Chapter 3

Assisting Entrepreneurs and Workers through Aid to Businesses

The Coronavirus Aid, Relief, and Economic Security (CARES) Act, which was signed into law by President Trump in March 2020, has authorized unprecedented levels of financial support, providing much-needed relief to families and workers during the COVID-19 pandemic. The Federal Government has also implemented, through the CARES Act and additional means, several critical measures to support small businesses as they have weathered this unique and exogenous economic shock. With businesses facing a significant loss in revenue and demand as a result of stay-at-home orders and social distancing by households, the Trump Administration has taken decisive actions to keep small businesses afloat, thus far averting a swath of bankruptcies and a collapse of the financial system similar to the Great Recession.

In one of the CARES Act's most significant provisions to help American small businesses, the Paycheck Protection Program (PPP) authorized hundreds of billions of dollars in forgivable loans to boost the retention of employees and preserve the relationships between employers and their workers. This program was successful in targeting the small businesses that needed loans the most; 5.21 million small businesses and nonprofit organizations received a loan, and the vast majority of loans went to small businesses and organizations with very few employees. Estimates find that the PPP has saved or supported tens of millions of jobs.

In addition to the PPP, the CARES Act funded several measures to provide liquidity to businesses in the midst of this economic shock. As a result, the economy in 2020 did not see a wave of bankruptcies like during the Great

Recession. Indeed, though bankruptcies did spike during the pandemic, they increased at a much lower rate than during the Great Recession, despite the fact that the pandemic caused an economic shock significantly larger than that of 2008. The robust labor market before the pandemic helped enable businesses and households to better weather this crisis, further contributing to the lower rates of small business bankruptcies during the pandemic.

The Department of the Treasury and the Federal Reserve also played critical roles in easing financial strain and ensuring access to liquidity for businesses. To accomplish this, the CARES Act authorized emergency actions to stabilize the financial system and to provide direct support for credit. In doing so, the act has helped avert a potential collapse of the financial system similar to what occurred during the Great Recession, thereby greatly improving the outlook for a swift economic recovery.

In analyzing numerous financial and economic indicators related to the pandemic, this chapter demonstrates that the CARES Act and the Trump Administration's actions have preserved American businesses and saved millions of jobs. These actions have been historic in their speed and magnitude, and the data show that small businesses have benefited the most from these unprecedented actions. As a result, the economy has recovered more rapidly than many people anticipated and is poised to continue its return to the level of prosperity it experienced before the COVID-19 pandemic provided that fiscal policy continues to provide appropriate support.

This chapter focuses on the effects that the extraordinary actions taken by the Federal Government in response to the COVID-19 pandemic have had on businesses, with a particular focus on small businesses. Just as forecasters have significantly revised their expectations for 2020 gross domestic product (GDP) upward, so too did businesses experience an uptick in their outlook. Between April and October, the small business optimism index compiled by the National Federation of Independent Business rose from 90.9 to 104.0—one of the steepest annual increases in the index's history. The federation attributes some of the improvement to the loan forgiveness feature of the

Paycheck Protection Program (PPP), which is discussed here, along with other business-oriented provisions of the CARES Act.

Summary of Policies to Assist American Businesses and Their Workers

Much of the analysis in this chapter focuses on the PPP and the Federal Reserve's lending facilities—given that these are the largest business provisions and have received the most attention by academic researchers—but here we also include a summary of several of the main provisions in the CARES Act directed at small, mid-sized, and large businesses. In total, $1.6 trillion was allocated (excluding Federal Reserve lending facilities), and about $930 billion has been disbursed as of October 2020.

The Paycheck Protection Program

The CARES Act authorized $349 billion in forgivable PPP loans to support payroll and other expenses for America's small businesses, self-employed individuals, Tribal businesses, and nonprofit/veterans' organizations. As part of the Paycheck Protection Program and Health Care Enhancement Act, which was signed into law by President Trump in April 2020, an additional $310 billion was authorized, bringing the total amount for the PPP to $659 billion. Though the funds are used to guarantee and forgive loans, a condition for full loan forgiveness is that recipient businesses must spend no less than 60 percent of the loaned funds on payroll expenses within a 24-week span called the covered period.[1] Other expenses eligible for loan forgiveness include interest on mortgages, rent, and utilities.

Employee Retention Tax Credits

The CARES Act provided refundable tax credits against payroll taxes for employers that either were required to shut down because of COVID-19-related government mandates or suffered at least a 50 percent decline in year-over-year revenue during a quarter. The credit amount is 50 percent of qualified wages, up to a maximum of $5,000. Like the PPP, these credits act as a wage subsidy to boost retention, and the Joint Committee on Taxation estimated a $55 billion cost of the provision in March, although it is unclear how high the uptake will end up being, in light of eligibility restrictions. In addition, qualified wages of firms with more than 100 workers include only wages paid to inactive employees (e.g., those furloughed).

[1] Before the Paycheck Protection Flexibility Act of 2020, which was signed into law by President Trump in June 2020, the forgiveness criteria required a 75 percent payroll requirement and an eight-week covered period.

Economic Injury Disaster Loans and Advances

The Economic Injury Disaster Loans and Advances (EIDL) program of the U.S. Small Business Administration (SBA), which predates the COVID-19 crisis, provides relief to small businesses and nonprofit organizations experiencing a temporary loss of revenue. Relative to PPP loans, EIDL loans tend to be longer in duration, have a higher interest rate, and are not forgivable outside the advance itself—that is, the loan must be repaid in full. The Coronavirus Preparedness and Response Supplemental Appropriations Act, which preceded the CARES Act, made COVID-19 losses an eligible disaster under the SBA disaster program, allowing affected businesses to apply for the program's loans. The CARES Act, along with the Paycheck Protection Program and Healthcare Enhancement Act, then expanded eligibility and eased application requirements. The acts also added $20 billion in funds to allow more entities to receive the $10,000 EIDL advances. As of November 23, $194 billion in EIDL loans had been approved for just over 3.6 million loans.

The Federal Reserve's Lending Facilities

The U.S. Department of the Treasury made available $454 billion via the CARES Act to backstop some of the emergency lending facilities set up by the Federal Reserve under Section 13(3) of the Federal Reserve Act. The purpose of this Treasury backing was to ensure that the Federal Reserve would not be put in a position to need to absorb losses. For the facilities created by this collaboration, Federal Reserve Banks lend to private firms, to nonprofit organizations, or to State and local governments.

The facilities can broadly be divided into two groups: those that are aimed at supplying credit to the macroeconomy (which rely on CARES Act capital funding)—the Primary and Secondary Market Corporate Credit Facilities, the Term Asset-Backed Securities Loan Facility, the Municipal Liquidity Facility, and the Main Street Lending Program—and those that are aimed at funding markets (which are backed by funding from the Treasury's Exchange Stabilization Fund (ESF) or are secured by collateral)—the Money Market Mutual Fund Liquidity Facility and the Commercial Paper Funding Facility. The Federal Reserve also created the Primary Dealer Credit Facility and the Paycheck Protection Program Liquidity Facility, neither of which received economic support or investments from the Treasury. This chapter goes into greater depth on these facilities in a later section.

Other Programs

Small Business Administration debt relief. The CARES Act appropriated $17 billion to go toward debt relief for new and existing SBA borrowers. Specifically, the SBA is required under this provision to pay the principal, interest, and fees owed on specified loans for six months. This debt relief is distinct from the conditional forgiveness offered for newly created PPP loans.

Deferral of employer payroll taxes. The CARES Act allowed employers to defer payment of their portion of payroll taxes incurred from March 27, 2020, through December 31, 2020. Businesses will repay their deferred liabilities in two installments, in December 2021 and 2022. This deferral is a de facto loan to businesses, giving them short-term liquidity without directly altering their long-term financial situation, except to the extent that the injection of liquidity is necessary for some of them to survive the crisis.

Modifications for net operating losses. The CARES Act permitted taxpayers to offset 100 percent of taxable income in taxable years beginning after 2017 and before 2021 with net operating losses (NOLs). Before the CARES Act, taxpayers' NOLs from taxable years beginning after 2017 were limited to offsetting 80 percent of taxable income in such years. The CARES Act also temporarily allowed taxpayers to carry back recently computed NOLs to offset income (and potentially claim refunds of all or part of their tax liabilities) for the previous five taxable years, if the losses were incurred in taxable years beginning after 2017 and before 2021.[2] The Joint Committee on Taxation estimated that this provision would reduce revenues by $154 billion in 2020 and by $161 billion during the 2020–30 window.

Direct sector-specific aid. The CARES Act authorized $46 billion in loans, loan guarantees, and other investments for certain affected industries. Specifically, the CARES Act authorized $25 billion for passenger air carriers, $4 billion for cargo air carriers, and $17 billion for businesses deemed critical to maintaining national security. In exchange for receiving these funds, passenger air carriers agreed to certain conditions, including a requirement not to reduce employment by more than 10 percent through September 2020.

Measuring Small Business's Utilization of Selected CARES Act Business Provisions

Table 3-1 illustrates the percentage of small businesses that have accessed different programs since March 13, 2020, as reported in the Census Small Business Pulse Survey. Small businesses may also have accessed Economic Impact Payments and Unemployment Insurance or Pandemic Unemployment Assistance.

As of August 8, at the time of the PPP's closing, the SBA had approved over 5.2 million small business loans worth more than $525 billion, supporting an estimated 51 million jobs and representing 80 percent of the small business payroll in all 50 States. The average loan size was about $101,000. The loans were overwhelmingly distributed to small businesses with few employees. More than 87 percent of the total approved loans, totaling over one-quarter of the total approved loan amount, were for $150,000 or less (table 3-2). Over 94

[2] In addition to the NOL rule changes, the CARES Act included a separate rule change that deferred limits on owners' losses from pass-through businesses, which could have an impact on individuals' computation of their NOLs.

Table 3-1. Liquidity Programs for Small Businesses during COVID-19

Program	Percentage of Small Businesses Receiving Assistance
Paycheck Protection Program (PPP)	73.2
Economic Injury Disaster Loans (EIDL)	23.8
Small Business Administration (SBA) debt relief	10.2
Other Federal programs	2.4
This business has not received financial assistance from any Federal program	22.0

Sources: Census Bureau; CEA calculations.
Note: The sum of these do not equal 100 because businesses could select multiple answers. Survey results are for the period November 23–29, 2020. The U.S. Census defines a small business as "a single location business with employment between 1 and 499 and receipts of at least $1,000." The sample consists of about 885,000 businesses.

Table 3-2. PPP Loan Size by Amount, First and Second Round Combined (data as of Aug. 8, 2020)

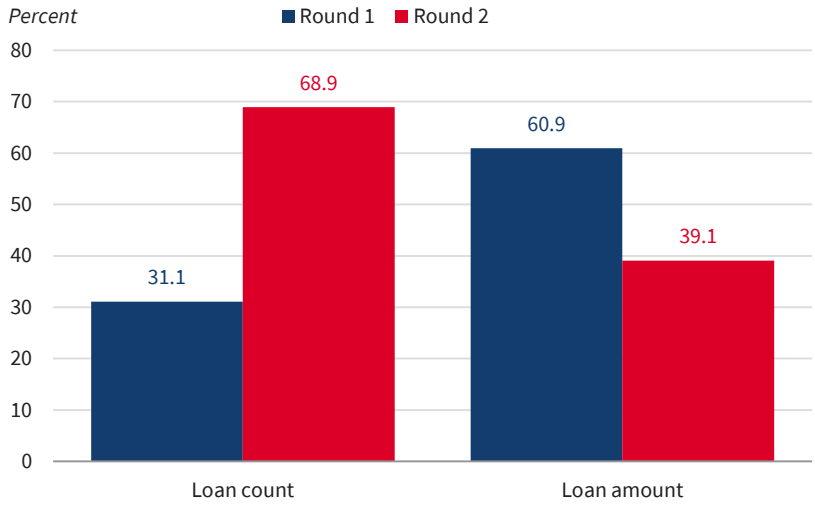
Loan Size (thousands of dollars)	Approved Loans (count)	Approved Loan Total Amount (billion dollars)	Percentage of Count	Percentage of Amount
50 and under	3,574,110	62.7	68.6	12.0
50–100	683,785	48.7	13.1	9.3
100–150	294,557	36.1	5.7	6.9
150–350	377,797	84.8	7.2	16.1
350–1,000	199,679	113.6	3.8	21.6
1,000–2,000	53,218	73.9	1.0	14.1
2,000–5,000	24,248	72.2	0.5	13.7
More than 5,000	4,734	33.1	0.1	6.3
Total	5,212,128	525.0		

Source: U.S. Small Business Administration.
Note: PPP = Paycheck Protection Program.

percent of the total approved loans, totaling more than 44 percent of the total approved loan amount, were for $350,000 or less. Because the maximum loan for which a business can apply is a function of its total payroll costs, the vast majority of PPP loans were approved for small businesses and organizations with very few employees.

The first round of the PPP, which ended April 16 when funds ran out, approved fewer loans but consisted of a larger share of the total loan amounts (figure 3-1). Round 2 had a change in the composition of which firms received the loans, with a shift toward smaller businesses. Conditional on participation,

Figure 3-1. Share of Total PPP Loan Counts and PPP Loan Amounts by Round



Sources: U.S. Small Business Administration (SBA); CEA calculations.
Note: The loan counts and amounts for round 1 are derived using the SBA's August 8 update, which shares data specific to round 2.

the average loan size fell from $197,462 in round 1 to $57,095 in round 2. Overall, 73.2 percent of small businesses received PPP loans, as indicated in table 3-1. Moreover, at the time the program closed, over $130 billion in authorized PPP funds remained unspent, which provides suggestive evidence that most small businesses that were eligible and applied for a PPP loan received one. The presence of leftover funds does not indicate that PPP demand is satiated, however. Rather, the leftover funds are more likely in part a consequence of the restriction against businesses receiving more than one PPP loan—for example, against businesses receiving a second loan to carry themselves through the fall after receiving an initial loan to get through the spring and early summer. Further legislation would need to provide such authorization.

Recent research by Autor and others (2020) provides evidence that, through just the first week of June 2020, the PPP saved between 1.4 and 3.2 million jobs. The rehiring of furloughed workers in the months since, in order to qualify for PPP loan forgiveness, is likely to result in a much higher total number of jobs saved attributable to the PPP. In total, Standard & Poor's (S&P) U.S. Chief Economist Beth Ann Bovino estimates that PPP could have saved upward of 13.6 million jobs, while JPMorgan Chase CEO Jamie Dimon suggests an even larger figure of 35 million jobs (Fox et al. 2020; Ruhle, Miranda, and Cappetta 2020). As of August 8, healthcare and social assistance; professional, scientific, and technical services; construction; and manufacturing accounted

Table 3-3. PPP Loans by Industry

NAICS Subsector Description	Approved Loans	Approved Dollars (billions)	Percentage of Loans	Percentage of Amount
Health care and social assistance	532,775	67.8	10.2	12.9
Professional, scientific, and technical services	681,111	66.8	13.1	12.7
Construction	496,551	65.1	9.5	12.4
Manufacturing	238,494	54.1	4.6	10.3
Accommodation and food services	383,561	42.5	7.4	8.1
Retail trade	472,418	40.6	9.1	7.7
Other services (except public administration)	583,385	31.7	11.2	6.0
Wholesale trade	174,707	27.7	3.4	5.3
Administrative and support and waste management and remediation services	258,907	26.6	5.0	5.1
Transportation and warehousing	229,565	17.5	4.4	3.3
Real estate and rental and leasing	262,921	15.7	5.0	3.0
Finance and insurance	181,493	12.2	3.5	2.3
Educational services	88,022	12.1	1.7	2.3
Unclassified establishments	219,502	9.7	4.2	1.8
Information	73,824	9.3	1.4	1.8
Arts, entertainment, and recreation	130,760	8.2	2.5	1.6
Agriculture, forestry, fishing, and hunting	149,535	8.1	2.9	1.6
Mining	22,503	4.5	0.4	0.9
Public administration	14,291	1.8	0.3	0.3
Management of companies and enterprises	9,472	1.6	0.2	0.3
Utilities	8,331	1.5	0.2	0.3
Total	5,212,128	525.0		

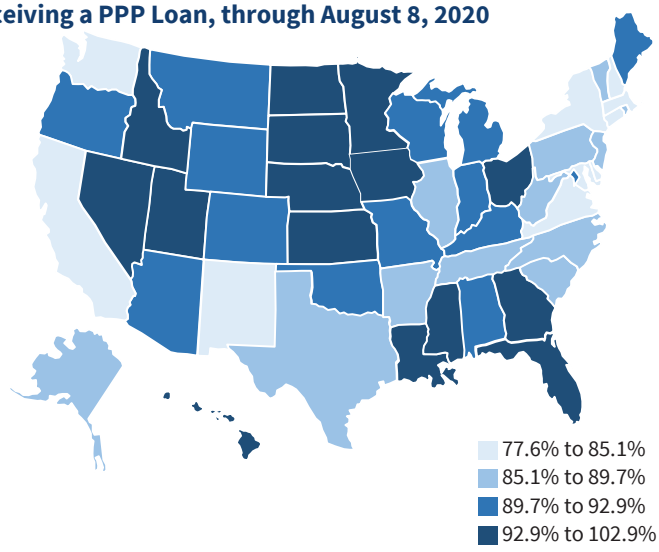
Sources: U.S. Small Business Administration; CEA calculations.
Note: NAICS = North American Industry Classification System; PPP = Paycheck Protection Program.

for 48 percent of the total amount of approved dollars in both rounds of PPP (table 3-3).

Figure 3-2 shows PPP coverage for each State as a percentage of total payroll expenses incurred over a 2.5-month period by businesses with fewer than 500 employees (the duration used to determine PPP loan size and the firm size cutoff for eligibility).[3] Those States with most if not all their small

[3] An early analysis of the PPP program found that some funds initially flowed to geographic regions that were less adversely impacted by the pandemic (Granja et al. 2020).

Figure 3-2. Percentage of Small Businesses Receiving a PPP Loan, through August 8, 2020



Sources: U.S. Small Business Administration; U.S. Census; CEA calculations.
Note: The amount of payroll comes from Census's 2017 SUBS survey adjusted to 2019 dollars and then reduced to 2.5 months' worth. Small businesses are defined as employment of 1 to 499 people. Sole proprietorships also received PPP loans, so some states received more than 100 percent of this payroll.

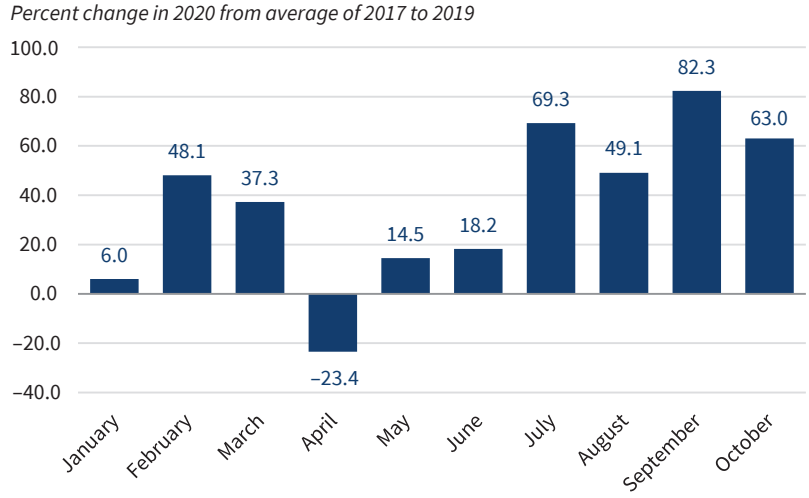
businesses payroll covered by PPP are predominantly in the Southeast and Midwest. As data on retail consumer spending reveal, PPP loans went especially to States that saw more drastic declines in consumer spending. The Census Small Business Pulse Survey reports that 73.2 percent of small businesses nationwide have received a PPP loan since the spring.

Comparing Expected and Actual Small Business Bankruptcies during the COVID-19 Pandemic

There are signs that the disruptive effects of the COVID-19 pandemic have led to greater business churn, with the Census Bureau reporting that business applications in 2020 are twice as high as they have been at any point in the past decade. However, measuring business exits is far more challenging, both because of an absence of live-tracking data, and because of the unique nature of the economic shock from COVID-19.[4] In particular, it is difficult to distinguish between businesses that have exited permanently from those which have closed temporarily. Bankruptcies can serve as a proxy for the subset of business exits caused by the inability of owners to meet debt obligations. This

[4] Crane et al. (2020) discuss some of these measurement challenges as well as a range of alternative measures and indicators of business exit.

Figure 3-3. Total Chapter 11 Bankruptcy Filings by U.S. Small Businesses, 2020



Sources: U.S. Department of Justice; CEA calculations.
Note: Due to weekly reporting, the July period is June 28–August 2 and the August period is August 3–30.

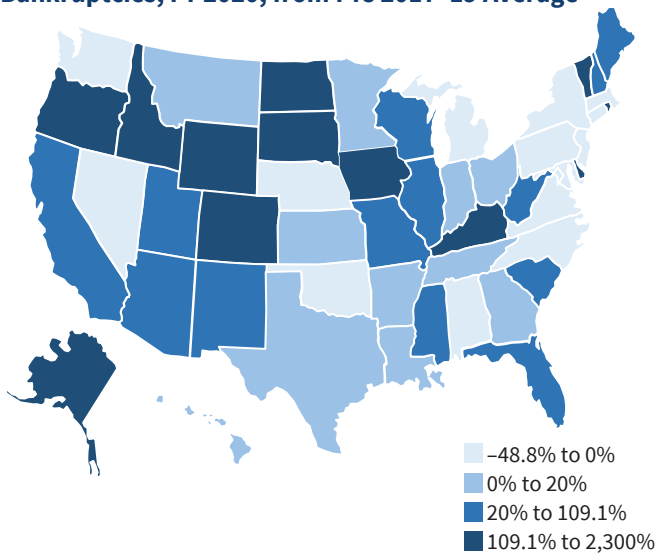
section compares observed bankruptcies with what an empirical analysis of historical economic relationships predicts are the volume of bankruptcies we would expect to observe in the United States, given the magnitude of the COVID-19 economic shock.

Data from the Department of Justice make it possible to monitor weekly changes in small business bankruptcies (specifically, those filed under Chapter 11) and also to compare the monthly totals for 2020 with the same month in prior years to see if small business bankruptcies have spiked as a result of the crisis.[5] Figure 3-3 shows a spike in February and March, before COVID-19 had begun to wreak havoc, likely due to a new Subchapter 5 provision that came into effect in February.[6] The data then show a sharp decline in April, when most of the country was under lockdowns, which may have prevented business owners from physically filing for bankruptcy due to social-distancing measures, or courts being unable to accept filings for the same reason (Tett 2020). Businesses may also have been waiting to see how economic uncertainty would unfold before filing for bankruptcy (Keshner 2020). In addition, the strong economy before the pandemic likely put businesses in a better position to survive for

[5] When referred to as "small business," the data reflect businesses that classify themselves as small when they are filing for a Chapter 11 bankruptcy.

[6] Subchapter 5 of Chapter 11 makes it easier for smaller businesses to reorganize under Chapter 11 bankruptcy. Under the CARES Act, the threshold debt level for businesses that could apply for Subchapter 5 bankruptcy was raised further, allowing more small businesses to be eligible for this chapter.

Figure 3-4. Percent Change in Small Business Chapter 11 Bankruptcies, FY 2020, from FYs 2017–19 Average



Sources: U.S. Department of Justice; CEA calculations.
Note: Alabama and North Carolina have no data available as they are not under the jurisdiction of the United States Trustee Program. The legend shows each quartile. FY = fiscal year.

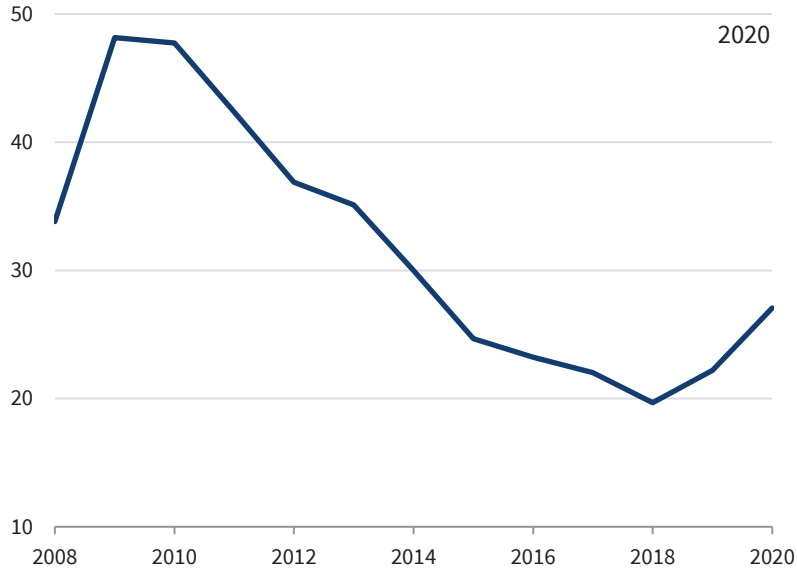
some time, even in the face of COVID-related disruptions. Regardless of the reasons for the April decline, bankruptcy filings started to rise in the late spring and early summer, before showing a larger rise in July, August, September, and October of, respectively, 69.3, 49.1, 82.3, and 63 percent. However, this level was still 34 percent below that during the peak of the 2009 financial crisis.

Figure 3-4 shows which States saw an uptick in small business Chapter 11 bankruptcies in fiscal year (FY) 2020 through September 30, compared with their 2017–19 averages. There are 36 States with higher FY 2020 small business Chapter 11 bankruptcies than their averages between 2017 and 2019. These States account for 72.9 percent of total small business Chapter 11 bankruptcies in FY 2020.

Figure 3-5 uses the Department of Justice's data on small business bankruptcy filings to compare bankruptcy dynamics with those during the Great Recession and its aftermath. There was a large increase in small business Chapter 11 bankruptcies during 2009 and 2010, and small business Chapter 11 bankruptcies fell as the recovery continued. The data for 2020 show a much smaller initial uptick in bankruptcies, which is striking, given that second-quarter gross domestic product fell by an annualized 31.4 percent during the spring, compared with only 8.4 percent during the worst quarter of the Great Recession (2008:Q4).

Figure 3-5. Small Business Chapter 11 Bankruptcies, FYs 2008–20

Bankruptcies per 100,000 small businesses



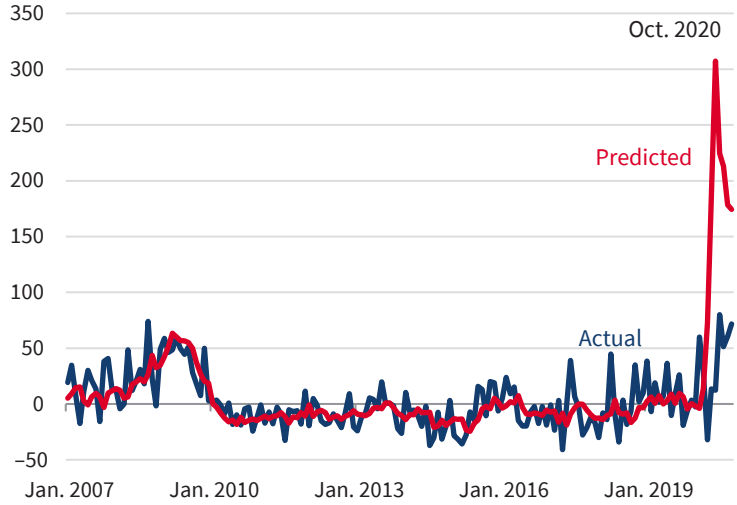
Sources: Department of Justice; CEA calculations.
Note: FY = fiscal year.

Assessing how these observed bankruptcy filings compare with what one would expect given the disruption from COVID-19 requires a deeper analysis. The foremost explanation of why the increase in bankruptcies was not sharper is that the swift passage and implementation of record fiscal relief through the CARES Act helped businesses absorb the shock to cash flows that in the past would have forced them to declare bankruptcy; as we discuss below, in the absence of such a vigorous policy response, multitudes of companies would have been forced to permanently close.

One way to forecast small business Chapter 11 bankruptcies is through a vector autoregression estimate of unemployment insurance claims with three-month lags from January 2006 to December 2019. An advantage of this approach is that it can determine the lag between the negative economic shock and its effect on bankruptcies. In figure 3-6, the gap between actual and predicted bankruptcies represents "averted bankruptcies." Small business bankruptcies from April to September as a whole were predicted to increase by 181.8 percent, while actual filings rose by a much smaller 28.4 percent. This analysis suggests that the historic economic policy response in the spring and summer mitigated the macroeconomic shock and concomitant financial distress. However, this success does not preclude the possibility of a large future

Figure 3-6. Actual versus Predicted Small Business Chapter 11 Bankruptcy Filings, 2007–20

Year-over-year change (percent)



Sources: U.S. Department of Justice; U.S. Department of Labor; CEA calculations.
Note: Predicted filings are based on the vector autoregression results of a three-month lag using initial Unemployment Insurance claims.

bankruptcy spike, especially if the U.S. Congress fails to pass additional relief and recovery legislation in the coming months.

The CARES Act's Role in Facilitating Small Business Survival

The gap between predicted and actual bankruptcies through September (see figure 3-6) could arise from a number of factors. First, earlier in the pandemic, social-distancing mechanisms may have affected bankruptcy filing rates, both for the court systems and debtors. If business owners are unable to connect with lawyers or face difficulties submitting electronic filings, this could lead to filing delays that could show up as higher filings later in the data. At the same time, the courts' ability to take on cases was likely affected by State restrictions. A second important factor is the PPP's role in enabling businesses to stay afloat. By giving businesses loans that can be forgiven, the PPP allows them to meet expenses while facing a shock to cash flows. With this liquidity, many businesses that would otherwise have filed for bankruptcy are able to sustain themselves. The eligibility criterion disallowing firms in the process of filing for bankruptcy from accessing PPP loans also acts as a strong bankruptcy

disincentive with considerable quantitative significance in light of the fact that nearly three-quarters of small businesses report having accessed PPP loans.

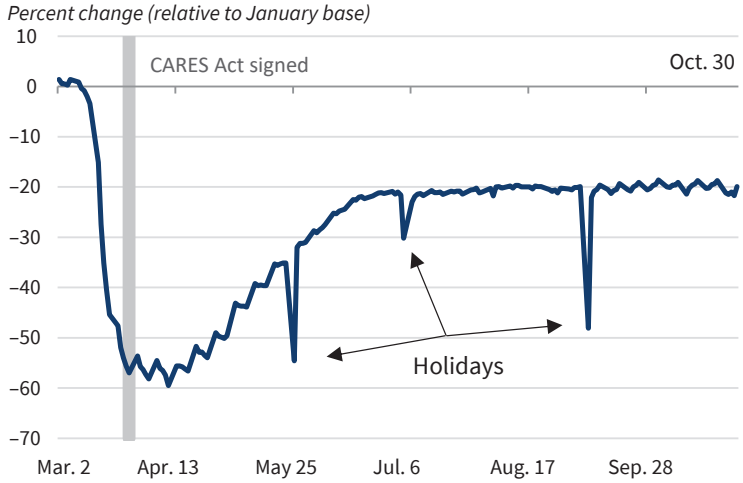
Finally, other elements of the CARES Act might have helped businesses avoid bankruptcy. For instance, Pandemic Unemployment Assistance extends unemployment insurance to the self-employed, sole proprietors, and others who may not qualify for traditional unemployment benefits, providing liquidity to help small businesses meet their monthly expenses. Their employees would be able to claim expanded unemployment insurance as well if they are placed on temporary furlough. The loan forbearance provision additionally enables businesses to defer certain expenses, such as rental and mortgage expenses. In other words, the PPP and other elements of the CARES Act have likely played a significant role in helping businesses avoid bankruptcy.

Recent academic estimates also highlight the promise and success of the PPP in keeping small businesses afloat. For example, Elenev, Landvoigt, and Van Nieuwerburgh (2020) simulate the effect of a PPP-type program in a general equilibrium macroeconomic model and show that it, along with a Main Street Lending–type program, successfully stems corporate bankruptcies. Using an instrumental variables approach, Bartik and others (2020) find that PPP loans led to a 14- to 30-percentage-point increase in a business' expected survival. Clearly, to the extent that the PPP helped mitigate business closures, it saved many of these businesses' jobs.

Although important, bankruptcies are only one measure of small business health during the crisis. The remainder of this section discusses data from Homebase that gives insight into a range of relevant small business metrics. Homebase is a company that provides software to help small business owners manage employee timesheets. Since the pandemic started, Homebase has maintained a database of U.S. small business employment using data from more than 60,000 businesses that use its software. The data cover more than 1 million employees who were active in the United States in January 2020. Most Homebase customers are restaurant, food and beverage, retail, and service businesses that are individually owned or managed by their operators.

The Homebase data show the dramatic effect of the COVID-19 pandemic on small businesses. Figure 3-7 illustrates the daily change in the number of hourly employees working at small businesses using Homebase compared with a January baseline. After shelter-in-place orders became widespread in mid-March, the number of employees working fell to a level about 55 to 60 percent lower than normal conditions. However, the passage of the CARES Act marked a significant inflection point that reversed this decline. The data reveal that small businesses have regained significant ground since then, though the number of hourly employees working at small businesses has plateaued, at about 20 percent below normal conditions, suggesting that a full small business recovery is still very much a work in progress.

Figure 3-7. Change in the Number of Small Business Hourly Employees Working, 2020



Source: Homebase.
Note: All the rates compare that day versus the median for the day of the week for the period January 4–31, 2020.

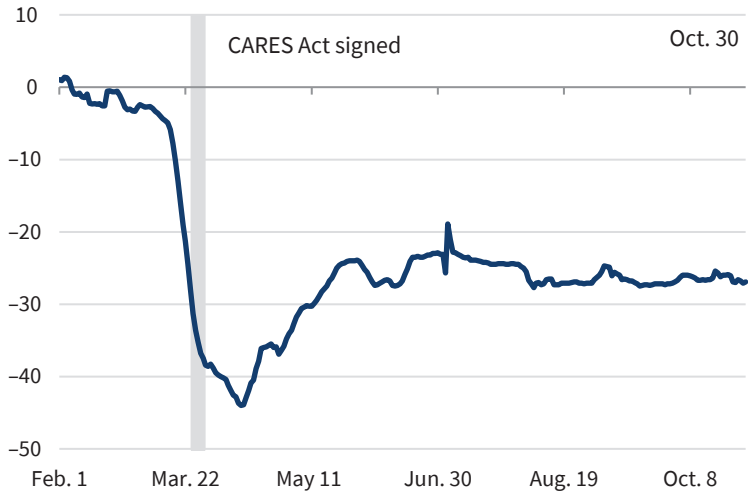
Company-specific data on PPP loan receipts and employment provide an insight into the role the program played in keeping workers attached to their employers, before which the extent was unclear.[7] Recent research by Autor and others (2020) using administrative payroll data finds that the PPP saved between 1.4 and 3.2 million jobs through just the first week of June. However, because the PPP has also stemmed business closures, the total employment effect is likely to be considerably larger over time as these businesses rehire furloughed workers. As stated above, the U.S. Chief Economist for S&P Global Ratings Services, Beth Ann Bovino, estimates that the PPP could have saved upward of 13.6 million jobs.

Opportunity Insights, a nonprofit research organization based at Harvard University, has also developed a data set to track the impact of COVID-19 on small businesses since January 2020. It pulls data from different sources of "credit card processors, payroll firms, and financial services firms" to construct a time series to track the effect of COVID-19 (Chetty et al. 2020). Figure 3-8 shows that by mid-April, the number of open small businesses had fallen over 40 percent compared with January. This trend began to increase in mid-April as initial PPP loans were disbursed and as States began to gradually lift restrictions on mobility and economic activity. As with the hourly employees

[7] Analysis by Chetty et al. (2020) shows a limited impact of PPP on employment levels at small businesses. However, their analysis is also constrained by the lack of firm-level data on PPP loan receipts and employment.

Figure 3-8. Change in the Number of Small Businesses Open, Seven-Day Average, 2020

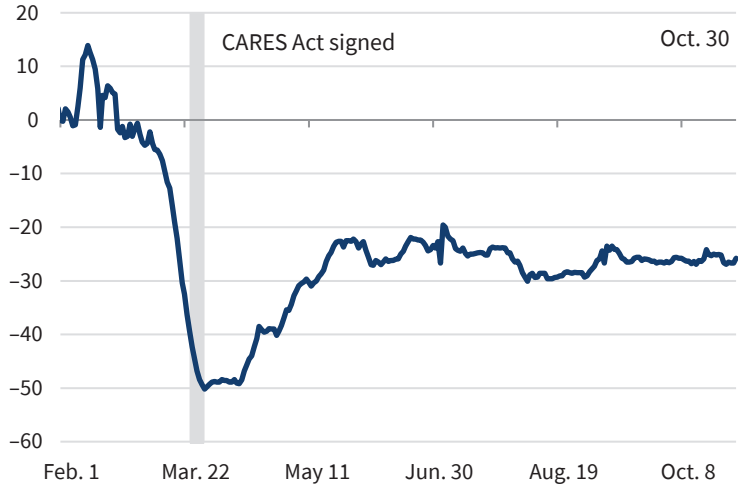
Percent change (relative to January base)



Source: Opportunity Insights.
Note: All the rates compare that day versus the median for the day of the week for the period January 4–31, 2020.

Figure 3-9. Change in Small Business Revenue, Seven-Day Average, 2020

Percent change (relative to January base)



Source: Opportunity Insights.
Note: All the rates compare that day versus the median for the day of the week for the period January 4–31, 2020.

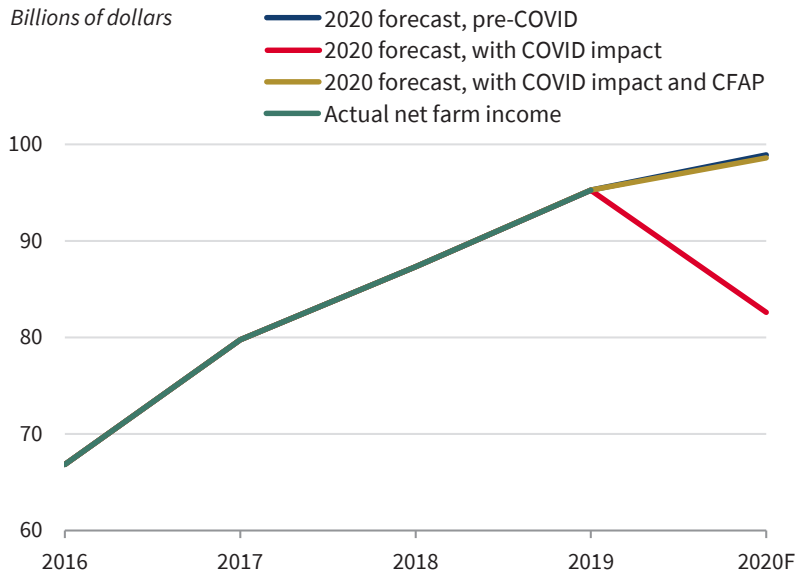
data discussed above, the number of open small businesses remains about 25 percent down from its pre-COVID levels. However, it is not currently possible to tell how many of these businesses have closed permanently versus how many remain temporarily inactive as a result either of residual or reimposed restrictions from State and local governments, or from continued lower-than-usual levels of demand.

Opportunity Insights also tracks how much total small business revenue has fallen (figure 3-9). At its trough in late March, small business revenue had fallen by nearly 50 percent. Between the end of April and early June, revenues recovered substantially, to about 25 percent below pre-COVID levels, but there has been no further progress since then for these data.

The Coronavirus Food Assistance Program's Impact on Farm Incomes

The CARES Act contained provisions that authorized support to farmers who were harmed by the consequences of the COVID-19 pandemic. These provisions took the form of the U.S. Department of Agriculture's Coronavirus Food Assistance Program (CFAP). The COVID-19 pandemic and the associated economic response disrupted food and agricultural markets, resulting in a

Figure 3-10. U.S. Net Farm Income, 2016–20



Sources: U.S. Department of Agriculture; Food and Agricultural Policy Research Institute; CEA calculations.
Note: "2020F" denotes a forecast; CFAP = Coronavirus Food Assistance Program.

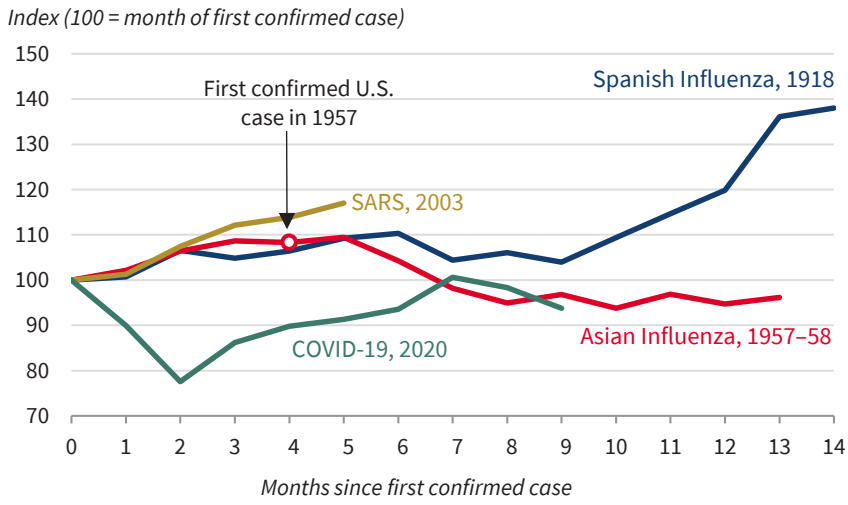
dramatic drop in farm income for a wide array of agricultural products. CFAP made available $16 billion in financial assistance for producers of affected commodities, including $9.5 billion to compensate for losses due to commodity price reductions between mid-January and mid-April 2020 and another $6.5 billion for ongoing market disruptions. In early February 2020, before the extent of the pandemic's impact on agricultural markets was fully apparent, U.S. net farm income for 2020 was forecast to be $99 billion, which would have been a 4 percent increase over 2019 and the highest net farm income since 2013. By June, as the magnitude of the pandemic became evident, analysts had revised the forecast for 2020 net farm income down by more than $24 billion (25 percent), when CFAP payments are excluded. Including the $16 billion in emergency farm payments raises forecasts for net farm income to $99 billion (figure 3-10).

The Pandemic's Impact on the Financial Sector and Lending Facilities' Role

As the threat of the COVID-19 pandemic increased, the financial system came under stress in February and March 2020. Stock prices plummeted and market volatility rose. A recent analysis by Baker and others (2020) shows that COVID-19 has had an unprecedented effect on the stock market, especially in comparison with other infectious disease outbreaks, including that of Spanish Influenza in 1918–20 (figure 3-11). Businesses, which already held a historically high level of debt at the beginning of 2020, were suddenly at higher risk of default, leading to a decline in the availability of credit, and households' ability to repay their debts in the face of job and income loss became uncertain. With potential defaults looming, the risk of the real economic shock impairing assets of lenders and thereby infecting credit markets more broadly was substantial. Under these conditions, monetary or fiscal problems abroad—especially in Europe, China, and emerging market economies—could have spilled over to the United States, compounding the stress on the financial system.

The CARES Act, together with emergency powers under section 13(3) of the Federal Reserve Act, authorized the Federal Reserve and the Treasury Department to take actions to stabilize the system and prevent a financial crisis like that of the Great Recession. In accord with the Federal Reserve's *Financial Stability Report*, the Federal Reserve undertook aggressive monetary policy interventions and also took actions to stabilize short-term funding markets and provide direct support for credit. In addition, Chairman Jerome Powell testified that the Federal Reserve "took measures to allow and encourage banks to use their substantial capital and liquidity levels built up over the past decade to support the economy during this difficult time." Here we summarize some of the findings from the *Financial Stability Report* (Federal Reserve 2020).

Figure 3-11. Dow Jones Industrial Average Change during Various Pandemics



Sources: Dow Jones; CEA calculations.
Note: The $t = 0$ months were those with the first confirmed global cases, and were April 1918, February 1957, February 2003, and January 2020. All the pandemics except the Asian Influenza saw their first U.S. case within the same month as as their first global case.

Monetary policy interventions. The Federal Reserve lowered its policy rate close to zero to make borrowing less expensive. The Federal Open Market Committee began buying longer-term Treasury securities as well as agency mortgage-backed securities and commercial mortgage-backed securities after investors moved toward cash and short-term government securities because of volatility and uncertainty, which had the effect of smoothing and improving market conditions.

Stabilizing short-term funding markets and providing direct credit support. In a dash for liquidity, investors stopped purchasing commercial paper and pulled out of money market mutual funds that hold such paper along with other short-term debt instruments, leading to a cash shortage for businesses that rely on commercial paper to help fund their operations. In response, and pursuant to Section 13(3) of the Federal Reserve Act and with Treasury's approval, the Federal Reserve established a number of emergency lending facilities to support the flow of credit to businesses, nonprofit organizations, States, and municipalities.

Several facilities commenced before the CARES Act. The Primary Dealer Credit Facility allows primary dealers to support smooth market functioning and facilitate the availability of credit to businesses and households. The Commercial Paper Funding Facility (CPFF) provides liquidity to short-term funding markets. The Money Market Mutual Fund Liquidity Facility (MMLF)

makes loans available to eligible financial institutions secured by high-quality assets purchased by the financial institution from money market mutual funds.

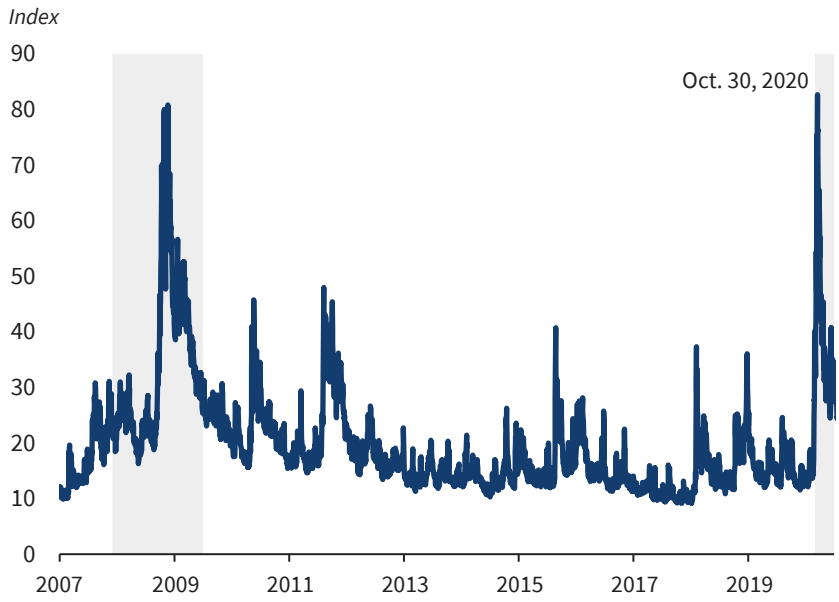
A number of additional facilities commenced after enactment of the CARES Act. The Primary Market Corporate Credit Facility (PMCCF) and the Secondary Market Corporate Credit Facility (SMCCF, together with the PMCCF, the CCF) provide liquidity for investment grade corporate bonds (or the bonds of certain companies that were investment grade as of March 22, 2020) as well as for exchange traded funds (ETFs) whose objective is to provide broad exposure to the market for U.S. corporate bonds. The Term Asset-Backed Securities Loan Facility (TALF) supports the provision of credit to consumers and businesses by enabling the issuance of asset-backed securities backed by private student loans, automobile loans and leases, consumer and corporate credit card receivables, certain loans guaranteed by the Small Business Administration, and other assets. The Municipal Lending Facility (MLF) supports lending to State, city and county governments, certain multistate entities, and other issuers of municipal securities. The Paycheck Protection Program Liquidity Facility offers a source of liquidity to financial institution lenders that lend to small businesses through the Small Business Administration's Paycheck Protection Program. The Main Street Lending Program (MSLP) supports lending to small and medium-sized businesses and nonprofit organizations that were in sound financial condition before the onset of the COVID-19 pandemic. MSLP operates five subfacilities: the Main Street New Loan Facility, the Main Street Priority Loan Facility, the Main Street Expanded Loan Facility, the Nonprofit Organization New Loan Facility, and the Nonprofit Organization Expanded Loan Facility. In support of these facilities, the Treasury Department has made equity investments in the CPFF, CCF, TALF, MLF, and MSLP, and has provided a backstop commitment to the MMLF.

These facilities resulted in a drop in the issuance of overnight commercial paper and redemptions from money market funds, easing market strains. Commercial and industrial loans from the Nation's commercial banks grew by $726 billion during the nine weeks from March 4 through May 6, far in excess of the growth during any similar interval since records were first collected in 1973. Li, Strahan, and Zhang (2020) argue that banks were able to accommodate this demand because of Federal Reserve bank liquidity programs, strong preshock bank capital, and coincident inflows from depositors.

In addition, a variety of indicators of financial distress that spiked early in the COVID-19 pandemic period have receded as of October 2020. Although many other shocks have hit the economy, including news about the pandemic itself, one can argue that public policy has mitigated the contagion of the pandemic into financial markets.

The VIX (the Chicago Board Options Exchange's Volatility Index), an index of expected stock market volatility derived from options prices, spiked from 27 in late February to a peak of 83 on March 16 (figure 3-12). It has generally fallen

Figure 3-12. Market Volatility Index (VIX), 2007–20



Source: *Wall Street Journal*.
Note: VIX = Chicago Board Options Exchange's Volatility Index. Shading denotes a recession.

since then, but remains somewhat elevated (as of October 30, the VIX was 38). Similarly, corporate bond spreads, such as the spread between BBB bonds relative to Treasury notes, show a similar pattern, peaking on about March 23 and then receding (figure 3-13).

The trends in these indicators, and others, suggest that lending facilities likely played an important role in easing financial market strain and ensuring access to liquidity for businesses in 2020. Recent academic work also confirms these findings. For example, Cox, Greenwald, and Ludvigson (2020) analyze stock market behavior in the early weeks of COVID-19 and attribute the large market swings to fluctuations in the pricing of risk, driven either by shifts in risk aversion or sentiment. They also find evidence that the Federal Reserve's "unconventional" monetary policy announcements outlining steps to support the economy played a role in the market turnabout, leading to gains of 8 percent in the S&P 500 and 12 percent in the Russell 2000 index. Importantly, they conclude that much of the benefit came from the signaling value of the Federal Reserve's statements, even as only a fraction of the credit that it has stood ready to provide has been extended. Haddad, Moreira, and Muir (2020) trace the recovery in the corporate bond market to the unprecedented actions the Fed took to purchase bonds, finding that the announcement on March 23 to buy investment-grade debt boosted prices and lowered bond spreads. The announcement on April 9 had a large effect both on investment-grade and

Figure 3-13. BBB Corporate Bond and 10-Year Treasury Note Spread, 2006–20



Source: Bloomberg.

high-yield bonds, even for the riskier end. Gilchrist and others (2020) come to similar conclusions, finding that the announcements regarding the Secondary Market Corporate Credit Facility led to a reduction in credit spreads on bonds eligible for purchase by 70 basis points.

Finally, the large-scale income and small business revenue replacement, debt relief, and cost mitigation provisions in the CARES Act had a salutary impact on financial market stability. Such extensive relief helped ameliorate financial distress that could have created widespread default activity that would have threatened the proper functioning of secondary debt markets. Such liquidity provision helped buffer households and small businesses against the immediate shock to cash flows from COVID-19 and also helped preserve the health of their underlying balance sheets, thereby improving their long-term ability to service their financial obligations.

Conclusion

The health of U.S. businesses has seen a dramatic turnaround from the depths of the COVID-19 crisis during the spring 2020 lockdowns. The number of employees working at small businesses, the number of open businesses, and small business revenue have all recovered more than half the losses experienced in April. The Federal Government's decisive and bold action to

inject more than $2 trillion into targeted income replacement and other key programs helped bolster the ability of businesses to remain financially viable, to retain or rehire their employees, and ultimately to restart activities. At this stage, there is still considerable ground to regain to return to the historic level of prosperity that existed just before the pandemic, but all indicators thus far point to a much more rapid recovery with fewer scars than in the aftermath of the Great Recession, despite an adverse shock several orders of magnitude greater than that experienced in 2008–9.

Additional fiscal support to mitigate business closures, stem layoffs, and accelerate the pace of hiring would further reduce the risk of economic scars. For example, allowing hard-hit and at-risk small businesses to receive second-round PPP loans would help them to survive and emerge healthy from the pandemic. In fact, an October 29 survey by the National Federation of Independent Business found that 75 percent of small businesses would apply or consider applying for a second-round PPP loan if allowed to do so. Also, expanding the eligibility of the Employee Retention Tax Credit (ERTC), but targeting it to reward only net retention and hiring, could significantly accelerate hiring. With regard to eligibility, if the main objective of the ERTC is to maximize hiring, then restricting access to businesses suffering significant revenue losses leaves out many employers that are willing and able to hire workers out of unemployment but may need the extra push from the ERTC incentive in light of ongoing economic uncertainty.

This problem is especially salient given that businesses in the direst straits may or may not be those with the highest propensity to hire, depending on the outlook for them individually and for their industry. As for the design of the incentive itself, subsidizing the retention of a business's entire workforce means paying the business to retain inframarginal workers that it likely would have kept anyway, unless it was on the verge of shutting down. Redesigning the ERTC to only subsidize net expansion above a company's head count or wage bill in some statutorily specified benchmark would specifically reward firms for returning to or exceeding the size of their pre-COVID workforce, thus accelerating the reabsorption of unemployed workers into gainful employment. This design especially benefits hard-hit firms that have the deepest employment hole from which to recover while also mobilizing other businesses to step up their recruiting. Recent research by Hamilton (2020) also finds promising labor market benefits from ERTC expansion. Both these policy actions would support the continuation of the fastest recovery on record as the economy regains its full potential.