

Credit Supply Shocks During a Nonfinancial Recession

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Key Takeaways

- Credit supply in Mexico tightened during the nonfinancial COVID-19 recession, not due to banks' financial health but primarily due to heightened risk aversion.
- Negative credit supply shocks led to reduced firm employment and increased firm exit probability, especially among financially constrained firms (those that were smaller, younger and had high external financial dependence).
- The employment decline was largely driven by increased job outflows (separations) rather than reduced job inflows (new hires), particularly for women and low-tenure and temporary workers in small, young firms.
- Credit supply shocks accounted for a significant portion of the employment decrease among small firms during the pandemic's initial year, an impact comparable to those observed in financial recessions.
- Policy interventions focusing solely on injecting liquidity may be less effective in nonfinancial recessions. Instead, measures like government-backed loan guarantees could be more beneficial.

While existing literature often focuses on the "bank lending channel" during financial recessions — where banks' balance sheets are directly compromised — it is not immediately clear if the impact and drivers of credit supply shocks are similar in nonfinancial crises. In such crises, well-capitalized banks could theoretically help firms navigate an aggregate shock. However, precautionary motives stemming from significant uncertainty might lead banks to restrict lending even if their fundamentals remain strong. Analyzing this phenomenon is crucial for a more comprehensive understanding of credit's role in various recessions and for designing effective public policies.

The COVID-19 pandemic offers a unique setting for this study. It was the most significant nonfinancial recession in the last century, characterized by simultaneous extraordinary liquidity needs, widespread uncertainty and banking sectors that were ex-ante well-capitalized and highly liquid. Moreover, unlike many other economies during the pandemic, Mexico did not implement substantial government support or large-scale public funding programs for businesses, meaning firms were highly reliant on private banks. This context — combined with the availability of proprietary loan-level bank-firm matched data merged with confidential administrative employer-employee records — allows for a robust isolation of credit supply shocks and their real effects. The data cover the universe of formal firms in Mexico between 2018 and 2021.

Identification, Validation and Drivers of Credit Supply Shocks

To understand the overall changes in banks' conditions, we estimate bank-level credit supply shocks without pre-specifying a particular source. This follows a methodology developed by the 2019 paper "[Identifying Credit Supply Shocks With Bank-Firm Data: Methods and Applications](#)"¹ — and is a variation of the 2018 paper "[How Much Do Idiosyncratic Bank Shocks Affect Investment? Evidence From Matched Bank-Firm Loan Data](#)"² — which decomposes overall changes in bank credit into demand and supply components. This approach involves regressing bank-firm credit changes on two sets of fixed effects:

- Firm-characteristics-time fixed effects — industry, location, size and year — which control for demand
- Bank-time fixed effects, which capture idiosyncratic, supply-driven changes in credit

The bank-time fixed effects are the core parameters of interest, representing the total percentage change in credit attributable to bank-specific supply-side factors, net of demand effects. We find that credit supply shocks deteriorated, becoming more negative on average as the recession advanced and indicating that banks restricted credit supply despite high demand.

Validation of Supply Shocks

The estimated shocks are validated using banks' balance sheet information and confidential microdata from Mexico's Senior Loan Officer Opinion Survey (SLOOS). The estimated credit supply shocks are positively correlated (though not always statistically significant) with return on equity and return on assets, which suggests that the shocks indeed capture variation in banks' behavior affecting profitability. The shocks also show a positive correlation with deposit and interbank liability growth for deposit-taking institutions, indicating that changes in funding availability contributed to heterogeneity in

credit supply. However, funding was not the main driver of the estimated credit-supply shocks, as banks remained well-capitalized and liquid during the pandemic according to their balance-sheet data.

Drivers of Credit Supply Shocks

Our study leverages the confidential Mexican SLOOS data to examine the underlying drivers of the observed heterogeneity in credit supply shocks. Quarterly indexes constructed from the SLOOS responses for demand and supply conditions track aggregate credit trends, reassuringly validating their relevance. The most pronounced drops in supply-side factors are observed in risk tolerance and loan portfolio quality, concurrent with the fall and recovery in the aggregate supply index.

An important finding from the econometric regression analysis — which includes various supply factors from the SLOOS, such as capital and liquidity position, cost, and availability of funding — is that none of the funding, liquidity or capital position factors significantly correlate with the estimated credit supply shocks. This is a significant departure from what is generally documented during financial crises, where liquidity and funding concerns are often primary drivers.

Mexican banks, in contrast, maintained strong liquidity positions before and during the COVID-19 pandemic. Instead, the analysis reveals that risk tolerance towards large firms is the only statistically significant driver behind credit supply shocks. This implies that even with high liquidity and capitalization, banks' precautionary motives and changes in risk aversion can constrain credit growth. In turn, this suggests that traditional liquidity injection policies — which were not significantly used by Mexico's central bank during this period — might be less effective in nonfinancial recessions than other policies (such as those that foster loan guarantees).

Real Effects of Credit Supply Shocks on Firms

Despite the nonfinancial origin of the recession, the contraction in banks' credit supply due to precautionary behavior was transmitted to the real sector. To quantify this impact, we construct a measure of firm exposure to credit supply shocks as the weighted average of the estimated bank-time fixed effects, using the firm's credit share with different banks prior to the recession as weights. This approach fixes the weights to 2018 levels, ensuring that cross-time variation in exposure arises solely from credit supply shocks and is not correlated with future shocks. This choice is further justified by the stickiness of firm-bank relationships: Switching lenders is costly (and especially uncommon during recessions), so prerecession bank shares are informative about firms' effective exposure.

The main results indicate that firms facing a bank credit supply shock of -1 standard deviation increase their exit probability by 0.15 percentage points (pp) and decrease their formal employment growth by 1.0 pp, with these effects both statistically and economically

significant. For instance, a firm moving from the 90th to the 10th percentile of the credit supply shock distribution experiences an additional 1.8 pp decline in employment growth and a 0.27 pp increase in exit probability.

We also analyze the differences in employment effects between job inflows (new hires) and outflows (separations) for continuing firms (those that neither entered nor exited). We find that the negative credit supply shocks primarily impact employment growth through an increase in job outflows rather than a decrease in inflows. This suggests that firms exposed to negative shocks are more likely to let existing workers go than to simply not hire new ones. These effects — concentrated in increasing job destruction and firm exit — are consistent with similar findings during financial recessions.³

The effects of credit supply shocks also vary across different stages of the pandemic. They were more pronounced in 2020 (the first year of the pandemic), a period characterized by high uncertainty and strict lockdown measures. During this initial phase, a shock of -1 standard deviation decreased formal employment growth by 1.4 pp (20 percent of the mean decline) and had a significant effect on employment outflows and exit probability. In contrast, these effects were muted during the recovery phase (end of 2020 through 2021), though the effect on outflows remained statistically significant. This pattern aligns with the idea that credit availability is more critical during periods of tight liquidity constraints and high uncertainty.

Heterogeneous Impacts on Firms and Workers

The richness of the data allows for a detailed analysis of the heterogeneity in the impacts of credit supply shocks across different types of firms and workers.

Financial Constraints and Firm Characteristics

Theory suggests that financially constrained firms are more sensitive to changes in credit availability. Our study finds that the effects of credit supply shocks are larger among likely financially constrained firms.

- **Firm age and size:** The impacts on employment and firm exit are largest among small (fewer than 100 workers) and young (less than 10 years of operation) firms. These firms typically have less collateral, weaker lender relationships and shorter credit histories, making them more vulnerable to borrowing limits. In contrast, large firms show no significant effects.
- **External financial dependence:** Firms operating in sectors with high external financial dependence (where investment is financed less by internal cash flows) exhibit a more pronounced response to credit supply shocks. This is intuitive, as these sectors rely more heavily on bank lending.
- **Incorporation status:** Unincorporated firms — which include sole proprietors and family firms and generally have less access to capital markets — show larger and more

statistically significant effects across various dimensions (including employment and exit) compared to incorporated firms. This highlights the critical role of these firms in a country's dynamics during a crisis.

- **Essentiality:** The effect of credit supply shocks on employment was statistically significant only for nonessential sectors during the initial pandemic phase (early 2020). Positive credit supply shocks helped continuing firms in nonessential industries avoid larger reductions in employment, primarily by reducing job outflows. This suggests that credit helped these firms hoard labor during lockdowns.

Worker Heterogeneity

Our study also explores how credit supply shocks affect firms' labor forces across different worker and contract types.

- **Tenure and contract type:** Exposure to negative credit shocks increases outflows of workers with short tenure and those on temporary contracts, particularly within small, young firms. This is consistent with financially constrained firms laying off workers with lower dismissal costs first.
- **Wages:** While the effect of credit supply shocks on the wage growth of remaining workers is generally negative, it is more pronounced both economically and statistically for workers with high tenure and permanent contracts. This might reflect firms retaining high-value workers by adjusting wages, possibly to compensate for increased workload.
- **Gender:** Although prior literature on a "she-cession" in Mexico is inconclusive, our study finds that an exposure of +1 standard deviation to credit supply shocks increases female employment growth by 0.6 pp at small, young firms, driven by a decline in separations of female workers. This suggests that mostly negative credit supply shocks during the pandemic contributed to a more pronounced negative effect on labor market outcomes for women, particularly in vulnerable firms.

Aggregate Effects

To assess aggregate effects, our study computes counterfactual employment levels, assuming firms are exposed to banks that contracted their credit supply the least. Based on this partial equilibrium exercise for the most critical pandemic year (2020), bank credit supply shocks accounted for 28 percent to 33 percent of the employment decrease among small firms in the sample between 2019 and 2020. This translates to 8.7 percent to 10.5 percent of the total decrease in employment when considering all firms.

These findings are particularly informative when compared to previous studies analyzing the real effects of credit supply shocks during financial crises, such as the Great Recession⁴ and the European Debt Crisis.⁵ In those financial crises, significant losses on banks' balance sheets due to exposure to mortgage-backed securities or sovereign bonds led to credit contraction.

Despite the inherent differences in the origin of the crisis, the aggregate employment impact in Mexico during this nonfinancial recession is of a similar magnitude. For example, a 2014 paper found that negative credit supply shocks accounted for one-third to one-half of the employment decline among small and medium-sized firms.⁶

Conclusions

The study demonstrates that banks' behavior can still amplify economic downturns even when they are not the source of a crisis and enter a recession with robust liquidity and capital positions. In the case of Mexico's COVID-19 recession, this amplification was driven by increased risk aversion rather than capital or funding constraints. Our findings suggest that policies targeting risk aversion (rather than liquidity constraints) may be more effective in mitigating the adverse effects of credit supply contractions during such crises.

The substantial economic effects of credit supply shocks on employment and firm survival — particularly for financially constrained small and young firms and vulnerable worker groups — highlight the need for targeted measures to alleviate financial stress during severe nonfinancial crises. Future research might benefit from exploring the role of bank risk aversion in models of the bank lending channel to better understand these nonfundamental driven shocks and inform policy design.

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¹ Authored by Hans Degryse, Olivier De Jonghe, Sanja Jakovljevic, Klaas Mulier and Glenn Schepens.

² Authored by Mary Amiti and David Weinstein.

³ See the 2018 paper "[Banks, Firms and Jobs](#)" by Fabio Berton, Sauro Mocetti, Andrea F. Presbitero and Matteo Richiardi.

⁴ See the 2014 paper "[The Employment Effects of Credit Market Disruptions: Firm-Level Evidence From the 2008-9 Financial Crisis](#)" by Gabriel Chodorow-Reich.

⁵ See the 2018 paper "[Real Effects of the Sovereign Debt Crisis in Europe: Evidence From Syndicated Loans](#)" by Viral Acharya, Tim Eisert, Christian Eufinger and Christian Hirsch.

⁶ See the previously cited 2014 paper "[The Employment Effects of Credit Market Disruptions: Firm-Level Evidence From the 2008-9 Financial Crisis.](#)"

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