral hazard. The Federal Reserve has been very public for many years in its concern that outsized borrowing by lower-rated nonfinancial firms and associated excesses in the syndicated loan market were resulting in fragilities that would act as an accelerant in a downturn. If the Federal Reserve now provides significant ex-post support to firms and lenders that it has been criticizing, managers and investors could take the lesson that the Fed's warnings about financial stability risks can be dismissed and that ex-post support for imprudent risk taking will be forthcoming in future downturns (Federal Reserve Financial Stability Report, May 2019). The result would be greater risks to financial stability once the current crisis has passed. In addition, the Federal Reserve and Treasury may be concerned about reputational risk. Lending to already-highly leveraged firms could be subject to considerable public criticism, especially if there are large losses on loans to firms that had leveraged up to make payments to private-equity owners.

Of course, even highly leveraged firms have employees and suppliers, and so addressing the moral hazard problem by limiting lending to such firms would have macroeconomic costs. However, policymakers may judge that the larger, more leveraged firms are likely to have management with the skills and experience necessary to use the bankruptcy system to impose losses on creditors and continue in operation, making credit support less critical for such firms.

The Federal Reserve and Treasury may want to consider—or may be required to consider under the CARES Act—some other factors. For example, there might be social objectives, such as sustaining employment, that need to be incorporated into the program. In addition, to limit the need for government resources, borrowing firms could be required to limit dividends and share repurchases, and there could be constraints on executive compensation as well.<sup>16</sup> Such restrictions might make borrowers less willing to participate in the program, and employment requirements could slow a necessary reallocation of labor across sectors as a result of the health crisis. However, such restrictions might help with the targeting of program resources, since firms that were facing bankruptcy would presumably be willing to abide by the restrictions, while firms that could survive without a program loan would be less inclined to do so. Moreover, such restrictions may mitigate moral hazard concerns of helping borrowers that had taken on too much leverage before the pandemic.

#### **4. The three main policy options**

We describe three main options for a government program to support business credit, including how they can address the information and incentive problems noted above. We

---

<sup>16</sup> Whether the program is legally required to take account of these considerations under the CARES Act is not clear to us, and we have heard opinions on both sides.

also summarize, for comparison to the U.S., the programs put in place in the U.K. and Germany to respond to the coronavirus.

### A. Three main policy options

There are three main options: subsidies, such as provision of low-cost funding; guarantees to limit downside risk; and participation in loans by the central bank or government. The options differ in how they address the information and incentive challenges, so they may be more or less helpful in a given circumstance. (See a summary of factors in Table 3.)

**Table 3. Programs to Increase Lending**

	Option		
	Subsidy	Guarantee	Participation
<b>Helpful if bank lending is constrained by:</b>			
• <i>High funding costs</i>	Yes	No	No
• <i>Limited risk appetite</i>	Some	Yes	No
• <i>Balance sheet constraints</i>	Some	No	Yes
<b>Can address challenges caused by:</b>			
• <i>Asymmetric information</i>	Yes	Partially	Partially
• <i>Adverse selection</i>	Yes	Partially	Partially
• <i>Targeting</i>	No	Requires calibration	Requires calibration
• <i>Moral Hazard</i>	Yes	Requires calibration	Requires calibration

#### **Option 1: Subsidies**

The central bank or other government entity can encourage business lending by providing lenders with a subsidy for such loans. A simple way to do this is to provide low-cost funding in return for new lending to businesses. An example of such a program is the “Funding for Lending Scheme” that the Bank of England established in 2012. Under the program, banks, in effect, received low-cost funding from the Bank of England, with the amount of funding and its pricing depending on the amount of new lending to U.K. businesses and households

by the bank.<sup>17</sup> The Fed could provide a similar incentive for business lending in the current crisis by offering longer-term, low-cost financing to banks, with the amount of funding available to each bank, and perhaps its pricing as well, depending on the amount of a bank's lending to targeted firms—for example, U.S. businesses with fewer than 15,000 employees.

Such a program would help to internalize the positive externalities of such loans. For an unchanged loan interest rate, the lower funding costs would give banks a larger spread on loans, and that would provide extra compensation for risk-taking or increasing balance sheet size. A program along these lines is likely to be more useful if bank term funding spreads are high, either because term funding markets are stressed, or banks are viewed as weak. In such a case, the provision of low-cost central bank funding in return for new business loans could greatly reduce the marginal cost of such lending, and so have a significant effect on loan rates and banks' willingness and ability to provide loans.<sup>18</sup> On the other hand, if the banking system is generally seen as healthy, and banks can obtain wholesale term funding at low cost, then the program presumably would be less effective. Nonetheless, the central bank could still encourage lending by providing longer-term funding at a low rate—perhaps at the policy rate, as the Bank of England is doing (see below). A reliable source of stable, low cost funding should increase banks' willingness to provide longer-term loans to businesses.

Under such a program, banks would continue to do the underwriting for their loans, and the loans would remain on their books, with the banks responsible for any losses. As a consequence, the central bank would not have to worry about asymmetric information or adverse selection. In addition, unless the subsidy were very large, it seems unlikely to lead banks to provide loans to firms with very high leverage and risk, mitigating potential moral-hazard problems. The central bank could also decide on the size of the program and so could control the cost of the subsidy.

However, a funding for lending program may not target the assistance very well. For example, if the low-cost funding is available for all small and medium-sized enterprise (SME) loans, banks may choose to lend more at lower rates to relatively safe firms that would have gotten loans in any case. The firms that were not getting credit, and which need loans to survive the crisis, might still be seen as highly risky—particularly given the banks' existing exposures to coronavirus risk—or as generating an undesirable increase in balance-sheet size. One way to improve targeting would be to base the amount of low-cost funding on a more narrowly targeted set of firms, for which credit is critical for firm survival. However, efforts to target the program in such a way would run into the asymmetric information problem—the central bank does not have the information needed to identify such firms. As discussed below, the Bank of England and the ECB have provided low cost funding to banks to increase lending to SMEs, but have not tried to target their programs more narrowly, presumably on the view that an overall increase in SME lending should lead to some increase in lending to firms that would not have received loans otherwise.

---

<sup>17</sup> The banks actually received secured loans of government securities, which they could then use to obtain funding in the repo market. See Churm and Radia (2012) for details. Churm, et al. (2015) provide evidence on the macroeconomic effects of the program.

<sup>18</sup> For evidence on these effects, see Havrylchuk (2016).

### **Option 2: Guarantees**

Business lending could be encouraged by providing, in return for a below-market fee, a guarantee that limits the downside risk to the lender. For example, the Treasury could guarantee repayment of at least 80 percent of the loan amount, leaving the lender responsible for only the first 20 percent of losses.<sup>19</sup> Such a guarantee would encourage banks to make loans that are riskier than those they would otherwise make. In the current crisis, banks may be particularly concerned about tail risks, in which the virus has larger and more protracted economic effects. By limiting the maximum loss on additional loans, the guarantee would make banks more willing lenders. However, if bank lending were limited by balance-sheet constraints, guarantees would be less helpful, since the loans would remain on banks' books.<sup>20</sup>

Guarantees could be structured to address the information problems raised by lending programs, though the problems would remain. So long as the first-loss position retained by the banks was sufficiently large, banks would still need to do loan underwriting. As a result, a guarantee program would help address the asymmetric information problem, since banks would have an incentive to use the information they have on the riskiness of borrowers when approving loans. Similarly, banks with a first-loss position would have an incentive to avoid loans that had a high probability of default, limiting the adverse selection problem. However, there could still be some adverse selection, since banks might make loans that had a high risk of very adverse outcomes, since their downside risk would be capped by the guarantee.

Given the limited information available to the central bank, targeting a guarantee program correctly would be a challenge. If the guarantee fee were set too low, then banks would have an incentive to make too many risky loans to firms that are unlikely to survive the crisis. The result would be very high expenses for the government, without a commensurate macroeconomic benefit. In addition, providing low-cost guarantees for loans to risky, leveraged firms could encourage moral hazard after the recovery gets underway. However, excessively high fees would also be a potential problem, since they would discourage use of the program, and so not help provide credit to the firms that need it.

### **Option 3: Participations**

The final option is for the central bank to take some or all of the business loans onto its own books through purchases of loan participations. Under this arrangement, banks would make the loans and sell a portion (perhaps even all) of each loan to the central bank, and in return banks would receive fees for originating and servicing the loans. This approach would allow the program to provide credit to businesses while harnessing the banks' information and underwriting advantages. It would also remove the portion of the loan purchased by the program from the bank's balance sheet, directly addressing limits on lending due to balance

---

<sup>19</sup> The Federal Reserve would find it difficult to provide such a guarantee given the legal constraints on Section 13(3) lending.

<sup>20</sup> In the case of a partial guarantee, the remaining portion of the loan would still be included in the calculation of the risk-weighted capital ratios. And even with a 100 percent guarantee, the loan would count toward the leverage ratio, unless the banking agencies provided a temporary exception.

sheet constraints. However, by leaving a *pari passu* share of the loan on the banks' books, participations may not address limits on lending that reflect banks' concerns about risk since the portion of the loan that the bank retains would have the same risk characteristics as the entire loan and would have to meet the bank's underwriting criteria. Of course, the program fees—either up-front origination fees or servicing fees paid over the life of the loan—would encourage risk-taking and increase lending. Up-front fees would, in effect, provide additional capital to support the lending, while fees paid over the life of the loan would boost the effective risk spread on the loan.

A participation structure would help address some of the information problems noted earlier. So long as the lending banks retain a significant enough portion of the loans, they will have an incentive to do careful underwriting, reducing the asymmetric information problem. Indeed, because they are taking a vertical slice of the loan, their underwriting incentives are not affected by the program except as a result of the fees provided. And, so long as the sale of the participation to the program is made at the time of the loan, this structure should also help limit the adverse selection problem, since banks will retain the risk on the part of the loans they keep. Vardoulakis (2020) argues that when banks provide important monitoring services, offering them an option to retain a higher share of the loan can reduce adverse selection to the central bank, though the welfare gains are modest relative to a constant risk retention share. In contrast, if banks sell the entire loan to the program, as suggested recently by Hubbard and Scott (2020), then the bank would have no incentive to underwrite the loans to limit risk.

Even if banks retained a portion of the loans, policymakers might be concerned that the program would not provide a sufficient incentive for banks to perform appropriate underwriting and limit adverse selection. If so, the program could impose a minimum set of underwriting standards for eligible loans. However, such standards would require borrowers to satisfy two sets of underwriting criteria, one set by the program and the other by lending banks. The two sets of underwriting criteria could excessively limit the set of eligible business loans, suggesting that the standards set by the program be kept relatively simple, so as not to overly constrain the program.

Stein (2020) suggests an additional structural element to help address the asymmetric information and adverse selection problems: extending program loans in several tranches over time. The program would start by making relatively small loans, and then provide additional credit contingent on how the borrower's situation evolves, as well as incoming information on the coronavirus. So, firms that had particularly large losses might not get additional credit, since they would be unlikely to emerge from the crisis as a viable firm unless they received transfers from the government. This tranching approach would allow the government to set easier *ex ante* underwriting standards while still limiting the government's exposure to loss. Stein also proposes the use of less-senior claims, such as preferred stock, to reduce potential debt-overhang post crisis, with the program taking warrants to gain some upside to compensate for the increased risk. That approach could have benefits, but the Federal Reserve can only lend, not purchase stock. Moreover, the

resulting equity stakes would be difficult for the government to exit in the case of small-to-mid-sized businesses, which generally do not have preferred stock.<sup>21</sup>

## **B. Approaches employed in other countries**

Many countries are facing similar issues related to the effects of the coronavirus on firms' revenues and the consequent need to ensure the availability of credit. While a complete catalog of the approaches that have been taken would be well beyond the scope of this paper, it is interesting to consider some of the approaches taken in other jurisdictions. For example, the approaches in the U.K. and Germany are broadly similar but differ substantially from those taken in the United States. In both of the European countries, the focus has been on providing loan guarantees and low-cost funding, with relatively little use of participations.

In the U.K., the British Business Bank, a government development bank, is providing guarantees of new loans to small and medium-sized businesses. (See table A1.) There is a 100 percent guarantee of smaller loans (based on 2019 turnover, but limited to £50,000), and an 80 percent guarantee of larger loans. Borrowers must be British firms, and there are limits on loan maturity as well as on the payment of interest and fees in the first year. The British Business Bank also has a program offering convertible loans that is aimed at newer, faster-growing firms. That program will match private funds raised now, and the loan converts to equity when the firm next raises equity finance.

In Germany, the bulk of the support is in the form of loan guarantees provided by the government development bank, KfW, under several separate guarantee programs. (See table A2.) In addition, both the federal government and state governments have other assistance programs. The KfW provides guarantees to lending banks for 100 percent of the loan amount for smaller loans (limited based on 2019 turnover, but as much as €800,000) and generally for 90 or 80 percent for larger loans. Borrowers must satisfy some broad criteria—e.g., operating in Germany and not having been already troubled prior to the coronavirus crisis. Some loan terms are set by the programs (e.g., maximum maturity and interest rates), and there are significant restrictions on the borrowing firms, including limits on executive compensation, limits on the ability of firm to pay dividends, and limits on capital distributions. In addition to the guarantee programs, the KfW also has a program under which it will purchase participations in large, syndicated loans.

While these programs have not been undertaken by the central bank, in both jurisdictions the central bank has also taken steps to support lending to businesses. In the U.K., the Bank of England and the Treasury have opened a COVID Corporate Financing Facility under which the Bank will purchase eligible commercial paper in the primary and secondary market, including from middle-market firms that have not previously issued commercial paper, on terms comparable to those prior to the crisis, and with maturities of up to a year (Bank of England 2020a). In addition, the Bank of England is providing low-cost funding to banks through its "Term Funding Scheme with additional incentives for SMEs." The program offers

---

<sup>21</sup> A possible way to benefit from something like a warrant in the case of small firms would be to require the firm to agree to a higher income tax rate starting a few years after the health crisis ends. The firms that survive and are operating at that time would, in effect, be paying a share of their income to the Treasury. (See Hanson, Stein, Sunderam and Zwick [2020] for a discussion of such a plan.)

banks low-cost, four-year funding based on the amount of new lending provided to U.K. businesses, with the amount of lending to SMEs given extra weight in the calculation of the amount of and rate on the central bank funding (Bank of England 2020b). Given the very low level of market rates, the Bank of England concluded that some banks might find it difficult to reduce deposit rates in line with market rates, so term funding at low rates would help banks to offer lower-cost term loans to their customers.

In Germany, banks are eligible for the European Central Bank's Targeted Long-term Refinancing Operations (the TLTRO III program). Under this program, banks can receive low-cost funding (with rates as much as 50 basis points below the ECB's deposit rate, so -100 basis points) depending on their lending behavior. In addition, the ECB has eased its collateral rules to help ensure that banks have the collateral that they need to take advantage of the TLTROs. The collateral-easing measures include allowing banks to use SME loans as collateral, among other assets, thereby providing low-cost funding that banks can use to finance additional SME lending (Lane 2020).<sup>22</sup>

## 5. What was done: The Main Street Lending Program

In contrast to the British and German subsidy and guarantee programs, the Main Street Lending Program is a participation program. Under the program, the Federal Reserve has established a special purpose vehicle (SPV) that will purchase 95 percent participations in eligible loans. The Treasury has provided \$75 billion of capital to support up to \$600 billion of loans purchased by the SPV. The MSLP consists of three facilities—the New Loan Facility, the Priority Loan Facility, and the Expanded Loan Facility—open to borrowers that are U.S. businesses with 15,000 or fewer employees, or annual revenue of \$5 billion or less.<sup>23</sup>

The three facilities are structured to address the funding needs of different types of firms, and they offer different loan sizes and leverage limits. (See Table 4 for a summary). The New Loan Facility is aimed primarily at small and medium-sized businesses that do not already have high levels of debt. The minimum loan size in this facility was lowered recently to \$250,000 from \$500,000 in April, and from \$1 million in March, and the maximum leverage is four times 2019 earnings before interest, taxes, depreciation, and amortization (EBITDA). The Expanded Loan Facility is aimed at larger firms that may already have significant debt outstanding in the form of syndicated loans. The program can allow very substantial loans (raised recently to \$300 million) to be made to “upsized” an existing loan agreement. Given the relatively high debt levels of such firms, the maximum level of leverage in the facility is six times EBITDA. The Priority Loan Facility is aimed at small and medium-sized firms that may have larger debt than those using the New Loan Facility, and the loans can be used to refinance existing credit to another lender as well as to increase borrowing. The maximum loan size is \$50 million, higher than \$35 million in the New Loan Facility, and the maximum leverage is higher (again, six times EBITDA).

---

<sup>22</sup> In addition, the ECB has introduced Pandemic Emergency Longer-term Refinancing Operations to provide a bridge to the periodic TLTROs (Lane 2020).

<sup>23</sup> On July 17, the Federal Reserve announced Main Street programs for not-for-profit entities. Those programs are not considered here.

Somewhat surprisingly, the terms on the loans under the three facilities are quite similar, despite the very different types of borrowers and loans that are covered. Notably, in all three cases, the borrower pays a rate of LIBOR (one month or three months) plus 300 basis points, and the maturity of the loan is five years, despite the large differences in loan size and maximum debt coverage ratio requirements. Interest payments are deferred for the first year, principal amortization is deferred for the first two years, and repayments of principal starting in year three are in similar proportions across the facilities. The origination fee for the New and Priority Loan programs is 100 basis points, but it is only 75 basis points for the Expanded Loan Facility, presumably reflecting the larger size of the loans under that program.

The facilities are designed to address the four challenges noted earlier. Because the banks keep a five percent share of each loan on their books, they have an incentive to do careful underwriting, limiting the asymmetric information problem faced by the Federal Reserve and the Treasury. The retained share also limits adverse selection, since banks cannot avoid a portion of any losses on loans under the MSLP. However, the share of credit risk banks must retain does not vary by loan risk, suggesting there is no more protection to the Fed and Treasury from this source where it is needed more. Under the Expanded Loan Facility, which allows the largest and most leveraged loans, there is a limit of 35 percent of the total credit of which the loan is a part, which provides an additional significant incentive for the bank to take careful account of risk.

Adverse selection is also addressed by the minimum underwriting criteria that the MSLP imposes. Borrowers must have been healthy at the end of 2019, as judged by the lender's internal rating of existing credits at that time, and they must certify that they believe that they are able to meet their financial obligations and not file for bankruptcy for at least 90 days. Borrowers must commit to not using the loan to voluntarily repay other debts before the MSLP loan is repaid, and that they will not seek to cancel other credit lines over that period. Borrowers also must limit executive compensation, dividends, and capital distributions while the loan is outstanding. In addition, lenders under the program must be a regulated U.S. depository institution or a U.S. branch or agency of a foreign banking institution. In either case, the participating lenders would be subject to supervision by the U.S. banking agencies, and so their operations and incentives should be relatively well understood. Moreover, the lending banks cannot request early repayment of other debts during the life of an MSLP loan, and they cannot cancel or reduce any existing loan commitment or line of credit over the same period.

These program features also help to address some of the constraints on the Fed's 13(3) lending authority. In particular, the incentives for bank underwriting and the minimum underwriting criteria help ensure that the borrowers are solvent. In addition, the Fed is secured by the SPV collateral and the Treasury capital—presumably to its satisfaction—and the Treasury backing should help protect taxpayers from losses.

Further, the underwriting requirements help to limit the risk of loss to the Treasury. As noted earlier, the extent to which the Treasury is willing to take on such risk depends on the Treasury Secretary's risk tolerance, and the Secretary has suggested only a limited willingness to take losses on the CARES funds. The actual outcome will depend in part on the



calibration of the MSLP. Under the program, the SPV will receive fees from the banks for purchasing the 95 percent participations, as well as 95 percent of the spread income on the loans (less the servicing fees paid to the bank) over the life of the loan. This income will help to offset losses on the loan portfolio. If the fees and spreads are too low relative to the losses on the loans, the Treasury could lose money. On the other hand, if fees or spreads are too high, the Treasury would earn money on the program. However, the gains and losses are not the measure of program success, which must take account of the aid provided to the intended firms.

In that regard, the program terms should also help target the credit to businesses that are neither so strong that they do not need the assistance nor so weak that they are likely to fail. As we note below, strong firms will not find the pricing attractive, since they are likely able to borrow at a spread less than 300 basis points. Such firms also will not want to accept the constraints the program imposes on dividends and capital distributions. In addition, the MSLP requires that borrowing firms must make “commercially reasonable efforts” to maintain employment and payroll during the life of the loan, a constraint that stronger firms would likely choose to avoid, given uncertainty about what compliance would entail and the potential need to restructure some of their operations in response to the economic fallout from the virus. Conversely, very weak firms will likely not satisfy the requirements of the program (such as the limits on leverage), helping to limit the program to borrowers most likely to benefit from a loan.

**Table 4. Main Street Lending Program Terms**

Facility	Intention	Terms
Main Street New Loan Facility	Supporting new loans to businesses that are small or medium-sized and which have low levels of debt. (Thus, the loan sizes are relatively modest, and leverage is limited.)	<ul style="list-style-type: none"> <li>• Five-year maturity, rate of LIBOR+300 bps (LIBOR is one or three months). Origination fee of up to 100 bps.</li> <li>• Size limited to between \$250,000 and \$35 million, with a limit on total leverage of 4x 2019 EBITDA. Any outstanding loan has an internal risk rating of “pass.”</li> <li>• No interest or principal payments in the first year. Required minimum amortization of 15 percent, 15 percent, and 70 percent in years three to five, respectively.</li> <li>• Limits on executive compensation, dividends, and distributions of capital.</li> <li>• Loan not used to voluntarily repay other debt.</li> <li>• Borrower must make “commercially reasonable efforts” to maintain employment and payroll.</li> <li>• Bank participation five percent.</li> <li>• Bank pays SPV 100 bps of principal amount and is paid 25 bps of principal per annum for servicing.</li> </ul>
Main Street Expanded Loan Facility	Supporting increases in loans to businesses that are larger and already have significant debt. (Thus, loan sizes are considerably larger, and allowable leverage is higher than in the New Loan Facility.)	<p>Same as the New Loan Facility, except:</p> <ul style="list-style-type: none"> <li>• Origination fee of up to 75 bps.</li> <li>• Size limited to between \$10 million and \$300 million, with a limit on total leverage of 6x 2019 EBITDA.</li> <li>• Size also limited to 35 percent of the borrower’s debt that is <i>pari passu</i> with the participation.</li> <li>• Minimum amortization of 15 percent, 15 percent, and 70 percent in years three to five, respectively.</li> <li>• Bank participation five percent</li> <li>• Bank pays SPV 75 bps of principal and is paid 25 bp of principal amount per annum for servicing.</li> </ul>
Main Street Priority Loan Facility	Supporting new loans to businesses that are small or medium-sized but may already have significant debt. (Thus, the loan sizes are relatively modest, but allowable leverage is higher than in the New Loan Facility.)	<p>Same as the New Loan Facility, except:</p> <ul style="list-style-type: none"> <li>• Size limited to between \$250,000 and \$50 million</li> <li>• Limit on total leverage is 6x 2019 EBITDA.</li> <li>• The loan can be used to refinance existing debt owed to another lender.</li> </ul>

Finally, the program is designed to limit moral hazard by excluding loans to firms that had excessive levels of leverage prior to the pandemic. As noted earlier, the Federal Reserve has emphasized for some time that excessive leverage in the nonfinancial business sector is a potential risk to the economy because a business downturn caused by other factors could be reinforced by a wave of failures and bankruptcies by highly leverage firms. In the interagency guidance on leveraged lending in 2013, the federal banking agencies noted that “a leverage level after planned asset sales...in excess of 6X Total Debt/EBITDA raises concerns for most industries” (Federal Reserve 2013). Thus, it seems appropriate that borrowers under the MSLP be required to have a debt to EBITDA ratio of no more than six, even after receiving the program loan. The program’s limits on compensation, dividends, and share repurchases for borrowers also may serve as an offset to future incentives to increase leverage.

## **6. Will the MSLP be successful?**

The success of the MSLP will be measured ultimately by whether more loans are made to borrowers in need, with future losses consistent with Federal Reserve and Treasury constraints and preferences. Thus, a program with very few loans would not be successful since its terms were presumably too restrictive to generate the social benefits of preserving firms. However, a program with lots of loans but large losses for the Treasury and the Federal Reserve would also be a failure, given that the Treasury has indicated a desire to limit losses.

### **A. Will borrowers be helped?**

The MSLP makes loans, not government transfers. Not all firms that have lost business because of the pandemic will be helped with a loan that increases its total debt burden, whereas all firms that receive transfers to cover some of their lost revenue will be helped. But loans can be structured so the additional debt is not overly burdensome. In particular, loans with longer maturity, lower rates, and deferred payments would make them more equity-like. The MSLP loans have a few of these characteristics.

For all three programs, the loans are five-year maturity, with interest payments deferred for the first year. Principal payments are deferred for two years, and the bulk of the repayments—70 percent—come only in the final year. These terms are helpful because they allow the firm more time for recovery. Indeed, the Federal Reserve recognized potential benefits to borrowers of more “equity-like” features when it lengthened maturities and pushed back amortization to the current periods in changes announced on June 8 (Federal Reserve 2020c).<sup>24</sup>

However, the loan rate of three-month LIBOR+300 basis points is the same for the three programs, despite significant variation in minimum loan sizes and maximum leverage ratios. A common spread is not consistent with market practices and appears expensive for lower-risk borrowers. In particular, spread data on C&I loans by commercial banks and on institutional leveraged loans available for transactions in mid-2017 (the latest data available from the Fed’s Survey of Terms of Business Lending, or STBL) suggest substantial variation

---

<sup>24</sup> The originally proposed maturity of the loans was four years, with one year of deferred interest and principal payments.

across size and credit rating (Table 5). For C&I loans by large domestic banks, with an average size of \$593,000 and a risk rating of 3.1, the average spread in mid-2017 was 2.13 percent (a rate of 3.43 percent).<sup>25</sup> The spread for low-risk loans was lower, 1.61 percent, and for loans below \$1 million, 2.50 percent. All of these spreads are lower than the 300 basis points for the Main Street program. At their previous recession peak in 2010 following the financial crisis, C&I loan spreads reached 3.17 percent, and were above 300 basis points for moderate risk loans and smaller loans.<sup>26</sup> These data suggest that a 300 bp spread is much closer to a peak recession spread than a spread in more normal times and is high for low-risk, and even moderate-risk, firms, except at their cyclical peak, suggesting the program will not attract higher-quality borrowers. This pricing is unlike the more favorable terms offered to investment-grade corporations, where the PMCCF will purchase new issues at market rates, and the SMCCF purchases bond ETFs or single-name bonds in order to reduce risk spreads on outstanding bonds, which then should reduce the rate on bonds purchased in the PMCCF.

**Table 5. Spreads on C&I loans and institutional leveraged loans, by risk and size, 2010 and 2017**

	2010:Q4 (%)	2017:Q2 (%)
<b>Average C&amp;I loan</b>		
2010 loan size \$447,000, Risk rating 3.2	3.17	
2017 loan size \$593,000, Risk rating 3.1		2.13
<b>Risk</b>		
Low	2.47	1.61
Moderate	3.24	2.18
<b>Size (\$Thousands)</b>		
100 to 1,000	3.60	2.50
1,000 to 10,000	2.95	2.07
<b>Institutional leveraged loans</b>		
BB/BB- rating	4.00	2.50
B+/B rating	5.50	4.00

*Source: For C&I loans, large domestic banks, Survey of Terms of Bank Lending, Federal Reserve Board. For institutional leveraged loans, S&P Global, Leveraged Commentary & Data, as reported in the Federal Reserve Board Financial Stability Reports. Spreads are relative to three-month LIBOR.*

<sup>25</sup> The category “moderate risk” represents the average loan under average economic conditions at the typical lender. The risk rating is calculated by assigning a value of 1 to minimal risk loans, 2 to low risk loans, 3 to moderate risk loans, 4 to acceptable risk loans, and 5 to special mention and classified loans.

<sup>26</sup> The STBL was discontinued in May 2017. A new survey was started for small business loans—Federal Reserve Bank of Kansas City (2020). However, the loans covered in that survey are much smaller than those that had been included in the STBL. For example, the average C&I loan offered by domestic commercial banks in the STBL in the May 2017 survey was \$491,000, while the average loan size in 2017:Q4 in the new survey for a new fixed-term loan was \$93,000 and for a new variable-term loan was \$160,000. Loan spreads on new fixed-term loans ranged from 3.2 to 3.9 percent between 2017:Q4 and 2019:Q4, reflecting their smaller size. No information is available in the new survey on the risk of the loans.

Note that spreads on institutional leveraged loans for below-investment-grade borrowers ranged on average from 250 basis points to 400 basis points, and this range would encompass the 300-basis-point spread for borrowers under the Expanded or Priority facilities. But again, the range is fairly large, suggesting that a common spread would be a disincentive for higher quality borrowers within this group to borrow from the program.

In short, the LIBOR+300 basis points spread on MSLP loans would not be attractive to less-leveraged middle-market firms that access credit mainly through banks. Rather, it appears attractive mainly for higher-risk borrowers and smaller loans. We believe that a bank with an existing customer that met the conservative debt limits under the New Loan Facility would find this spread to be high, and so would be willing to make a loan at this spread and keep it on its own books, suggesting that a narrower loan spread may be called for to support business borrowing and the continued operation of small-to-mid-sized businesses.

The leverage restrictions limit access by two types of borrowers. First, there are some smaller, high growth prospect firms with limited debt but also limited revenues. Such firms would exceed the 6x EBITDA constraint, but also would benefit more from an equity-like contract, such as a loan with an ability to extend the maturity. Second, there are firms that exceed the leverage constraint because they have issued substantial amounts of debt, and the program may want to exclude them for moral hazard or reputation risk reasons. That said, such firms may be significant employers, and their bankruptcy could be inefficient. In such cases, the Fed could establish a process to allow banks to make exceptions to the general underwriting guidance and lend to such firms under the program, so long as the bank agreed to retain a larger share of the loan, such as 15 or 20 percent, in order to ensure that the bank was comfortable with the credit. Indeed, when the Priority Loan facility was introduced in April, it allowed higher leverage than the New Loan facility in return for a higher bank participation share. This tradeoff was eliminated in the revised terms issued in June. But policymakers should monitor closely whether the program could be more effective in serving the needs of borrowers and the economy if higher leverage could be accommodated. If so, the higher leverage should be accompanied by an increase in bank retention share to limit risk, and moral hazard concerns could be mitigated by the limits on dividends, buybacks, and compensation.

Some prospective borrowers may also be concerned about the stigma associated with taking a government-supported loan when it is not designed to be used broadly and offered on favorable terms. In addition, the restriction on retaining employees may hinder the ability of borrowing firms to make necessary adjustments to their business practices to remain viable in a post-COVID environment, and thus limit demand. Moreover, lack of clarity about how compliance with this requirement will be measured could make borrowers less willing to use the program.

## **B. Will banks participate given the terms that have been established?**

We outlined above three ways to incentivize banks to lend more, by a funding for lending subsidy, a guarantee, and a participation such as in the MSLP. The ability to sell 95 percent of the loan to the SPV should help if the main impediment to lending to the intended beneficiaries is balance-sheet capacity. If the main impediment to bank lending is limited risk

appetite, however, rather than balance-sheet pressures, it isn't clear that the MSLP will get much use because the bank needs to retain some of the loan, and even if only five percent, it will apply its own underwriting standards to the loan.

Which is it? Banks' responses to the July 2020 Senior Loan Officer Opinion Survey show that 70 percent of domestic banks surveyed, on net, had tightened lending standards for firms of all sizes (Figure 2 above). Moreover, they indicated that reduced tolerance for risk was a more important factor than a bank's current or expected capital position. In particular, the survey shows that banks attributed the changes to increased uncertainty about the outlook, a worsening of industry-specific problems, and a reduced tolerance for risk. Only relatively few banks indicated that a deterioration in their bank's current or expected capital position had played a significant role.<sup>27</sup>

Thus, the current program, which is more effective in addressing balance-sheet constraints than concerns about loan risk, may not give enough encouragement to banks to participate. However, while banks may want to avoid lending to riskier firms on their own, the fees on MSLP loans should make them more willing to do so. For example, under the New and Priority Loan Facilities, banks extend only five percent of the loan, but they receive an origination fee of up to 100 basis points of the loan, and then a servicing fee of 25 basis points of the remaining 95 percent of the loan each year. Thus, the total fees paid to the banks are more than 40 percent of the portion of the loan that the banks retain—a significant incentive to lend to firms that may benefit from the credit but are not strong enough to obtain loans directly from the bank.

Banks also may be less willing to participate if there is uncertainty about the costs associated with workouts of loans to defaulting borrowers. The program requires that the banks, which have considerable experience in managing troubled loans, will be responsible for any workouts. Thus, in evaluating participation in the program, banks will need to take account of the likely costs they will incur in the case of loan defaults. One problem with this approach, however, is that banks may view the workouts as too burdensome, or they may be concerned that in situations where loan losses are high, they will face large workout costs that they will find hard to manage. In such situations, banks also may face funding pressures and so may be inclined to limit workout costs by moving quickly to close defaulting firms. By contrast, the Fed and Treasury do not face funding pressures, and they can take account of the social benefits to keeping firms going during the recovery and avoiding liquidations—hence they would be inclined to be more flexible in workouts. To encourage the banks in this regard, the Fed and Treasury could pay higher servicing fees for delinquent loans, particularly in periods of generally high loan delinquencies, which would encourage more loan originations and more efficient workouts.<sup>28</sup>

---

<sup>27</sup> Of course, banks may be wary of reporting concerns about their capital positions on a Federal Reserve survey—even in the global financial crisis, when many banks faced severe capital pressures, survey respondents pointed primarily to higher risk and decreased risk tolerance as the reasons for tighter lending standards.

<sup>28</sup> An alternative approach would be to use the SPV or a separate “resolution” SPV to manage the troubled loans on behalf of the Federal Reserve and Treasury and enter into loss-sharing arrangements with the banks. This

## 7. How to make the MSLP more effective

The design of the MSLP is challenging since it is a new program being introduced in an entirely novel situation. The Fed has already made two sets of adjustments to the original proposal based on more than 2,200 comment letters and other feedback from potential borrowers and lenders. Nonetheless, at least thus far, the Main Street program has not gotten significant use. One obvious possibility is that the intended firms have not—at least yet—chosen to borrow to address the slowdown caused by the coronavirus. It is hard to disentangle whether such choices reflect unattractive loan terms or simply a limited need to borrow at this stage. As we have noted, some businesses may have resources to draw on before they need to borrow, and other businesses may need capital rather than loans. That said, a survey by Bartik, et al (2020) of 5,800 small businesses during the week of March 28 to April 4, 2020, suggests that there may be significant demand for loans if the terms are attractive enough. In particular, when offered a loan with a portion that could be forgiven, similar to the loans provided under the PPP program, 72 percent of surveyed businesses said that they would be interested. And even when offered a similar loan but without any possibility of forgiveness, a majority of businesses (59 percent) still indicated that they would be interested.

Since there is likely to be a demand for credit by some of the targeted firms, we believe the program's limited use reflects terms and conditions that are not sufficiently attractive for either lending banks or firms. To address these possibilities, we recommend that the Federal Reserve and the Treasury consider three types of changes to the program.

First, use of the MSLP may be limited because banks do not find that the participation structure effectively addresses the problems posed by the risk of new loans. Instead it addresses balance-sheet constraints, which banks indicate are not currently binding. To make banks more willing to participate:

- The government should increase program fees, giving banks a larger part of the spread on the entire loan, to provide greater compensation for the risk that banks retain. The government could even pay a higher fee to banks that do more lending under the program; this additional incentive for greater program use would be similar in spirit to the approach taken to reward lenders for more SME lending in the Bank of England's term funding scheme.
- To address possible concerns about the costs associated with a higher than usual level of loan workouts, the program could also pay higher servicing fees for delinquent loans, particularly in periods of generally high loan delinquencies, in

---

approach would help to align the incentives of those conducting the workout with the interests of the Federal Reserve and Treasury, and so could lead to better outcomes. Allowing for troubled loans to be pooled across the program also could increase returns, particularly if the troubled loans were ultimately securitized and sold. Hiring asset managers with skills in working out troubled credits could free the Fed and Treasury from those responsibilities, which require specialized skills and could be politically fraught. And, while it would take some time to contract with appropriate asset managers, there likely would be time because program loans do not require payments in the near term.

order to encourage banks to do loan workouts that are more efficient than those that only minimize the banks' short-term costs.

Second, since the set of firms that could benefit from the MSLP varies widely, from small private borrowers that have limited debt to very large, complex companies with significant debt, the terms of the program should be more flexible, allowing the loans to be better tailored to the risks and needs of the borrowers. Specifically:

- The terms for the New Loan facility should be eased relative to those for the Priority and Extended facilities, since the smaller firms that could borrow under the New Loan facility are likely simpler and less risky because of their lower leverage, and have fewer alternatives to avoid liquidation or inefficient bankruptcies. Thus, loan spreads for such borrowers should be recalibrated to reflect differences in credit quality across the three loan facilities.
- The minimum loan size for the New Loan and Priority Loan Facilities is \$250,000. If the Fed and Treasury find that there are many small firms that either cannot access the PPP program or require additional support, they should reduce the minimum loan size further. Such a change could also encourage smaller banks to participate in the program. The social costs of small business failures are high and could delay a recovery.
- The paperwork required for loans in the New Loan facility should be streamlined. Currently the borrower and lender certification requirements appear to reflect participation by large banks and large, complicated firms, which have the legal staff needed to comply with them. However, the smaller banks and simpler borrowers that might use the New Loan facility will likely find these certifications daunting.
- To prevent a hard deadline for debt repayment from causing the failure of firms that may need more time to reorganize and survive, particularly in the event of a protracted post-coronavirus recession, MSLP loans should have longer maturities and more delayed repayments of principal, but with incentives for firms to repay earlier if possible. Under the terms of the PMCCF, investment-grade and fallen angel firms can obtain credit for a five-year term with repayment only at maturity, so five-year loans with some amortization under the Main Street program seem less favorable to the borrowers. Another possible comparison is to SBA 7(a) loans, which can be extended for up to ten years.
- Maximum debt-to-EBITDA ratios have been set for each of the facilities, which helps to address adverse selection, targeting, and moral hazard concerns. However, there may be situations where borrowers exceed the limits, but banks believe that such lending would benefit the borrower and the economy. The current program does not allow for this type of flexibility, but policymakers could allow it in some situations, while requiring banks to retain a larger fraction of such loans to demonstrate their confidence in the credit and provide the Federal Reserve and Treasury with adequate protection.

Finally, the restrictions on borrowers under the program could be adjusted to reduce the stigma associated with the program and to allow borrowing firms to restructure their



operations in light of new supplier and customer behaviors in a post-COVID-19 economy. In particular:

- The Fed and Treasury should quickly clarify how the requirement that borrowers make “commercially reasonable” efforts to maintain employment will be assessed. Providing more clarity on what adjustments would be deemed reasonable would reduce uncertainty for businesses considering an MSLP loan and so encourage take-up. More broadly, if the dividend, compensation, and employment requirements imposed on borrowers are not legally required under the CARES Act, policymakers should consider whether they are appropriate or could be eased to encourage program use.

Of course, adopting some of these recommendations could worsen the adverse selection and moral hazard problems the program is designed to address, and they would also require the government to accept an increased risk of loss. However, since some of the other 13(3) programs (PDCF, CPFF, MMLF) are likely to make money, the Treasury could use gains on other programs to offset the risk of losses on the MSLP. The mutualization of the gains and losses across programs would effectively provide some room to increase the attractiveness of the MSLP. The Fed and the Treasury thus far have responded aggressively to reduce the harm of the coronavirus on the economy, but they may need to be even more aggressive to help small-to-mid-sized businesses that cannot access the PPP.

Policymakers also should be prepared to quickly turn to alternative approaches if a modified MSLP program still is not effective. Without changes to the CARES Act, the Federal Reserve could introduce a funding for lending program to reduce bank funding costs and encourage lending. This program could be done under the Fed’s existing authority in the Federal Reserve Act. While such a program might not have a large effect, it would be relatively low cost and, by leaving the loans on banks’ balance sheets, it would avoid many of the possible information and incentive problems associated with the MSLP.

There are more options if changes can be made to the CARES Act. For example, Congress could authorize a loan guarantee program to increase banks’ willingness to lend despite a limited risk appetite. Such a program could be structured like an expanded SBA 7(a) program, and it would be similar to the programs that have been introduced in some other countries. Alternatively, Congress could allow the Federal Reserve or the Treasury to purchase preferred stock, or even common equity, which would avoid the problems associated with debt overhang, and so allow support to be provided to many more firms. Finally, Congress could lift the prohibition on loan forgiveness contained in the CARES Act, allowing the Fed and Treasury to forgive loans if the effects of the coronavirus on borrowers turn out to be significantly larger than anticipated. Such forgiveness would effectively provide insurance against future shutdowns caused by the coronavirus and could support both banks’ willingness to lend and firms’ willingness to borrow.<sup>29</sup>

---

<sup>29</sup> Metrick (2020) outlines a possible structure for such a program.

## References

- Bank of England (2020a). "Covid Corporate Financing Facility (CCFF): information for those seeking to participate in the scheme." (<https://www.bankofengland.co.uk/markets/covid-corporate-financing-facility>).
- Bank of England (2020b). "Term Funding Scheme with additional incentives for SMEs (TFSME)," Market Notice, March 11. (<https://www.bankofengland.co.uk/markets/market-notice/2020/term-funding-scheme-market-notice-mar-2020>).
- Bartik, Alexander, Marianne Bertrand, Zoe Cullen, Edward Glaeser, Michael Luca, and Christopher Stanton (2020), "The impact of COVID-19 on small business outcomes and expectations," Proceedings of the National Academy of Sciences, July 10, (<https://doi.org/10.1073/pnas.2006991117>).
- British Business Bank (2020a). "Bounce Bank Loan Scheme." (<https://www.british-business-bank.co.uk/ourpartners/coronavirus-business-interruption-loan-schemes/bounce-back-loans/>).
- British Business Bank (2020b). "Coronavirus Business Interruption Loan Schemes and Future Fund." (<https://www.british-business-bank.co.uk/ourpartners/coronavirus-business-interruption-loan-schemes/>).
- Brunnermeier, Markus and Arvind Krishnamurthy (2020). "Corporate debt overhand and credit policy," Brookings Papers on Economic Activity, Conference draft, June.
- Census Bureau (2017). "Statistics of U.S. Businesses." (<https://www.census.gov/programs-surveys/susb.html>).
- Census Bureau (2020), Longitudinal Business Database. (<https://www.census.gov/programs-surveys/ces/data/restricted-use-data/longitudinal-business-database.html>).
- Churm, Rohan and Amar Radia (2012). "The Funding for Lending Scheme," Bank of England Quarterly Bulletin. Fourth Quarter. (<https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2012/the-funding-for-lending-scheme.pdf?la=en&hash=57B13A5C9E94B5D02A451670C8B013DD22CF16EA>).
- Churm, Rohan, Michael Joyce, George Kapetanios, and Konstantinos Theodoridis (2015). "Unconventional monetary policies and the macroeconomy: the impact of the United Kingdom's QE2 and Funding for Lending Scheme," Bank of England Staff Working Paper No. 542. August. (<https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2015/unconventional-monetary-policies-and-the-macroeconomy-the-impact-of-the-uk-qe2.pdf>).
- Davidson, Kate and Richard Rubin (2020). "Steven Mnuchin Says U.S. Aims to Get Back Its Money From Fed Programs," Wall Street Journal, April 29.

(<https://www.wsj.com/articles/mnuchin-says-u-s-not-aiming-to-lose-money-on-fed-lending-facilities-11588178749>).

Elliott, Justin, Lydia DePillis and Paul Kiel (2020). “The Trump Administration Says a New Bailout Program Will Help 35 Million Americans. It Probably Won’t,” ProPublica, May 14. ([https://www.propublica.org/article/the-trump-administration-says-a-new-bailout-program-will-help-35-million-americans-it-probably-wont?utm\\_source=pardot&utm\\_medium=email&utm\\_campaign=majorinvestigation&utm\\_content=river](https://www.propublica.org/article/the-trump-administration-says-a-new-bailout-program-will-help-35-million-americans-it-probably-wont?utm_source=pardot&utm_medium=email&utm_campaign=majorinvestigation&utm_content=river)).

Federal Reserve (2013). SR Letter 13-3. (<https://www.federalreserve.gov/supervisionreg/srletters/sr1303a1.pdf>).

Federal Reserve (2015). “Federal Reserve Board approves final rule specifying its procedures for emergency lending under Section 13(3) of the Federal Reserve Act,” Press Release, November 30. (<https://www.federalreserve.gov/newsevents/pressreleases/bcreg20151130a.htm>).

Federal Reserve (2017). Survey of Terms of Business Lending. (<https://www.federalreserve.gov/releases/e2/>).

Federal Reserve (2020a). “Section 13: Powers of Federal Reserve Banks.” (<https://www.federalreserve.gov/aboutthefed/section13.htm>)

Federal Reserve (2020b). Senior Loan Officer Opinion Survey on Bank Lending Practices, April. (<https://www.federalreserve.gov/data/sloos.htm>).

Federal Reserve (2020c). “Federal Reserve Board expands its Main Street Lending Program to allow more small and medium-sized businesses to be able to receive support,” Press Release, June 8. (<https://www.federalreserve.gov/newsevents/pressreleases/monetary20200608a.htm>).

Federal Reserve (various). *Financial Stability Report*. (<https://www.federalreserve.gov/publications/financial-stability-report.htm>).

Fleming, Michael J. and Nicholas J. Klagge (2011). “Income Effects of Federal Reserve Liquidity Facilities,” *Current Issues in Economics and Finance*, Federal Reserve Bank of New York, vol. 17(1). ([https://www.newyorkfed.org/research/current\\_issues/ci17-1.html](https://www.newyorkfed.org/research/current_issues/ci17-1.html)).

Federal Reserve Bank of Kansas City (2020). “Small Business Lending Survey.” (<https://www.kansascityfed.org/research/indicatorsdata/smallbusinesslendingsurvey>).

Hansen, Samuel G., Jeremy C. Stein, Adi Sunderam, and Eric Zwick (2020). Business Continuity Insurance: Keeping America’s lights on during the pandemic,” Chicago Booth IGM Forum. (<http://www.igmchicago.org/wp-content/uploads/2020/04/Business-Continuity-Insurance-20200408-FINAL.pdf>).

- Havrylchyk, Olena (2016). "Incentivising Lending to SMEs with the Funding for Lending Scheme, Some Evidence from Bank-level Data in the United Kingdom" OECD Working Paper No. 1365, December. (<https://www.oecd-ilibrary.org/docserver/a4352865-en.pdf?expires=1590771330&id=id&acname=guest&checksum=432DAA4CB7BCC04DFF03837647DAD93F>).
- Hubbard, Glenn and Hal Scott (2020). "Main Street Needs More Fed Help," Wall Street Journal, April 16, 2020. (<https://www.wsj.com/articles/main-street-needs-more-fed-help-11587055459>).
- Juenemann, Michael, Johannes Wirtz, and Pascal Leitmann (2020). "COVID-19: Germany Establishes Economic Stabilisation Funds" Bird and Bird report, April. (<https://www.twobirds.com/en/news/articles/2020/germany/covid-19-germany-establishes-economic-stabilisation-funds>).
- KfW (2020). "KfW coronavirus aid: loans for companies." (<https://www.kfw.de/inlandsfoerderung/Companies/KfW-Corona-Hilfe/>; Note that the links on the German-language page provide more detail on the programs than are available on the English-language pages.)
- Lane, Philip (2020). "The monetary policy response to the pandemic emergency," Blog Post, European Central Bank, May 1. (<https://www.ecb.europa.eu/press/blog/date/2020/html/ecb.blog200501~a2d8f514a0.en.html>).
- Liang, J. Nellie, Meg McConnell, and Phillip Swagel, 2020. "Evidence on the Outcomes from the Financial Crisis Response," in *First Responders: Inside the U.S. Strategy for Fighting the 2007-2009 Global Financial Crisis*, Bernanke, Ben S., Timothy F. Geithner, Henry M. Paulson, and J. Nellie Liang, Eds. New Haven, CT: Yale University Press, 2020.
- Metrick, Andrew (2020). "Proposal for Dual-Trigger Insurance + Loan (DTIL) Program," mimeo, Yale University, June 6.
- Miller, Marcus and Joseph Stiglitz, 2010. "Leverage and Asset Bubbles: Averting Armageddon with Chapter 11?" *Economic Journal*, vol. 120, pp 500-518.
- Mohsin, Saleha and Davide Scigliuzzo (2020). "Wall Street Doubts Fed's \$600 Billion Lending Plan Can Succeed," Bloomberg, June 6. (<https://www.bloomberg.com/news/articles/2020-06-06/wall-street-doubts-fed-s-600-billion-lending-plan-can-succeed>).
- PayNet. Small Business Delinquency Index. (<https://sbinsights.paynetonline.com/loan-performance/>).
- Ransom, Diana (2020). "Why the Fed's New \$600 Billion Lending Program May Get a Cool Reception," Inc Magazine, June 4. (<https://www.inc.com/diana-ransom/main-street-lending-program-credit-markets.html>).
- S&P Global. Leveraged Commentary & Data, as reported in Federal Reserve Board Financial Stability Report (various).

Small Business Administration (2020). "Paycheck Protection Program (PPP) Report," May 30. ([https://www.sba.gov/sites/default/files/2020-06/PPP\\_Report\\_200530-508.pdf](https://www.sba.gov/sites/default/files/2020-06/PPP_Report_200530-508.pdf)).

Standard and Poor's. 2018 Annual Global Corporate Default and Rating Transition Study.

Stein, Jeremy (2020). "An Evaluation of the Fed-Treasury Credit Programs," Bendheim Center webinar ([https://bcf.princeton.edu/event-directory/covid19\\_15/](https://bcf.princeton.edu/event-directory/covid19_15/)).

Timiraos, Nick and Kate Davidson (2020). "Powell, Mnuchin Outline Contrasting Perils Facing Economy," Wall Street Journal, May 19. (<https://www.wsj.com/articles/powell-mnuchin-set-to-face-lawmakers-over-crisis-lending-programs-11589880602>).

Vardoulakis, Alexandros P. (2020). "Designing a Main Street Lending Facility," Finance and Economics Discussion Series 2020-052. Washington: Board of Governors of the Federal Reserve System. (<https://www.federalreserve.gov/econres/feds/files/2020052pap.pdf>).

**Table A1: Summary of U.K. COVID-19 Business Credit Support Programs**

Source of Support	Type of Support	Eligibility	Terms
British Business Bank Bounce-back Loans	Guarantee	SMEs  (SMEs are defined as a business with fewer than 250 employees and either (a) a turnover of less than £44.45m or (b) a balance sheet of less than £38.22m.)	100 percent guarantee of loans of £2000 to the lesser of 25 percent of business turnover or £50,000. Loan term of six years, loan interest rate of 2.5 percent. No fees and no payments for a year. Government pays interest for the first year.
British Business Bank Business Interruption Loans	Guarantee	SMEs  (SMEs are defined as a business with fewer than 250 employees and either (a) a turnover of fewer than £44.45m or (b) a balance sheet of fewer than £38.22m.)	80 percent guarantee of loans over £50,000 and up to £5 million. No interest and fees for the first year.
British Business Bank Large Business Interruption Loans	Guarantee	Larger firms with turnover greater than £44.45 million.	80 percent guarantee of loans up to £25 million for firms with turnover from £44.45 million to £250 million and up to £50 million for those with turnover above £250 million. Term of up to three years. No interest and fees for the first year.
British Government Future Fund	Convertible loan	Newer, faster growing firms.	Bridge financing of between £125,000 and £5,000,000, matching private funds raised. Interest rate of eight percent for a maximum of three years.

			Converts to equity at the next funding round of the firm with a 20 percent discount.
Bank of England COVID Corporate Finance Facility (Joint program of the BOE and Treasury)	Primary and secondary market purchases of commercial paper	Firms that were investment grade prior to the crisis.	Terms comparable to those in the market prior to the crisis. Maturity of up to a year. Minimum purchase is £1 million. Maximum total purchase is £1 billion for large, highly rated firms.
Bank of England Term Funding Scheme with additional incentives for SMEs (TFSME)	Low-cost funding	British depository institutions.	Floating rate funding with a four-year term. Priced at Bank Rate, unless lending to British businesses and households declines, in which case it increases by as much as 25 bps. Quantity of low-cost funding depends on the level of lending to businesses and households in the UK, plus increases in such lending over a base period. Increases in lending to SMEs get a multiple of five in the calculation.

Sources: British Business Bank (2020a), British Business Bank (2020b), Bank of England (2020a), Bank of England (2020b).

**Table A2: Summary of German COVID-19 Business Credit Support Programs**

Source of Support	Type of Support	Eligibility	Terms
KfW Instant Loan (KfW backed by the German Government)	Guarantee of loan for investment or operating costs. (Loan can't be used to pay off other loans or to invest in other firms.)	German firms with more than 10 employees and positive profit in 2019 or on average over 2017-19. Firms not in troubled condition at the end of 2019.	100 percent guarantee of a loan of up to the lesser of €500,000 and 25 percent of 2019 turnover for firms with up to 50 employees, and the lesser of €800,000 and 25 percent of 2019 turnover for firms with more than 50 employees. Term is up to 10 years. Fixed rate, currently 3.0 percent. No underwriting by the bank. Limits on executive compensation, dividends, and distributions of capital.
KfW Startup Loan—Universal	Guarantee of loan for investment or operating costs. (Loan can't be used to pay off other loans or to invest in other firms.)	German firms in existence for three-to-five years. Firms not in troubled condition at the end of 2019.  (SMEs are firms with fewer than 250 employees and turnover of less than €50 million OR assets of less than €43 million.)	Guarantee of 90 percent of loans for SMEs and 80 percent of loans for larger firms. Maximum loan size of €1 billion (with other limits based on annual turnover, wage costs, debt, and financing needs). Term of up to 10 years. Fixed Rate, currently 2.0 to 2.12 percent. Limits on executive compensation, dividends, and distributions of capital.
KfW Entrepreneur Loan	Guarantee of loan for investment or operating costs.	Firms operating in Germany in existence for more than five years.	Guarantee of 90 percent of loans for SMEs and 80 percent of loans for larger



	(Loan can't be used to pay off other loans or to invest in other firms.)	Firms not in troubled condition at the end of 2019.  (SMEs are firms with fewer than 250 employees and turnover of less than €50 million OR assets of less than €43 million.)	firms. Maximum loan size of €1 billion (with other limits based on annual turnover, wage costs, total debt, and financing needs). Term of up to 10 years. Rate is based on risk. Current range is from 1.03 to 7.43 percent. Limits on executive compensation, dividends, and distributions of capital.
KfW Syndicate Loans	Participation in loan for investment and operating costs.	Firms operating in Germany with 50 or more employees. Firm can't be in default, and the bank must state that the firm can repay the loan.	KfW provides up to 80 percent of the loan, with a limit of 50 percent of the total debt of the firm. Minimum size of €25 million, with limits on size. Maturity of up to six years. Rate and other terms are the same as for the private lenders. Limits on executive compensation, dividends, and distributions of capital.
Economic Stabilization Fund (WSF)	Debt guarantees for up to 60 months	Troubled German firms that are two of: Assets over €43 million, revenues over €50 million, and 250 or more employees; and have experienced financial hardship as a result of COVID-19.	Total guarantees of up to €400 billion.
Economic Stabilization Fund (WSF)	Purchases of capital instruments	Troubled German firms that are two of: Assets over €43 million, revenues over €50 million, and 250 or more employees; and have experienced	Total investments of up to €100 billion.

		financial hardship as a result of COVID-19. There must be an important interest of the federal government in the stabilization of the company.	
ECB Pandemic Emergency Longer-term Refinancing Operations (PELTROs)	Low-cost funding	Euro area banks	Full allotment operations providing liquidity at a rate 25 bps below the rate on Main Refinancing Operations (currently -25 bps).
ECB Targeted Long-term Refinancing Operations (TLTROs)	Low-cost funding	Euro area banks	Rate on TLTRO III operations can be as low as -100 bps through March 2021. Banks will receive this low rate if their loans do not decline over the year.

*Note: The German government and the state governments also have programs to provide support to firms.*

*Source: KfW (2020); Juenemnn, Wirtz, and Leitmann (2020); Lane (2020).*