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# Shock Absorbers or Transmitters?

The Role of Foreign Banks during COVID-19

Anamika Sen, Weijia Yao, and Juan F. Yépez

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WORKING PAPER

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**Shock Absorbers or Transmitters? The Role of Foreign Banks during COVID-19**  
Prepared by Anamika Sen, Weijia Yao, and Juan F. Yépez\*Authorized for distribution by Martin Čihák  
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**ABSTRACT:** This paper studies whether bank ownership influenced lending behavior during the COVID-19 shock. It finds that, similar to previous episodes of financial distress, foreign banks appear to have played a shock-transmitting role, as there was a sharp slowdown in lending by foreign banks' affiliates relative to domestic banks. However, given the uniqueness of the COVID-19 shock and the impact of lockdowns on economic activity, foreign banks were found to lend at a higher rate than domestic banks once the stringency of mobility restrictions is accounted for, with their lending portfolio concentrated more in the corporate sector. Results also suggest that the difference in lending rates between foreign and domestic banks could be explained by the heterogeneous effects of policy measures in response to the pandemic. In jurisdictions with more stringent mobility restrictions, policy interventions actually encouraged higher lending by foreign banks. These findings suggest that foreign bank presence may have acted as a shock absorber in jurisdictions where economic activity was most affected by the pandemic.

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Author's E-Mail Address:	<a href="mailto:anamikasen@umass.edu">anamikasen@umass.edu</a> ; <a href="mailto:weijiyao51@gmail.com">weijiyao51@gmail.com</a> ; <a href="mailto:jyepzalbornoz@imf.org">jyepzalbornoz@imf.org</a>

\* Anamika Sen is a PhD candidate at University of Massachusetts Amherst. She was a summer intern in the IMF's Strategy, Policy, and Review Department when this analytical work was prepared. Weijia Yao was a research analyst at the IMF when the work on the project was carried out. We would like to thank Martin Čihák and Fabián Valencia for helpful discussions. We are also grateful to Majid Bazarbash, Sophia Chen, Srobona Mitra, Paola Morales-Acevedo, Tomohiro Tsuruga, and seminar participants at the IMF for useful comments. All remaining errors are our own.

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# Shock Absorbers or Transmitters: The Role of Foreign Banks during COVID-19\*

Anamika Sen    Weijia Yao    Juan F. Yépez

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## Abstract

This paper studies whether bank ownership influenced lending behavior during the COVID-19 shock. It finds that, similar to previous episodes of financial distress, foreign banks appear to have played a shock-transmitting role, as there was a sharp slowdown in lending by foreign banks' affiliates relative to domestic banks. However, given the uniqueness of the COVID-19 shock and the impact of lockdowns on economic activity, foreign banks were found to lend at a higher rate than domestic banks once the stringency of mobility restrictions is accounted for, with their lending portfolio concentrated more in the corporate sector. Results also suggest that the difference in lending rates between foreign and domestic banks could be explained by the heterogeneous effects of policy measures in response to the pandemic. In jurisdictions with more stringent mobility restrictions, policy interventions actually encouraged higher lending by foreign banks. These findings suggest that foreign bank presence may have acted as a shock absorber in jurisdictions where economic activity was most affected by the pandemic.

*JEL Codes: E44, E65, G14, G28, G32*

*Keywords: policy announcements, financial conditions, credit, ownership, capital, liquidity, COVID-19*

## 1 Introduction

In the aftermath of the Global Financial Crisis (GFC), several studies have pointed out that foreign bank participation can be an important spillover channel for global financial shocks. For instance, Cetorelli and Goldberg (2011) found that during this period, loan supply in emerging markets was affected by a contraction in cross-border lending by foreign banks and a reduction in local lending by foreign banks' affiliates. Through these channels, foreign banks acted as shock transmitters of the GFC from advanced economies to emerging markets. Did jurisdictions with significant foreign bank presence face a similar fate with the onset of the COVID-19 pandemic?

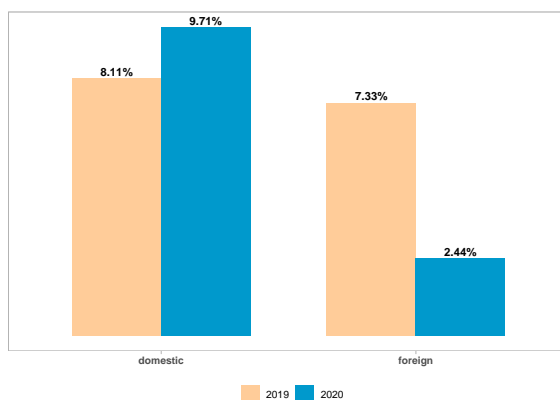
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From the perspective of a jurisdiction’s banking sector, the COVID-19 crisis was different from the GFC for several reasons. First, this shock originated in the real economy and was exogenous to the financial sector. Second, due to the widespread nature of the pandemic, it could take the form of an external shock when there were large outbreaks in the home jurisdiction of foreign banks or a domestic shock when infections spread rapidly in the host jurisdiction. Finally, despite unprecedented levels of regulatory support, the banking sector was under significant stress during the onset of the pandemic with the sector’s stock prices underperforming relative to other parts of the economy. This underperformance was a sign of increased risk perception.<sup>1</sup> Policy measures that were introduced also had mixed impacts on the overall performance of banks (Demirgüç-Kunt et al., 2021; Valencia et al., 2021).

Macroeconomic shocks can have heterogeneous effects based on bank ownership due to several reasons. On one hand, foreign subsidiaries of banks may have access to larger internal capital markets and support from their parent companies. Thus, they could be shock absorbers as these banks have better liquidity positions and more stable lending behavior relative to locally owned banks during economic shocks originating in their host jurisdictions (Houston et al., 1997; Campello, 2002; Ashcraft, 2008). Alternatively, foreign banks may act as transmitters of external shocks to their host jurisdictions. For instance, the presence of global internal capital markets could mean that liquidity shocks occurring in the home jurisdictions of foreign banks cause a decline in lending in the host jurisdiction as funds are channeled to support the parent company (Cetorelli and Goldberg, 2012). The dual role played by foreign banks along with the uniqueness of the COVID-19 shock warrants the need to empirically investigate the impact of foreign bank presence on jurisdictions during the pandemic.

Figure 1: Credit growth by bank ownership



Notes: Credit growth is calculated based on data obtained from Fitch Connect. Our sample consists of 62 jurisdictions, both advanced and emerging market economies. See Section 3 for details.

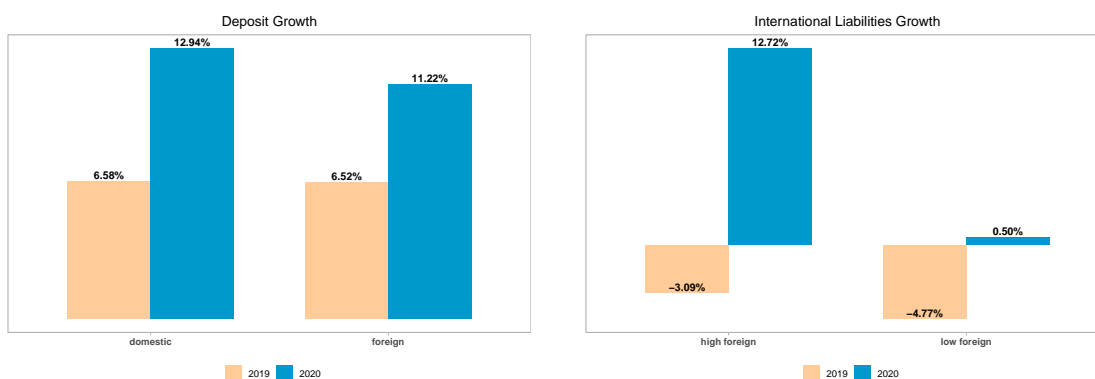
Against this backdrop, we analyze the role played by ownership in determining bank behavior and perfor-

<sup>1</sup> See Demirgüç-Kunt et al. (2021) for a detailed description of bank stock underperformance. Acharya et al. (2021) attribute this underperformance to the impact on bank capital from credit line drawdowns by firms, which has had an adverse effect on bank intermediation.

mance during the COVID-19 crisis. As Figure 1 shows, domestic and foreign banks had similar rates of credit growth in the year preceding the pandemic. However, this changed substantially in 2020 – while domestic banks increased their lending rates, foreign banks faced a decline in theirs.

One possible reason behind the difference in lending patterns could be variations in access to key sources of funding during the pandemic. However, indicators of deposits and foreign borrowing show that this was an unlikely explanation. Domestic and foreign banks had comparable rates of deposit growth both prior to and following the onset of the pandemic (Figure 2). Furthermore, we observe that jurisdictions with higher presence of foreign banks had greater access to international loans in 2020. Thus, to get a better sense of this difference in lending behavior, it would be important to account for differences in crisis intensity, demand conditions, policy responses, etc.

Figure 2: Liquidity conditions by ownership



Notes: Growth rates are calculated based on data obtained from Fitch Connect and BIS locational banking statistics. Our sample consists of 62 jurisdictions, both advanced and emerging market economies. See Section 3 for details. Jurisdictions where foreign banks’ share of the banking sector’s assets was greater than the median level are classified as having “high foreign” presence, else they are classified as having “low foreign” presence. Data on foreign banks’ share of banking sector’s assets was obtained from Claessens and Horen (2014).

In this paper, we use the COVID-19 pandemic as a natural experiment to assess whether bank ownership plays a role in determining its behavior and performance during a crisis. As the first step in our analysis, we implement a difference-in-differences framework to estimate whether heterogeneity in lending decisions during the pandemic could be attributed to bank ownership. Our results show that the overall growth rate of credit for foreign banks in 2020 was approximately 6 percentage points less than their domestic counterparts. This finding appears to support the hypothesis that foreign banks played a shock transmitting role as in the case of the GFC.

A deeper investigation into lending behavior during the pandemic reveals a contradiction. While at an overall level, foreign banks had a lower growth rate in credit compared to domestic banks, once we account for the severity of lockdown measures in a jurisdiction this result reverses. We find that in areas where the spread of COVID-19 led to more stringent restrictions in mobility, foreign banks were lending at a higher rate relative to locally owned banks. This was especially true in the case of foreign banks based in emerging markets.

Furthermore, foreign banks continued to issue credit at steady rates when lockdown measures were more stringent in host jurisdictions relative to their home jurisdictions. In terms of composition, foreign bank portfolios appear to be more concentrated in the corporate sector in these jurisdictions. This exposure was likely to have been exacerbated by the increased credit demand by businesses which resorted to bank loans and running down their credit lines to keep running during the pandemic. In this manner, foreign banks may have helped stabilize the real economy by providing a steady supply of liquidity, thus acting as shock absorbers.

The extent of policy intervention in host jurisdictions could also be an important factor in explaining the differences in lending patterns, as the effect of policy measures will depend, among other things, on the funding and capital structure of banks. Consistent with the baseline results, in general, foreign banks were lending at a lower rate than domestic banks despite controlling for the extensiveness of policy interventions. However, foreign banks' lending rates were significantly higher in the jurisdictions in which economic activity was most affected by the pandemic and with a higher number of monetary and prudential policy interventions. Looking at specific policies, a more extensive use of capital requirement measures appears to explain the bulk of the difference in lending patterns.

Due to data limitations, a caveat of our analysis is that we are unable to fully disentangle demand-side factors that may affect bank lending from supply-side ones. We utilize information on mobility restrictions which can partially account for possible demand effects. Future research using bank-borrower matched data can enhance our understanding of the factors that affect bank lending decisions.

Our paper is related to the extensive literature on the effects of foreign bank presence during crisis periods. This strand of literature has found that in the case of crises that originated in developing countries, foreign banks have acted as a source of stability to the economy. Their lending behavior was less sensitive to the monetary conditions of their host jurisdictions and they had more steady loan and deposit rates (Arenas et al., 2007). These patterns have been observed for crises in Latin America as well as Central and Eastern Europe (Crystal et al., 2002; De Haas and Lelyveld, 2006). Conversely, during the GFC foreign banks were found to exacerbate the liquidity crisis as they contracted lending faster than domestic banks (Cetorelli and Goldberg, 2011; Cull and Martínez Pería, 2013). However, De Haas et al. (2012) show that even though both domestic and foreign banks sharply curtailed credit during the GFC, foreign banks that participated in the Vienna Initiative were relatively stable lenders.<sup>2</sup> While most of the focus in this body of work has been on the impact of foreign banks on developing economies, we analyze their effect for a large panel comprising both developed and developing economies.

This paper also contributes to the nascent literature that looks at the impact of policy measures introduced

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<sup>2</sup> Amid the absence of agreements on how to share the burden of a defaulting subsidiary between the fiscal authorities in the home and host countries, the Austrian government and a number of multinational banks with high exposures in Eastern and Central Europe started to engage in informal discussions towards the end of 2008. The resulting "Vienna initiative" was created as a coordination platform for multinational banks, their home- and host-country supervisors, fiscal authorities, the IMF, and development institutions to safeguard a continued commitment of parent banks to their subsidiaries and to guarantee macroeconomic stability in emerging Europe (see De Haas et al. (2012) and the references therein for a more detailed description).

to support the banking sector during the COVID-19 pandemic. Existing studies have found that the unprecedented level of regulatory support measures had mixed effects on the performance of the banking sector. For instance, capital easing policies led to lower stock prices of banks with relatively lower capital buffers (Demirgüç-Kunt et al., 2021; Valencia et al., 2021). Meanwhile, measures increasing liquidity boosted bank stock prices (Valencia et al., 2021). Countercyclical prudential regulations also had limited effects on lending due to banks’ unwillingness to draw on their excess capital (Couaillier et al., 2022). We add to this body of literature by analyzing whether bank ownership had a role to play in determining their response to policy measures.

Our findings build on Çolak and Öztekin (2021), who show that greater presence of foreign banks in a jurisdiction was associated with lower availability of credit during the pandemic. This paper explores this phenomenon further by using bank-level ownership data and analyzing the channels which may have caused domestic and foreign banks to respond differently to the crisis.

The rest of this paper is organized as follows. Section 2 describes the empirical strategy we utilized in our analysis. Section 3 provides an overview of the data employed in our paper. Section 4 and Section 5 present our findings as well as perform robustness checks of the key results. Section 6 concludes.

## 2 Empirical Strategy

In this paper, we conduct several regression analyses to study the impact of bank ownership on behavior and performance during the COVID-19 pandemic. Our metrics of interest include overall lending rates and the composition of banks’ lending portfolios. We conclude our analysis by studying the role that policies played in explaining the differences between bank lending behavior during this period.

### 2.1 Bank Ownership and Overall Lending

We employ a fixed effects model to estimate the effect of foreign bank ownership on lending patterns during the COVID-19 crisis. Our baseline specification is as follows.

$$\Delta Loans_{i,c,t} = \beta_1 Foreign_{i,t} + \beta_2 Covid_{c,t} + \beta_3 Covid_{c,t} * Foreign_{i,t} + \delta X_{i,t-1} + \alpha_c + u_{i,c,t} \quad (1)$$

Our analysis in this section uses annual data from 2015-2020. We opt for annual data as this provides coverage over a larger number of banks relative to quarterly data.  $Loans_{i,c,t}$  is the growth rate of total gross loans for bank  $i$  in jurisdiction  $c$  at period  $t$ .  $Foreign_{i,t}$  is a dummy variable that takes the value 1, if a bank is foreign owned and 0, otherwise. A bank is considered foreign owned when greater than 50 percent of its asset share is held by foreign entities.  $Covid_{c,t}$  is a dummy variable that takes the value 1 in 2020 and 0 for all other time periods. The interaction term between the COVID-19 dummy and the foreign ownership dummy allows us to capture the impact of foreign bank ownership on lending behavior relative to domestic banks during the COVID-19 shock.  $X_{i,t-1}$  is a matrix of one period lagged bank characteristics that can also impact loan growth. These include bank size (estimated using log of assets), capital (ratio of bank equity to total assets), liquidity (ratio of liquid assets to total assets), profitability (return on assets),



and funding structure (customer deposits as a share of total liabilities).  $\alpha_c$  controls for country fixed effects. We include year and bank fixed effects in additional specifications to check for robustness of our results.

As the next step in our analysis, we dig deeper into the differences in lending behavior between domestic and foreign banks during the pandemic. In this context, we look at whether the extent of lockdown measures in a jurisdiction had heterogeneous impacts on banks based on ownership. We use changes in mobility to retail and recreational venues as a proxy for the severity of the effects of the pandemic on economic activity. Policy makers across the world often responded to a rise in the number of COVID-19 infections and deaths by placing restrictions on non-essential trips. This makes mobility changes to retail and recreational venues a plausible proxy for the extent of the COVID-19 crisis in a jurisdiction. Accounting for changes in mobility also allows us to partially capture the impact of demand-side factors on bank lending behavior. Limitations in the ability of consumers to visit retail and recreational venues can affect the income of businesses. This may lead them to rely on bank loans and draw down their lines of credit to meet expenses. In this section of our analysis, we estimate the following cross-sectional regression specification.

$$\begin{aligned} \Delta Loans_{i,c} = & \beta_1 Foreign_i + \beta_2 HighMobilityChange_c + \beta_3 Foreign_i * HighMobilityChange_c \\ & + \delta X_{i,2019} + u_{i,c} \end{aligned} \quad (2)$$

Here, we focus only on credit growth during 2020 as this is the period for which data on mobility change is available.  $HighMobilityChange_c$  is a dummy variable that takes the value 1, if mobility change to retail and recreational venues in a jurisdiction is higher than the median and 0, otherwise. The interaction term between the mobility change dummy and the foreign ownership dummy allows us to capture the impact of foreign bank ownership on lending behavior relative to domestic banks after accounting for the severity of lockdown measures. All other variables follow the same definitions as in equation (1).

## 2.2 Bank Ownership and Loan Portfolios

The onset of the pandemic could have impacted the overall lending by banks as well as their loan portfolios. Existing literature finds that bank ownership can play a role in determining credit allocation between consumers and firms (Bezemer et al., 2017). Such differences in lending portfolios may have continued during the pandemic as well. To this end, we analyze whether domestic and foreign banks had different shares of consumer and firm loans after conditioning for the severity of mobility limitations. We estimate the following cross-sectional regression specifications to capture these effects.

$$\begin{aligned} \Delta ConsumerShare_{i,c} = & \beta_1 Foreign_i + \beta_2 HighMobilityChange_c + \beta_3 Foreign_i * HighMobilityChange_c \\ & + \delta X_{i,2019} + u_{i,c} \end{aligned} \quad (3)$$

$$\begin{aligned} \Delta FirmShare_{i,c} = & \beta_1 Foreign_i + \beta_2 HighMobilityChange_c + \beta_3 Foreign_i * HighMobilityChange_c \\ & + \delta X_{i,2019} + u_{i,c} \end{aligned} \quad (4)$$

Similar to the analysis in the equation (2), we only consider lending behavior in 2020.  $ConsumerShare_{i,c}$  is the share of consumer loans in total loans for bank  $i$  in jurisdiction  $c$  in 2020.  $FirmShare_{i,c}$  is the share of corporate loans in total loans for bank  $i$  in jurisdiction  $c$  in 2020. The interaction term between the dummy for high mobility change and that for foreign ownership indicates whether foreign banks had different loan portfolios than locally owned banks in jurisdictions where lockdown measures were more severe.

### 2.3 Role of Policies

To conclude our analysis, we study the role that the extensive use policy measures played in affecting lending decisions during the COVID-19 crisis. We analyze the impact of four types of policies – monetary, fiscal, prudential, and debt moratoria. Additionally, we look at the effect of prudential measures involving capital requirements and those related to liquidity requirements. We estimate the following cross-sectional regression specifications to capture these effects.

$$\begin{aligned} \Delta Loans_{i,c} = & \beta_1 Foreign_i + \beta_2 HighNo.ofPolicies_c + \beta_3 HighMobilityChange_c \\ & + \beta_4 Foreign_i * HighNo.ofPolicies_c \\ & + \beta_5 HighNo.ofPolicies_c * HighMobilityChange_c \\ & + \beta_6 Foreign_i * HighMobilityChange_c \\ & + \beta_7 Foreign_i * HighNo.ofPolicies_c * HighMobilityChange_c + \delta X_{i,2019} + u_{i,c} \end{aligned} \quad (5)$$

$$\begin{aligned} \Delta Loans_{i,c} = & \beta_1 Foreign_i + \beta_2 PrudentialMeasures_c + \beta_3 HighMobilityChange_c \\ & + \beta_4 Foreign_i * PrudentialMeasures_c \\ & + \beta_5 PrudentialMeasures_c * HighMobilityChange_c \\ & + \beta_6 Foreign_i * HighMobilityChange_c \\ & + \beta_7 Foreign_i * PrudentialMeasures_c * HighMobilityChange_c + \delta X_{i,2019} + u_{i,c} \end{aligned} \quad (6)$$

Similar to our analysis in equations (2)-(4), we study the impact of policies on credit growth in 2020. In equation (5), the variable  $HighNo.ofPolicies_c$  is a dummy variable that takes the value 1, if the number of policy interventions (monetary, fiscal, prudential, or debt moratoria) were higher than the median and 0, otherwise. All other variables follow the same definitions as earlier. The interaction term,  $Foreign_i * HighNo.ofPolicies_c$ , tells us whether higher levels of policy support affected domestic and foreign banks differently. The coefficient of the triple interaction term,  $Foreign_i * HighNo.ofPolicies_c * HighMobilityChange_c$ , captures whether extensive policy interventions in areas more severely affected by the COVID-19 pandemic had heterogeneous effects on the lending behavior of banks based on ownership.

In equation (6), the variable  $PrudentialMeasures_c$  is a dummy variable that takes the value 1, if a jurisdiction introduced prudential policies related to capital or liquidity requirements and 0, otherwise. The interaction term,  $Foreign_i * PrudentialMeasures_c$ , tells us whether the more extensive use of capital or liquidity requirements affected domestic and foreign banks differently. The coefficient of the triple interaction term,  $Foreign_i * PrudentialMeasures_c * HighMobilityChange_c$ , captures whether prudential measures that were introduced in areas more severely affected by the COVID-19 pandemic had heterogeneous effects on the lending behavior of banks based on ownership.

### 3 Data

This section provides a detailed description of the dataset used in this paper. Our dataset is compiled from multiple sources and comprises bank-level information on ownership, financial characteristics, and lending portfolios. We also gather country-level data on mobility changes and policy measures for our analysis.

#### 3.1 Bank Ownership and Financial Information

Our source of bank-level data is Fitch Connect, a comprehensive commercial database of bank financial statements which is maintained by Fitch Solutions. We obtain information on bank ownership and gross loans for 2015-2020 from this database. Additionally, we also collect data on bank size, capitalization, liquidity, profitability, funding structure, and loans allocated to consumers and firms. Table 1 summarizes the ownership distribution of the banks in our sample.

A bank is defined as foreign owned if more than 50 percent of its asset share is controlled by foreign entities. We exclude bank holding companies from our sample to avoid issues of double counting as it is often the case that the holding company and the bank itself are included in Fitch Connect. Our sample includes banks for which ownership and financial information is available for all years from 2015-2020. There are 1,482 banks across 62 jurisdictions in our final sample.<sup>3</sup> The ownership distribution in our sample reveals that foreign bank presence is significantly higher in emerging markets (32 percent) as compared to advanced economies (8 percent).

#### 3.2 Mobility Restrictions

Our analysis uses mobility changes to retail and recreational venues to measure the stringency of lockdown policies that were introduced in response to the COVID-19 pandemic. Data on mobility is collected from the COVID-19 Community Mobility Reports compiled by Google LLC. We use the change in visits to retail and recreational venues to capture the stringency of mobility restrictions. This variable looks at mobility trends for trips to non-essential venues like restaurants, shopping centers, movie theaters, theme parks, etc. which were often the target of policies aimed at curbing the spread of COVID-19.

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<sup>3</sup> Refer to Table A1 in the Appendix for the full list of jurisdictions.

### 3.3 Policy Announcements

We use information on policy support measures to analyze whether they had differentiated effects by bank ownership. This data is collected from Kirti et al. (2022). The authors use multiple sources to compile information on policies introduced to support the financial sector in 2020. The dataset includes information on the following policy types – monetary, fiscal, prudential, and others (for example, debt moratoria). Table 2 provides a summary of the policy measures introduced across the 62 jurisdictions in our sample. We observe that monetary and prudential policies comprised a significant majority of all policy announcements in our sample.

Among prudential policies, we look at the impact of capital and liquidity requirements on bank behavior. Table 3 shows a summary of the capital and liquidity measures that we use in our analysis. In our sample of countries, prudential policy announcements primarily involved capital-related requirements.

## 4 Results

### 4.1 Impact of Bank Ownership on Lending Behavior

Table 4 presents the estimates of the fixed effects regression specification in equation (1). In addition to country fixed effects, we also include country-time fixed effects and bank fixed effects in columns (3) and (4) to control for country-specific trends and unobserved bank-level characteristics. Across all specifications, we observe that credit growth during the pandemic was almost 6 percentage points lower for foreign banks relative to domestic banks. These results support findings in existing literature which shows that foreign banks limit lending during a crisis, thus worsening liquidity conditions in such periods (Cetorelli and Goldberg, 2011; Cull and Martínez Pería, 2013).

While these initial results indicate that foreign banks acted as shock amplifiers as in previous crises, did these responses vary based on the severity of lockdown measures in jurisdictions? Following equation (2), we include the extent of mobility changes as a control variable in our estimations. Table 5 presents the estimates for this cross-sectional regression exercise. In columns (1) and (2), jurisdictions where mobility change in 2020 was higher than the median, are classified as experiencing a high change in mobility. In column (3), we check for robustness by using a 70-30 cutoff for this classification i.e., jurisdictions where mobility change was higher than the 70th percentile, are classified as experiencing a high change in mobility.

Accounting for the severity of the COVID-19 pandemic on economic activity as well as bank-level characteristics, we in fact find the opposite – foreign banks were issuing credit at a higher rate than domestic banks in jurisdictions with more stringent mobility restrictions.<sup>4</sup> By providing a steady access to liquidity, foreign banks may have acted as shock absorbers in areas that were hit hard by the pandemic and the subsequent restrictions on economic activity.<sup>5</sup> Hence, the differences in credit demand that are captured by variations in mobility restrictions could be a key factor in explaining the differences in lending behavior during the

<sup>4</sup> These results are robust to alternate thresholds for foreign bank ownership. Results are available from authors upon request.

<sup>5</sup> The positive and significant value of the interaction term between the COVID-19 shock and the foreign bank dummy variable across all specifications suggests that foreign banks lent at a higher rate in jurisdictions with the most stringent mobility restrictions, as compared to foreign banks in jurisdictions with lower mobility restrictions.

pandemic.

Previous analyses of lending behavior during an economic crisis have found that foreign banks have acted as shock absorbers as well as shock transmitters in emerging markets (for example, De Haas and Lelyveld, 2006; Cetorelli and Goldberg, 2011). To analyze the nature of lending decisions of foreign banks across advanced economies and emerging markets during the COVID-19 pandemic, we estimate equation (2) separately for each of these income groups. Table 6 presents the results from these estimations. In columns (1)-(2) and (4)-(5), we use the median change in mobility during 2020 as the cutoff point to determine whether a jurisdiction experienced large restrictions on mobility. In columns (3) and (6), jurisdictions that had mobility changes higher than the 70th percentile are classified as having large restrictions on mobility.

Foreign banks in advanced economies had lower rates of credit growth relative to domestic banks irrespective of the degree of mobility restrictions in a jurisdiction. However, the case for emerging markets was the opposite. While at an overall level, foreign banks were issuing credit at a lower rate than domestic banks, they acted as shock absorbers in jurisdictions with more stringent mobility restrictions by maintaining more stable rates of lending. This finding is in sharp contrast to the GFC where foreign bank affiliates in emerging markets performed the role of shock transmitters by drastically reducing their rates of lending because of liquidity crunches in their parent companies.

Table 7 shows that lending rates of foreign banks also exceeded domestic banks in cases where the host jurisdiction had more stringent mobility restrictions relative to the home jurisdiction. In this case as well, foreign banks appear to have played a shock absorbing role by channeling credit to jurisdictions that were facing significant economic challenges due to mobility restrictions introduced to curb the COVID-19 pandemic. The lending decisions of foreign banks in both emerging markets as well as jurisdictions with stringent mobility restrictions indicate that bank behavior during the COVID-19 crisis was indeed different from the GFC.

## 4.2 Impact of Bank Ownership on Credit Allocation

In the previous section, we find that even though foreign banks had lower credit growth rate than domestic banks during the pandemic, they were more reliable lenders in jurisdictions in which economic activity was affected the most during the pandemic. Did higher lending in areas severely affected by the pandemic tend more towards consumers or firms? Tables 8 and 9 present the estimates of the effect of bank ownership on lending portfolios in 2020. These estimates are based on the regression specifications outlined in equations (3) and (4). In the first two columns of Tables 8 and 9, jurisdictions with mobility changes higher than the median are classified as having a high change in mobility. In the third column, we use the 70th percentile as the cutoff point for classifying a jurisdiction as one experiencing high change in mobility.

Across all specifications, we find that foreign banks in jurisdictions with high mobility changes had a lower share of consumer loans in their portfolios relative to domestic banks. Conversely, the share of firm credit in their loan portfolios was larger than domestic banks. This indicates that in areas with more stringent lockdown measures, foreign banks had a larger exposure to the corporate sector and less so to households (as compared to domestic banks). This could explain why in these jurisdictions, credit growth rates were

higher for foreign relative to domestic banks, as firms were more likely to demand credit and draw down their existing credit lines in jurisdictions with more severe lockdowns. By ensuring a steady supply of liquidity, foreign banks provided support to the real economy in areas that were hit hardest by the pandemic.

### 4.3 Role of Policies

The COVID-19 pandemic was characterized by unprecedented levels of policy and regulatory support, with many of these policies directed specifically to the financial sector. This was possible due to the exogenous nature of the COVID-19 shock as well as the presence of large capital buffers on bank balance sheets (Valencia et al., 2021). In this section, we look at whether the number of policy and regulatory support measures can explain the differences in lending patterns in foreign and domestic banks, as the effect of these measures on banks is likely to vary based on funding and ownership structures.

In Tables 10 and 11, we analyze the role of extensive policy and regulatory support in determining bank lending behavior during 2020. We look at four different types of policy measures – monetary, fiscal, prudential, and debt moratoria. Among prudential policies, we also study the role of the use of capital and liquidity measures to see if they had different effects on lending behavior. The estimates in these tables are based on equations (5) and (6).

As in the baseline scenario, foreign bank lending rates were lower than domestic banks in jurisdictions with larger number of policy interventions. However, in jurisdictions with high levels of mobility restrictions and more extensive policy and regulatory support, foreign banks were able to lend at a higher rate than locally owned banks. This was especially true in the case of monetary policies and prudential stimulus. The impact of fiscal policies and debt moratoria measures were more muted.

Looking specifically at prudential measures, we observe a similar pattern. Lending rates for foreign banks were higher than domestic banks in jurisdictions most affected by lockdowns and where capital requirements were relaxed. Lending rates among foreign and domestic banks were not significantly different in jurisdictions with lower liquidity requirements. Thus, in the context of the COVID-19 crisis, differences in the capital structures of foreign and domestic banks likely played a role in explaining the heterogeneity in lending decisions.

## 5 Robustness

This section performs robustness checks of our main results. The robustness exercises include: (i) replacing the dummy variable for high change in mobility with actual values of mobility changes in equations (2)-(4); (ii) replacing the dummy variable for large number of policy interventions with the actual number of policy measures in equation (5); (iii) replacing the dummy variable for the presence of capital or liquidity measures with the actual number of prudential policies in these categories in equation (6). All the results remain broadly unchanged.

## 5.1 Actual Changes in Mobility

Table 12 shows the effect of bank ownership on credit growth after accounting for changes in mobility during 2020. Similar to our findings in Table 5, the coefficient of the interaction term between foreign ownership and change in mobility is positive. This would indicate that foreign banks increased their rates of lending in response to a rise in mobility restrictions. Thus, in jurisdictions with stringent lockdown measures (i.e., above the median), foreign banks were likely to have provided more stable access to credit relative to domestic banks.

Tables 13 and 14 present the effects of bank ownership on credit allocation to consumers and firms after accounting for mobility changes in a jurisdiction during 2020. The results in these tables support our findings from Tables 8 and 9. As mobility restrictions in a jurisdiction increased, foreign banks tended to reduce the share of consumer credit in their loan portfolios and shift their exposure towards firm credit.

## 5.2 Actual Number of Policy Measures

Tables 15 and 16 show the effect of policy measures on bank lending behavior during the COVID-19 pandemic. In line with our findings from Tables 10 and 11, at an overall level, higher number of policy interventions did not benefit foreign banks. However, in the case of foreign banks based in jurisdictions with stringent mobility restrictions, an increase in the number of policy interventions had a positive effect on their lending rate. These results hold for both monetary as well as prudential policies. Hence, in jurisdictions with the most stringent mobility restrictions and where the use of policy and regulatory support was most extensive, the lending rate of foreign banks was higher than that of domestic banks. Among prudential policies, a higher usage of capital measures led to an increase in the lending rates of foreign banks in jurisdictions with high mobility restrictions.

## 6 Conclusion

The GFC sparked a renewed interest in understanding the role that foreign banks play in an economy during periods of crisis. Previous studies have found foreign banks have acted as both absorbers as well as transmitters of shocks depending on the origin and nature of the crisis. In this paper, we analyze the behavior and performance of foreign banks relative to domestic banks during the COVID-19 pandemic. The economic shock caused by the pandemic provides a unique opportunity to study the role of bank ownership in determining outcomes such as credit growth and credit allocation, as it is exogenous to the financial sector.

Similar to the GFC, we find that foreign banks had lower rates of credit growth relative to domestic banks during the COVID-19 pandemic. This result is robust to controlling for bank-level characteristics as well as the inclusion of country, time, and bank fixed effects. Thus, at an overall level, jurisdictions with higher foreign bank presence may have faced a more severe credit crunch compared to jurisdictions with lower foreign bank presence. At first glance, these findings indicate that foreign banks acted as shock amplifiers. However, once we condition for the severity of the effects of the pandemic on economic activity, our findings are reversed, which in turn sheds light on the importance of demand conditions in explaining lending be-

havior during the pandemic. In jurisdictions that introduced more stringent lockdown measures to combat the COVID-19 crisis, foreign banks had a higher growth rate in credit compared to domestic banks. In such jurisdictions, foreign banks also had a larger exposure to the corporate sector compared to locally owned banks. This could be a key factor in explaining why foreign bank lending rates were higher in these areas compared to domestic banks, as businesses facing tougher lockdowns demanded more credit to stay afloat. In this manner, foreign banks ensured a steady supply of liquidity, thus acting as shock absorbers in jurisdictions that were hit hardest by the pandemic.

Timely policy intervention was critical in explaining the differences in lending behavior between foreign and domestic banks, mainly in jurisdictions with tougher lockdowns and mobility restrictions. Foreign bank lending rates were higher than domestic banks in jurisdictions with higher mobility restrictions and more frequent monetary and prudential policy interventions. Looking at regulatory policy composition, we find that foreign bank lending rates were higher in jurisdictions that were most affected by pandemic-related restrictions as well as more extensive changes to capital requirement. It is possible that foreign banks in such regions had larger capital buffers which allowed them to benefit more from extensive relaxation of prudential requirements. Thus, extensive financial regulatory support enhanced the shock absorbing role of foreign banks in these areas.

Our analysis in this paper provides a more nuanced perspective on the role that foreign banks played during the COVID-19 pandemic. At an overall level, they support existing findings that credit growth decelerated more in jurisdictions with higher foreign bank presence (Çolak and Öztekin, 2021). However, they acted as shock absorbers in areas where high levels of COVID-19 infections led to large disruptions in economic activity due to lockdowns and mobility restrictions. Unlike during the GFC, foreign bank affiliates in emerging markets maintained stable rates of lending despite stringent lockdown measures.

Due to data limitations, a caveat of our analysis is that we are unable to fully separate demand-side factors that impact lending from supply-side ones. While our use of information on mobility changes can partially account for demand conditions, further research using bank-borrower matched data can improve our understanding of the role played by bank ownership in determining its lending decisions.

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## Tables

Table 1: Ownership distribution across all banks

	<i>Domestic</i>	<i>Foreign</i>
<i>Advanced Economies</i>	1015	87
<i>Emerging Market Economies</i>	249	117
<i>Low Income Economies</i>	9	5
<i>Overall sample</i>	1273	209

Table 2: Announcement distribution across all policy types

<i>Policy Type</i>	<i>Number of Announcements</i>
<i>Debt Moratoria</i>	168
<i>Fiscal</i>	132
<i>Monetary</i>	722
<i>Prudential</i>	849

Table 3: Announcement distribution across prudential policies

<i>Policy Type</i>	<i>Number of Announcements</i>
<i>Liquidity requirements</i>	45
<i>Capital requirements</i>	206

Table 4: Impact of bank ownership on credit growth during COVID-19

	Growth of Gross Loans			
	(1)	(2)	(3)	(4)
Foreign	-0.620 (0.789)	-0.073 (0.970)	-0.128 (0.875)	
COVID	0.262 (1.015)	0.570 (0.982)		
Foreign*COVID	-5.999*** (1.670)	-5.946*** (1.857)	-5.953*** (1.465)	-5.183*** (1.097)
Bank Size		-0.241 (0.225)	-0.269 (0.240)	-9.555* (5.606)
Capital		-10.158 (14.152)	-10.441 (13.377)	66.094*** (25.130)
Profitability		68.910** (32.758)	81.337*** (19.027)	22.524 (21.919)
Funding Structure		5.235** (2.586)	4.734** (2.109)	1.864 (3.273)
Liquidity		-0.045 (0.033)	-0.045 (0.036)	0.200 (0.136)
Observations	8,611	6,744	6,744	6,744
Adj. R-squared	0.08	0.10	0.14	0.35
Country FE	Yes	Yes	Yes	Yes
Time FE	No	No	Yes	Yes
Bank FE	No	No	No	Yes

Notes: Standard errors robust against heteroskedasticity and serial correlation at the country level are reported in parentheses. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Table 5: Impact of bank ownership on credit growth during COVID-19 after accounting for mobility changes

	Growth of Gross Loans		
	(1)	(2)	(3)
Foreign	-10.356*** (1.534)	-8.015*** (1.498)	-6.812*** (1.304)
High Change in Mobility	-6.648*** (1.287)	-3.296** (0.982)	-3.941** (1.553)
Foreign*High Change in Mobility	9.856*** (2.654)	8.107*** (2.455)	7.341*** (2.761)
Bank Size		-0.465*** (0.169)	-0.492*** (0.169)
Capital		-34.055** (16.356)	-35.436** (16.209)
Profitability		73.782* (37.991)	75.680* (39.103)
Funding Structure		6.482** (3.016)	6.019** (2.919)
Liquidity		-0.115** (0.054)	-0.117** (0.055)
Constant	11.031*** (0.513)	13.094*** (3.798)	13.818*** (3.797)
Observations	1,409	1,327	1,327
Adj. R-squared	0.04	0.07	0.07

Notes: Standard errors robust against heteroskedasticity are reported in parentheses.

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Table 6: Impact of bank ownership on credit growth during COVID-19 after accounting for mobility changes across income groups

	Growth of Gross Loans					
	Advanced Economies		Emerging Market Economies			
	(1)	(2)	(3)	(4)	(5)	(6)
Foreign	-11.324*** (2.462)	-5.838*** (2.108)	-5.772*** (1.922)	-6.876*** (2.503)	-5.380** (2.581)	-2.984 (2.027)
High Change in Mobility	-9.159*** (1.693)	-1.872 (1.985)	-3.278* (1.958)	-2.375 (2.654)	-3.417 (2.610)	-4.355* (2.542)
Foreign*High Change in Mobility	5.894* (3.581)	0.358 (3.128)	0.070 (3.149)	7.723** (3.847)	8.904** (3.572)	6.947* (3.742)
Bank Size		-0.219 (0.214)	-0.191 (0.216)		-0.322 (0.290)	-0.388 (0.288)
Capital		-61.136*** (21.314)	-61.448*** (21.039)		-31.049* (17.794)	-37.374** (18.345)
Profitability		250.560* (150.000)	245.873* (148.541)		48.418* (27.537)	51.593* (29.249)
Funding Structure		15.864*** (3.705)	15.041*** (3.645)		-13.387*** (4.885)	-14.948*** (5.065)
Liquidity		-0.145** (0.068)	-0.146** (0.068)		-0.077 (0.081)	-0.070 (0.081)
Constant	11.271*** (0.532)	4.485 (4.359)	5.159 (4.323)	8.656*** (2.044)	24.673*** (5.835)	26.772*** (5.983)
Observations	1,085	1,037	1,037	312	278	278
Adj. R-squared	0.06	0.12	0.12	0.002	0.03	0.03

Notes: Standard errors robust against heteroskedasticity are reported in parentheses. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 7: Impact of bank ownership on credit growth during COVID-19 after accounting for differences in mobility changes in host and home jurisdictions

	Growth of Gross Loans	
	(1)	(2)
Foreign	-6.265*** (1.920)	-3.092*** (1.680)
Tighter Mobility in Host Country	-13.301*** (3.396)	-12.725** (3.333)
Foreign*Tighter Mobility in Host Country	13.096*** (4.309)	10.571*** (4.093)
Bank Size		-0.462*** (0.175)
Capital		-31.104* (16.735)
Profitability		65.728* (35.127)
Funding Structure		10.144*** (2.773)
Liquidity		-0.113** (0.047)
Constant	9.546*** (0.484)	9.035*** (3.469)
Observations	1,351	1,273
Adj. R-squared	0.01	0.06

Notes: Standard errors robust against heteroskedasticity are reported in parentheses.

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 8: Impact of bank ownership on consumer lending during COVID-19

	Share of Consumer Loans in Total Loans		
	(1)	(2)	(3)
Foreign	3.340 (3.156)	5.722* (3.225)	2.479 (2.722)
High Change in Mobility	3.369 (2.083)	4.182 (2.684)	3.537 (3.001)
Foreign*High Change in Mobility	-14.922** (4.580)	-16.817*** (4.713)	-13.774*** (5.083)
Bank Size		-0.101 (0.336)	-0.051 (0.339)
Capital		-64.293*** (19.216)	-63.577*** (19.254)
Profitability		-10.502 (44.996)	-11.976 (46.602)
Funding Structure		-8.097 (5.992)	-9.041 (6.189)
Liquidity		-0.220*** (0.083)	-0.213*** (0.082)
Constant	38.809*** (0.783)	55.547*** (7.289)	56.095*** (7.560)
Observations	1,220	1,186	1,186
Adj. R-squared	0.01	0.03	0.03

Notes: Standard errors robust against heteroskedasticity are reported in parentheses.

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Table 9: Impact of bank ownership on firm lending during COVID-19

	Share of Firm Loans in Total Loans		
	(1)	(2)	(3)
Foreign	-9.716*** (3.053)	-13.512*** (3.108)	-8.933*** (2.819)
High Change in Mobility	-12.608*** (2.214)	-16.715*** (2.559)	-11.716*** (2.939)
Foreign*High Change in Mobility	15.935*** (5.123)	21.101*** (5.027)	11.039* (5.648)
Bank Size		-0.088 (0.326)	-0.263 (0.329)
Capital		80.637*** (19.603)	85.502*** (19.890)
Profitability		10.117 (50.929)	9.429 (55.198)
Funding Structure		-9.276 (5.987)	-5.258 (6.096)
Liquidity		0.019 (0.086)	-0.033 (0.086)
Constant	58.777*** (0.743)	58.445*** (7.230)	55.326*** (7.423)
Observations	1,208	1,168	1,168
Adj. R-squared	0.04	0.08	0.05

Notes: Standard errors robust against heteroskedasticity are reported in parentheses.

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$



Table 10: Impact of policies on bank lending during COVID-19

	Growth of Gross Loans			
	(1)	(2)	(3)	(4)
	<i>Monetary</i>	<i>Fiscal</i>	<i>Prudential</i>	<i>Debt Moratoria</i>
Foreign	-0.069 (3.070)	-5.361* (2.792)	0.228 (2.257)	-7.331*** (1.931)
High No. of Policies	6.818** (2.787)	3.845* (2.310)	4.931*** (1.729)	-1.190 (2.207)
High Change in Mobility	0.323 (3.410)	-1.735 (2.562)	2.168 (2.365)	2.135 (2.429)
Foreign*High No. of Policies	-10.129** (3.934)	-2.436 (3.484)	-10.616*** (2.959)	-0.577 (3.539)
High No. of Policies*High Change in Mobility	-3.633 (3.740)	-1.009 (3.175)	-7.896** (3.240)	-7.901** (3.330)
Foreign*High Change in Mobility	-2.195 (3.936)	5.364 (3.919)	-2.147 (3.725)	2.690 (4.664)
Foreign*High Change in Mobility*High No. of Policies	14.782*** (5.646)	2.671 (5.617)	14.380*** (5.280)	7.833 (6.011)
Bank Size	-0.478*** (0.191)	-0.510*** (0.194)	-0.438** (0.194)	-0.576*** (0.197)
Capital	-34.558** (17.389)	-36.107** (17.073)	-38.399** (16.290)	-39.760** (17.217)
Profitability	82.726** (41.060)	71.149* (40.241)	75.126** (38.078)	73.457* (39.380)
Funding Structure	6.801* (3.202)	5.600* (3.220)	5.028 (3.346)	5.949* (3.189)
Liquidity	-0.095* (0.056)	-0.108* (0.056)	-0.108* (0.055)	-0.125** (0.056)
Constant	6.276 (4.844)	10.867** (4.342)	10.058*** (3.903)	15.223*** (4.082)
Observations	1,269	1,269	1,269	1,269
Adj. R-squared	0.08	0.07	0.08	0.08

Notes: Standard errors robust against heteroskedasticity are reported in parentheses. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 11: Impact of capital and liquidity measures on bank lending during COVID-19

	Growth of Gross Loans	
	(1) <i>Liquidity</i>	(2) <i>Capital</i>
Foreign	-7.945*** (2.734)	-0.716 (3.716)
Prudential Measures	-4.999*** (1.566)	7.055*** (2.675)
High Change in Mobility	-3.888* (2.192)	-1.420 (3.256)
Foreign*Prudential Measures	3.188 (3.460)	-7.339* (4.038)
Prudential Measures*High Change in Mobility	2.685 (2.780)	-0.900 (3.753)
Foreign*High Change in Mobility	9.504** (4.655)	-1.419 (4.460)
Foreign*Prudential Measures*High Change in Mobility	-5.469 (5.759)	10.669** (5.440)
Bank Size	-0.426** (0.195)	-0.489** (0.191)
Capital	-39.330** (16.081)	-33.775* (17.639)
Profitability	68.668* (39.561)	77.808* (40.351)
Funding Structure	3.736 (3.294)	7.183** (3.140)
Liquidity	-0.096* (0.057)	-0.116** (0.056)
Constant	16.437*** (4.184)	5.643 (4.041)
Observations	1,269	1,269
Adj. R-squared	0.08	0.08

Notes: Standard errors robust against heteroskedasticity are reported in parentheses.

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Table 12: Impact of bank ownership on credit growth during COVID-19 after accounting for mobility changes (actual values)

	Growth of Gross Loans	
	(1)	(2)
Foreign	-15.652*** (2.757)	-11.655*** (2.842)
Change in Mobility	-0.378*** (0.057)	-0.253*** (0.060)
Foreign*Change in Mobility	0.382*** (0.097)	0.297*** (0.104)
Bank Size		-0.537*** (0.170)
Capital		-35.656** (16.281)
Profitability		77.947** (38.687)
Funding Structure		5.283* (2.947)
Liquidity		-0.120** (0.055)
Constant	17.856*** (1.293)	19.644*** (4.187)
Observations	1,409	1,327
Adj. R-squared	0.05	0.08

Notes: Standard errors robust against heteroskedasticity are reported in parentheses. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Table 13: Impact of bank ownership on consumer lending during COVID-19 after accounting for mobility changes (actual values)

Share of Consumer Loans in Total Loans		
	(1)	(2)
Foreign	8.589 (6.039)	11.921* (6.068)
Change in Mobility	0.187* (0.099)	0.230* (0.113)
Foreign*Change in Mobility	-0.467** (0.213)	-0.537** (0.214)
Bank Size		0.006 (0.335)
Capital		-62.856*** (19.283)
Profitability		-14.464 (45.880)
Funding Structure		-7.443 (5.782)
Liquidity		-0.208** (0.080)
Constant	35.401*** (2.161)	49.748*** (8.074)
Observations	1,220	1,186
Adj. R-squared	0.004	0.03

Notes: Standard errors robust against heteroskedasticity are reported in parentheses.

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Table 14: Impact of bank ownership on firm lending during COVID-19 after accounting for mobility changes (actual values)

	Share of Firm Loans in Total Loans	
	(1)	(2)
Foreign	-16.285*** (6.105)	-24.265*** (6.096)
Change in Mobility	-0.400*** (0.103)	-0.546*** (0.110)
Foreign*Change in Mobility	0.470** (0.228)	0.742** (0.226)
Bank Size		-0.287 (0.333)
Capital		86.661*** (20.561)
Profitability		10.230 (51.520)
Funding Structure		-3.293 (5.787)
Liquidity		-0.042 (0.083)
Constant	65.107*** (2.213)	63.560*** (7.990)
Observations	1,208	1,168
Adj. R-squared	0.02	0.06

Notes: Standard errors robust against heteroskedasticity are reported in parentheses. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Table 15: Impact of policies on bank lending during COVID-19 (actual number of policies)

	Growth of Gross Loans			
	(1)	(2)	(3)	(4)
	<i>Monetary</i>	<i>Fiscal</i>	<i>Prudential</i>	<i>Debt Moratoria</i>
Foreign	4.290 (3.990)	-11.743** (5.031)	2.149 (3.072)	-3.824 (4.282)
No. of Policies	0.298*** (0.073)	-0.817 (0.720)	0.168** (0.065)	1.563* (0.813)
High Change in Mobility	4.793 (3.178)	-5.462 (3.328)	1.006 (2.763)	6.369* (3.784)
Foreign*No. of Policies	-0.428** (0.210)	1.312 (1.943)	-0.463*** (0.168)	-1.389 (1.334)
No. of Policies*High Change in Mobility	-0.248* (0.140)	0.612 (1.048)	-0.169 (0.114)	-2.856*** (0.976)
Foreign*High Change in Mobility	-9.461* (5.027)	8.497 (6.063)	-2.536 (4.341)	-1.709 (6.536)
Foreign*High Change in Mobility*No. of Policies	0.808*** (0.308)	-0.132 (2.224)	0.495** (0.232)	2.747* (1.632)
Bank Size	-0.415** (0.192)	-0.421** (0.191)	-0.438** (0.194)	-0.472** (0.195)
Capital	-38.143** (16.710)	-36.427** (16.563)	-37.165** (16.711)	-38.535** (16.734)
Profitability	76.517* (39.945)	73.680* (37.877)	75.284* (39.552)	77.770** (37.184)
Funding Structure	2.986 (3.414)	6.380** (3.134)	5.366* (3.259)	6.335** (3.147)
Liquidity	-0.083 (0.056)	-0.121** (0.056)	-0.100* (0.054)	-0.124** (0.055)
Constant	5.379 (4.133)	15.706*** (4.570)	9.007** (4.023)	9.247** (4.520)
Observations	1,269	1,269	1,269	1,269
Adj. R-squared	0.09	0.07	0.08	0.08

Notes: Standard errors robust against heteroskedasticity are reported in parentheses. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 16: Impact of capital and liquidity measures on bank lending during COVID-19 (actual number of measures)

	Growth of Gross Loans	
	(1) <i>Liquidity</i>	(2) <i>Capital</i>
Foreign	-6.546*** (2.187)	-2.240 (2.961)
No. of Prudential Measures	-2.888*** (0.828)	0.230 (0.274)
High Change in Mobility	-4.865** (2.098)	-3.473 (2.658)
Foreign*No. of Prudential Measures	0.160 (1.623)	-1.414* (0.746)
No. of Prudential Measures*High Change in Mobility	2.206 (2.255)	-0.015 (0.444)
Foreign*High Change in Mobility	5.835 (4.097)	1.140 (4.139)
Foreign*No. of Prudential Measures*High Change in Mobility	1.037 (3.642)	1.727* (0.940)
Bank Size	-0.379* (0.196)	-0.453** (0.192)
Capital	-38.663** (16.405)	-35.029** (17.148)
Profitability	69.957* (38.181)	75.543* (39.444)
Funding Structure	3.524 (3.294)	6.738** (3.176)
Liquidity	-0.096* (0.057)	-0.101* (0.054)
Constant	16.150*** (4.176)	11.286*** (4.146)
Observations	1,269	1,269
Adj. R-squared	0.08	0.07

Notes: Standard errors robust against heteroskedasticity are reported in parentheses. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

## A Appendix

Table A1: Sample of Jurisdictions Used in the Analysis

Argentina	Australia	Austria	Bahrain	Belarus
Belgium	Brazil	Bulgaria	Canada	Chile
China	Colombia	Croatia	Cyprus	Czech Republic
Denmark	Ecuador	Egypt	El Salvador	Estonia
France	Georgia	Germany	Ghana	Greece
Hong Kong SAR	Hungary	Indonesia	Ireland	Italy
Jordan	Kenya	Korea	Kuwait	Luxembourg
Malawi	Malaysia	Malta	Mexico	Morocco
Netherlands	Nigeria	Norway	Pakistan	Panama
Peru	Poland	Portugal	Romania	Russian Federation
Thailand	Tunisia	Turkey	Ukraine	United Arab Emirates
United Kingdom	United States			





# PUBLICATIONS

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