The China Syndrome Affects Banks: The Credit Supply Channel of Foreign Import Competition*

Sergio Mayordomo
Banco de España

Omar Rachedi
Banco de España

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Abstract

Did the rise of Chinese import competition in the early 2000s affect banks' credit supply policies? Using bank-firm-level data on the universe of Spanish corporate loans, we find that banks rebalanced their loan portfolios away from firms facing Chinese import competition and towards profitable firms in non-exposed sectors. Banks supplied more credit also to the construction sector, yet independently of firms' profitability. This is not due to banks' exposure to the housing boom. Rather, the high geographical concentration of the manufacturing industries competing with China left local banks with fewer alternatives to local construction firms for rebalancing their loan portfolios.

Key Words: Trade Shock, Bank Loans, Banks' Portfolio Reallocation, Credit Register, Real Effects.

JEL Classification Codes: G21, G32, F65.

*Addresses: sergio.mayordomo@bde.es, omar.rachedi@bde.es. We thank Henrique S. Basso, Jan Bietenbeck, Kizkitza Biguri, Roberto Blanco, Charles Calomiris, Luisa Farinha, Bjorn Imbierowicz, Juan Francisco Jimeno, Nicola Limodio, Isabelle Mejean, Enrique Moral-Benito, Steven Ongena, Ralph Ossa, Min Park, José-Luis Peydró, Julien Sauvagnat, Enrico Sette, Javier Suarez, Emanuele Tarantino, Carlos Thomas, Ernesto Villanueva, and participants to several seminar and conference presentations for useful comments. The views expressed in this paper are those of the authors and do not necessarily represent the views of the Banco de España or the Eurosystem.

1 Introduction

Over the recent decades China has progressively integrated into the world economy through a process which changed dramatically global trade flows. The share of world manufacturing export accounted for by China rose from 2% in 1990 to 4% in 2000, and then increased even more rapidly, reaching a value of 11% in 2010. The rising Chinese competition had widespread consequences on advanced economies: firms operating in sectors more exposed to competitive pressures from Chinese imports experienced a sharp drop in profitability, sales, employment, capital expenditures, and innovation (Xu, 2012; Acemoglu et al., 2016; Bloom et al., 2016; Pierce and Schott, 2016; Hombert and Matray, 2018; Autor et al., 2020), a phenomenon which has been referred to as the "China Syndrome".[1]

This paper studies the effect of the rising Chinese imports competition in the early 2000s on the credit supply of Spanish banks. Amid the drop in profitability and rise in non-performing loans of firms facing Chinese competition, banks shielded their balance sheets by lending less to these firms and shifting the loan portfolios towards profitable non-exposed companies. In the case of the construction sector, banks increased their lending independently of firms' profitability. This surge in credit supply to construction relates to the characteristics of the local economic activity. Indeed, low-profitability construction firms receive more credit in provinces where the geographical concentration of the manufacturing industries competing with China left local banks with fewer alternatives for rebalancing their portfolios.

The Spanish corporate loan market is an ideal case study to trace the effects of rising Chinese imports on credit flows. First, the magnitude of the acceleration of Chinese imports into the Spanish economy is remarkably similar to the one experienced by the United States. Second, we can leverage granular bank-firm-level

[1]The China Syndrome is consistent with the results of Bernard et al. (2006) on the negative effects of the exposure to low-wage countries import competition on plant survival and growth. The rise of China exports also affected local labor markets, causing a decline in employment and wages (Autor et al., 2013, 2014).

information by matching the universe of corporate loans and banks' balance sheets to the quasi-census of firms' balance sheets. Third, Spanish firms are highly bank dependent (Arce et al., 2018). In this way, we can exclude the possibility that any variation in bank loans is substituted with alternative sources of financing. Fourth, by law Spanish banks must keep on their balance sheets any securitized loan. This fact ensures the existence of an active bank lending channel linking the rising non-performing loans of the industries facing Chinese competition to banks' rebalancing towards non-exposed firms (Loutskina and Strahan, 2009).[2]

To understand the impact of import penetration on bank lending, we exploit heterogeneity across banks in the exposure of their loan portfolios towards firms competing with China. The import penetration was heterogeneously distributed across industries within the manufacturing sector: roughly a third of Spanish imports from China were concentrated in five three-digit NACE industries (i.e., rubber, footwear, industrial machineries, toys, and textiles). Thus, banks that in 2000 were lending relatively more to firms operating in these industries had a larger exposure to the drop in firms' ability to pay off debt triggered by the dramatic rise of Chinese competition. Importantly, banks' exposure to Chinese imports does not correlate with observable characteristics of banks' balance sheets or loan portfolios.

Since the rise of Chinese imports could be driven by Spanish demand factors, we sharpen our identification by instrumenting the exposure of Spanish industries to China import competition with the sectoral exposures of a pool of non-E.U. advanced economies (Autor et al., 2013, 2014, 2020; Acemoglu et al., 2016). Under the identifying restriction that demand shocks are weakly correlated across advanced countries, our instrumenting strategy isolates the supply-side component which caused the worldwide rise of Chinese exports.[3] We also consider an alter-

[2]In addition, the facts that Spain (*i*) had a level of non-performing loans in 2000 similar to the one of the United States, and 60% lower than the Euro area average, and (*ii*) was one of the very few advanced economies not experiencing a recession in the early 2000s allow us to isolate the credit supply channel of rising import competition within a sound financial system.

[3]For instance, in the 1990s China undertook a transition to a market-oriented economy which boosted

native strategy which instruments import penetration with industry-level shipping costs (Bernard et al., 2006; Valta, 2012; Barrot et al., 2018, 2019).

We identify the change in *credit supply* due to banks' exposure to import penetration by focusing on multi-bank firms, as in Khwaja and Mian (2008). In this way, we saturate the cross-section regression with firm fixed effects and leverage the variation of bank-firm credit within firms. Since firm fixed effects absorb the unobserved firm credit demand, any variation in lending within firms comes from supply motives. This identification strategy is further supported by the fact that 80% of the firms in our sample receive loans from more than one bank. Our results are also robust to alternative settings for the identification of credit supply.

We start by showing that the drop in profitability due to Chinese import competition was accompanied by a sharp deterioration in the ability of exposed manufacturing firms to meet their debt obligations. This rise in non-performing loans led banks exposed to firms competing with Chinese goods to reduce the supply of credit to these industries. However, exposed banks did not shrink their balance sheets vis-á-vis non-exposed banks, as they rebalanced the loan portfolios towards firms not affected by Chinese competition: a one standard deviation rise in bank exposure to Chinese imports is associated with a 7% drop in bank credit supply to exposed manufacturing firms, and a 4% point surge in lending to non-exposed industries.[4,5] This portfolio rebalancing amounts to 8% of the standard deviation of credit growth across non-exposed firms over 2000-2006. Importantly, the portfolio

aggregate productivity (Hsieh and Klenow, 2009; Brandt et al., 2012; Hsieh and Ossa, 2016).

[4]Since in the 2000 bank lending to exposed manufacturing firms accounts for around 30% of the overall credit of Spanish firms, the 7% drop in bank credit to exposed manufacturing firms roughly equals in absolute terms to the 4% surge in lending to non-exposed industries.

[5]The result that banks exposed to foreign imports reduce credit supply to firms competing with Chinese goods differs from the mechanism of Giannetti and Saidi (2019), in which high-market-share lenders dampen the reduction in credit supply to distressed industries. If we use the terminology of De Jonghe et al. (2020), then our measure of bank exposure is the *bank sector specialization* (i.e., the share of bank credit towards the industries competing with Chinese goods over total bank credit). Instead, Giannetti and Saidi (2019) look at the *bank sector market share* (i.e., the share of bank credit over total credit within a sector). Appendix B shows that the reduction in credit supply to firms competing with Chinese goods is concentrated among low-market-share banks, consistently with the findings of Giannetti and Saidi (2019).

reallocation is larger for banks with low capital ratios. This is consistent with the literature on internal capital markets (Stein, 1997; Scharfstein and Stein, 2000), which highlights that whenever a constrained headquarter allocates its resources across different projects, it shifts its portfolio if a project becomes more profitable.

We then dig deeper into the portfolio rebalancing to non-exposed firms, and find that while banks increased the supply of credit to profitable firms in services and non-exposed manufacturing industries, the rise of lending to construction did not depend on firms' profitability.[6] The additional supply of credit to low-profitability construction firms could be due to the contemporaneous housing boom (Chakraborty et al., 2018; Cuñat et al., 2018, Martin et al., 2018). However, our evidence holds above and beyond banks' exposure to either house prices or mortgage credit.[7]

Then, why did banks shift their loan portfolios to construction independently of firms' profitability? The reallocation to construction relates to the characteristics of local economic activity. The surge in credit to low-profitability construction firms is concentrated both among exposed local banks and in provinces with less investment opportunities outside of the industries competing with Chinese imports. Hence, the marked spatial agglomeration of manufacturing industries (Krugman, 1991; Ellison and Glaeser, 1997; Ellison et al., 2010) left local banks with fewer alternatives to local construction firms for rebalancing their loan portfolios.

The credit supply channel of foreign import penetration had large real effects. The reduction in lending to firms competing with China amplified the drop in their economic activity. This channel is quantitatively relevant and accounts for half of the negative effects due to firms' direct exposure to foreign imports. Instead, the portfolio reallocation boosted the real outcomes of firms in non-exposed sectors, especially among construction firms. Overall, our results provide a novel narrative

[6]The concentration of the surge in lending to low-profitability firms in construction – and not in other non-exposed sectors – excludes the hypothesis that banks' credit reallocation is due to searching-for-yield motives.

[7]To further rule out the hypothesis that banks' exposure to rising Chinese import competition may capture banks' exposure to the housing boom as a confounding factor, we show that banks' exposure to *non-exposed* manufacturing firms implies no credit reallocation whatsoever to construction.

for the Spanish construction boom of the early 2000s, that could also rationalize – via the portfolio rebalancing to low-profitability firms – the rising fragility which ultimately contributed to the bust of the sector.

1.1 Related Literature

Although there is a vast literature that studies how foreign import penetration affects firms and households, the effects on the credit market have attracted much less attention. Among the few exceptions, Barrot et al. (2018) find that areas more exposed to Chinese imports had a faster rise in households' demand for mortgages. We complement this study by focusing on the supply of loans to firms, rather than households' credit demand. Importantly, the rise of credit to the construction sector we identify cannot be rationalized by the effect of Chinese imports on the demand of mortgages. Indeed, Barrot et al. (2018) show that households' credit demand surges mainly via home equity extraction, whereas in Spain home equity extraction practices are virtually nonexistent (Haurin, 2017).

Few contributions focus on the effects of foreign import competition on the corporate credit market (Xu, 2012; Valta, 2012; Autor et al., 2020), and document that firms exposed to foreign import competition experienced a drop in debt and rising financing costs. Our contribution to these papers is twofold. First, we identify the role of credit supply in the change of overall corporate loans by isolating credit demand through multi-bank firms, as in Khwaja and Mian (2008). Second, we show that the drop in credit of firms competing with Chinese imports is inherently linked to an increase in lending to firms in non-exposed sectors, through banks' decision to rebalance the corporate loan portfolios. Third, we show that the variation in bank lending amplified substantially the effects of the China shock: the credit supply channel of foreign import competition accounts for half of the direct negative effects of rising Chinese imports on the employment of exposed manufacturing firms.

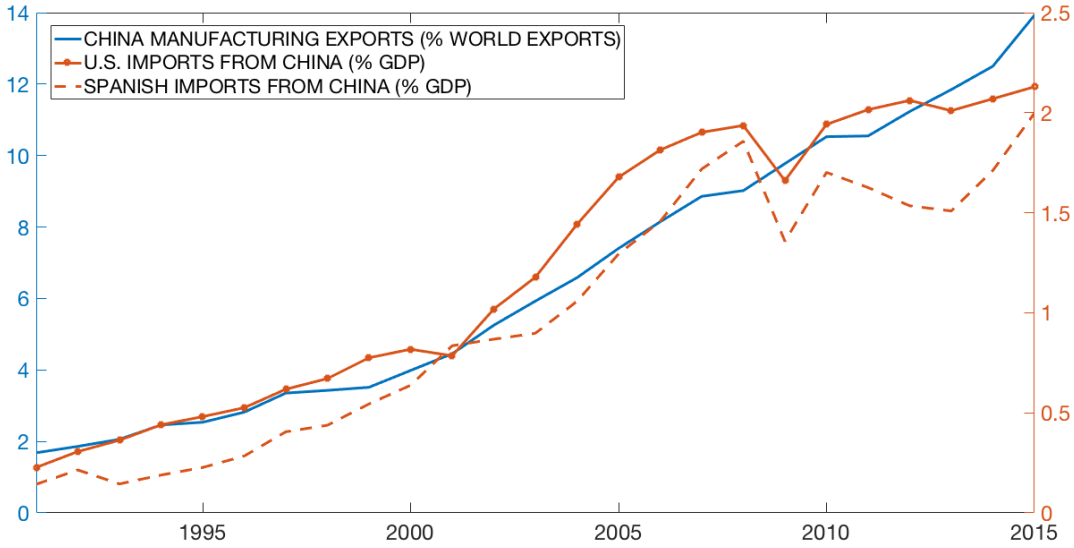
Our paper contributes to the literature on the role of banks' internal capital markets (Houston et al., 1997; Gan, 2007; Desai et al., 2008; Gilje et al., 2016; Cortes and Strahan, 2017; Chakraborty et al., 2018; Cuñat et al., 2018; Martin et al., 2018), which tends to focus on how banks propagate either positive or negative shocks across different geographical regions or lending types. Instead, this paper studies banks' (lack of) reallocation of loan portfolios across different industries, as in Martin et al. (2018), Giannetti and Saidi (2019), and De Jonghe et al. (2020). In particular, we show that the rise of Chinese imports can be viewed as a negative shock to the ability to repay debt obligations to firms operating in industries facing this extra amount of competition, and banks used their internal capital markets to reallocate their portfolios aways from these industries. In this vein, the closest paper to ours is Chakraborty et al. (2018), which documents how banks' exposure to the housing price boom generates a crowding-out of credit – concentrated among low-capital banks – from commercial lending towards mortgage lending.

2 Data and Methodology

2.1 The Rise of China

The last two decades witnessed dramatic variations in the structure of global trade flows, and the lion's share of these changes consists in the massive increase in the amount of Chinese manufacturing goods which are exported worldwide. This pattern can be noted by looking at Figure 1, which reports the share of Chinese manufacturing exports as a fraction of world manufacturing exports, from 1991 to 2015. This share has been constantly trending up: it was 2% in 1991, increased up to 4% in 2000, and then has accelerated substantially in the early 2000s, by reaching a value of 11% in 2010. Figure 1 shows also that the share of Spanish imports of Chinese manufacturing goods, as a fraction of Spanish GDP, displays a very similar

Figure 1: The Rise of Chinese Imports.



Note: This graph reports the ratio of Chinese imports over total world exports (continuous line - measured on the left y-axis), the ratio of Spanish imports from China over Spanish GDP (dashed line - measured on the right y-axis), and the ratio of U.S. imports from China over U.S. GDP (squared line - measured on the right y-axis). All series are reported from 1991 and 2015. Source: UN Comtrade and WorldBank.

trend. Indeed, the share doubled in just six years, from a value of 2.8% in 2000 up to 5.5% in 2006. Interestingly, Chinese imports kept increasing even amidst the sharp contraction of the Spanish economy from 2008 on, and reached 8% of GDP in 2010. These dynamics track very closely the changes in the amount of Chinese imports experienced by the U.S. economy.

What caused this dramatic increase in the relevance of China as a global exporter? The Chinese economy underwent two decades of reforms and sharp changes in its production structure, such as the liberalization of private economic activity, the transformation to a market-oriented economy, the rural-to-urban migration of millions of households, the use of foreign technologies and intermediate inputs, and the access to the WTO. These changes boosted Chinese aggregate productivity (Hsieh and Klenow, 2009; Brandt et al., 2012; Hsieh and Ossa, 2016). According to the Penn World Table, aggregate productivity in China grew at an annual rate of 4.7% between 2000 and 2007, whereas the growth rate in the United States during

the same period was just 1%. Thus, the relative competitive advantage of Chinese goods substantially increased over the recent years.

2.2 Chinese Import Penetration in Spain in the Early 2000s

To trace the effects of rising Chinese imports on corporate credit flows, we focus on the Spanish corporate loan market between 2000 and 2006. We start in the 2000 as this corresponds to the earliest year in which we can match the information on the universe of corporate loans and banks to the quasi-census of firms' balance sheets. This choice matches the timing of the normalization of trade relationships between advanced economies and China, which began exactly in the early 2000 under the push of the Clinton administration. Then, the sample ends in the year 2006 to avoid any confounding factor connected to the Great Recession period.

To measure the impact of the rising penetration of Chinese goods in the Spanish economy, we follow Acemoglu et al. (2016) and exploit the industry-level changes in import and export between Spain and China. Namely, we define the change in the Chinese import penetration for a specific sector s between 2000 and 2006 as

$$\Delta IP_{s,2000-2006} = \frac{\Delta M_{s,2000-2006}}{Y_{s,2000} + M_{s,2000} - X_{s,2000}} \tag{1}$$

which corresponds to the ratio of the changes in the imported goods of each sector between 2000 and 2006 over the total absorption capacity of each industry, where M_s and X_s denote Chinese imports and exports of goods of sector s, respectively, and Y_s is total sales of Spanish firms operating in sector s.[8] Throughout the paper, all variables are defined in annualized terms.

Although Chinese imports increased dramatically – and asymmetrically across

[8]Crucially for our identification strategy, banks' exposure to Chinese import penetration does neither correlate nor interact with the variation in credit provisions implemented during the dynamic provisioning policy implemented by the Banco de España in the early 2000s (Jimenez et al., 2017). Indeed, although this macroprudential policy required different ex-ante provisions depending on the *type* of bank lending, it treated all corporate loans (Saurina and Trucharte, 2017). For this reason, the dynamic provisioning policy could not explain the patterns of bank loan portfolio rebalancing that we document in this paper.

industries – from the year 2000 on, these dynamics could be driven by the demand of the Spanish economy. To rule out this possibility, we follow Autor et al. (2013, 2014, 2020) and instrument the changes in the Chinese import penetration with an analogous index which exploits the variation in the imports of Chinese goods in a pool of non-E.U. advanced countries, consisting of Australia, Canada, Japan, New Zealand, and the United States.[9] The instrument is defined as

$$\Delta IP^{\star}_{s,2000-2006} = \frac{\Delta M^{\star}_{s,2000-2006}}{Y_{s,2000} + M_{s,2000} - X_{s,2000}} \tag{2}$$

where $\Delta M^{\star}_{s,2000-2006}$ denotes the overall change in the imports of goods of sector s in these foreign economies.

This instrumenting strategy isolates the supply component of the rise in the competitiveness of Chinese goods. Under the identifying restriction that demand shocks are weakly correlated across countries, this approach captures the part of rising imports which is due to the improvements in the aggregate productivity of the Chinese economy. This instrument is highly relevant as the first-stage regression of $\Delta IP_{s,2000-2006}$ on $\Delta IP^{\star}_{s,2000-2006}$ gives a coefficient of 0.68, with a standard error of 0.02 and a R^2 that equals 0.85.

We also consider an alternative instrumental strategy that borrows from Valta (2012) and Barrot et al. (2018, 2019). Namely, we instrument the sectoral import penetration index $\Delta IP_{s,2000-2006}$ with shipping costs $SC_{s,2000}$ measured by Bernard et al. (2006), which compute freight rates – i.e., the markup of the ratio of freight costs over the total value of imports – at the industry level by using product-level U.S. import data. Although these costs are defined as a reference to the U.S. economy, the instrument is highly relevant as the first-stage regression of $\Delta IP_{s,2000-2006}$ on $SC_{s,2000}$ gives a coefficient of -0.47, with a standard error of 0.15 and an R^2 that equals 0.71. Hence, the freight costs capture technological import expenditures

[9]We do not consider E.U. economies as they could violate the exclusion restriction on the weak correlation between the demand shocks of the countries included in the instrument and Spanish demand shocks.

which do not vary substantially across countries.

Then, we compute a measure of bank exposure to foreign import competition, which captures the exposure of bank corporate loan portfolios towards firms competing with Chinese imports. Accordingly, the change in the import penetration between 2000 and 2006 for a given bank b weights the sectoral import penetration index with the share of credit that bank b grants to each firm f in sector s, that is

$$\Delta IP_{b,2000-2006} = \frac{\sum_{f \in s} \left[C_{b,f,s,2000} \times \Delta IP_{s,2000-2006} \right]}{\sum_f C_{b,f,s,2000}}, \tag{3}$$

where $C_{b,f,s,2000}$ denotes the overall amount of lending between bank b and firm f operating in sector s as of 2000. Analogously to the case of the sectoral import penetration index, we rule out any possible demand component in bank exposure to Chinese competition by instrumenting the bank import penetration with an index which uses the import flows of a pool of non-E.U. advanced countries, that is

$$\Delta IP^{\star}_{b,2000-2006} = \frac{\sum_{f \in s} \left[C_{b,f,s,2000} \times \Delta IP^{\star}_{s,2000-2006} \right]}{\sum_f C_{b,f,s,2000}}. \tag{4}$$

Although $\Delta IP^{\star}_{b,2000-2006}$ is the baseline instrument, we also consider a instrument which is based on shipping costs, which is

$$SC_{b,2000} = \frac{\sum_{f \in s} \left[C_{b,f,s,2000} \times SC_{s,2000} \right]}{\sum_f C_{b,f,s,2000}}. \tag{5}$$

2.3 Data

To carry out the analysis of this paper, we merge industry-level information on import and export flows between Spain and China, with data on credit flows among banks and firms, and balance sheet information on both bank and firms. We the derive the measures of bank and sectoral exposure to China import competition by using data on international trade at the industry level, following the same steps of

Autor et al. (2013), adapted to the case of the Spanish economy. The information on international trade at the sectoral level comes from the UN Comtrade Database, which contains bilateral imports for six-digit Harmonized Commodity Description and Coding System products.

Since the industry classification at the UN Comtrade Database differs from the standard classification method used in the European Union, we convert the six-digit HS product codes to the European standards with a three step procedure. First, we convert the six-digit HS product codes to 1987 SIC codes using the crosswalk of Autor et al. (2013). Second, we convert the 1987 SIC codes to the 3-digit NACE codes of the Statisical Classification of Economic Activities of the European Community. Finally, we map the 1987 SIC codes into the 3-CNAE-93 codes, which are the Spanish analogue to the NACE Rev 1.1. In this way, we end up with information on Chinese imports for 252 industries at the 3-digit CNAE level.

Table A.1 of Appendix A reports the sectoral index of Chinese import penetration for the firms operating in exposed manufacturing industries. The average exposure to Chinese competition equals 13%, with a median of 10%. However, similarly to the case for the U.S. economy documented by Autor et al. (2013, 2014), the rise of Chinese imports was concentrated in few industries. For instance, five industries – producing rubber, footwear, industrial machineries, toys, and textiles – account for a third of the total increase of Spanish imports from China. Hence, the competitive threats of Chinese imports affected asymmetrically Spanish production sectors.

To understand the effects of Chinese import competition on the corporate loan market, we exploit the data of the Spanish Credit Register. This dataset, which is collected by the Bank of Spain in its role of banking supervisor, reports detailed monthly information on the credit position of each Spanish firm with each Spanish bank at the monthly frequency, for all loans above 6,000 euros. These characteristics guarantee that de-facto we are observing the entire corporate loan market of the Spanish economy. This source of data has already been used by Jimenez et al.

(2012, 2017, 2020) and Bentolilla et al. (2018).

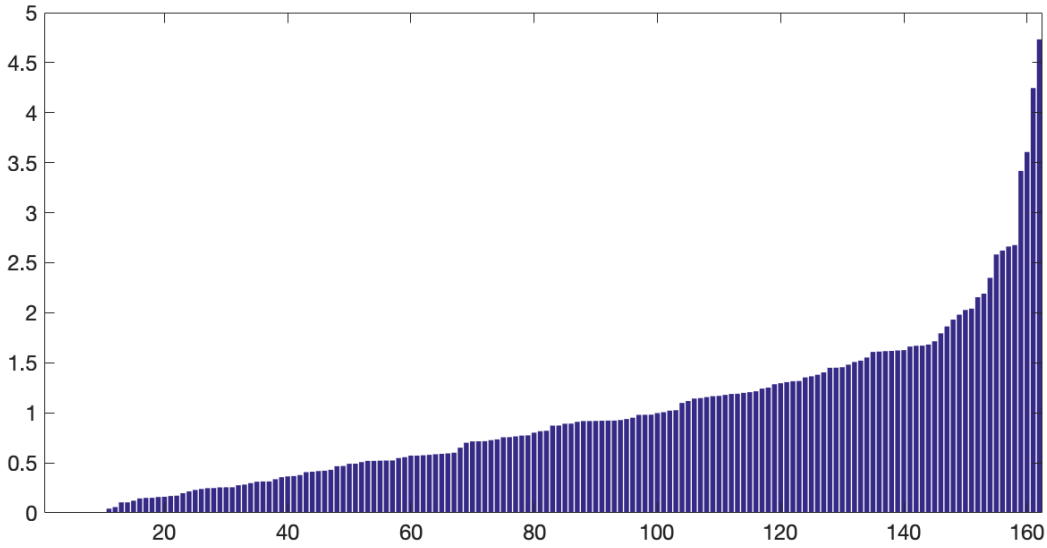
Since the Credit Register reports the identifier of each bank and firm, we merge the loan-level data with the balance sheets on the entire universe of banks and the balance sheets of the quasi-census of firms. The data on banks is collected by the Bank of Spain in its role of banking supervisor, and includes information on total assets, the holdings of cash and fixed income, the amount of net worth, and EBITDA. The data on firms is from the Spanish Commercial Register, and include information on firms' identifier and name, industry of operation, total assets, equity, cash holdings, EBITDA, total sales, value added, and the number of employees. Moreover, we can identify each bank-firm relationship by looking at the total amount of outstanding loans within each bank-firm pair. Unfortunately, the Credit Register collects information only on quantities and not on interest rates. Importantly for our analysis, the dataset reports whether a firm missed to pay off its debt in due time. In this way, we can identify the non-performing loans.

With all these sources of information, we build a panel of both real variables and credit data on 123,508 firms, 162 banks, and 300,579 firm-bank observations. Table A.1 of Appendix A reports some descriptive statistics on the the change in total credit of all firms, and firms across different sectors, as well as key firm characteristics. Figure 2 displays the values of the exposure to Chinese imports for each of the 162 banks in our sample. The figure shows that there is substantial heterogeneity in the way the rise of China affected the loan portfolios of Spanish financial institutions. Indeed, bank exposure to import penetration (bank import penetration hereafter) ranges between 0 and 5%, with a mean value close to 2%.

Heterogeneity in bank exposure to Chinese imports is not correlated with bank observable characteristics.[10] Importantly, banks with higher levels of exposure to

[10]Table A.2 in Appendix A shows that banks in the top tercile of the bank import penetration have no statistically significant difference with respect all other banks in terms of the size of the balance sheet, the fraction of liquid assets, leverage, the profitability, the fraction of non-performing loans, and the diversification of the loan portfolios across provinces and sectors.

Figure 2: Bank Exposure to Import Competition.



Note: This graph reports the values in percentage points of the change in banks' exposure to foreign import competition from 2000 to 2006, $\Delta IP_{b,2000-2006}$.

China are not less diversified than all other financial institutions. Banks tend to have a portfolio rather concentrated across industries and provinces independently on their exposure to foreign imports. For instance, the banks with the lowest and highest exposure to China are both local banks operate in the same geographical area, as the two headquarters are 50 kilometres apart, and both banks are highly concentrated in few local industries. The only difference is that the least exposed bank is specialized in lending to agriculture firms whereas the most exposed bank supplies credit to footwear companies.

3 Import Competition and Credit Supply

How did the rising Chinese import penetration affect the Spanish corporate loan market? We start by providing some prima-facie evidence on the changes in the profitability and the ability to pay off debt obligations among firms with different degrees of exposure to the competition of Chinese imported goods.

Panels A and B of Figure 3 show, respectively, the dynamics of both profitability

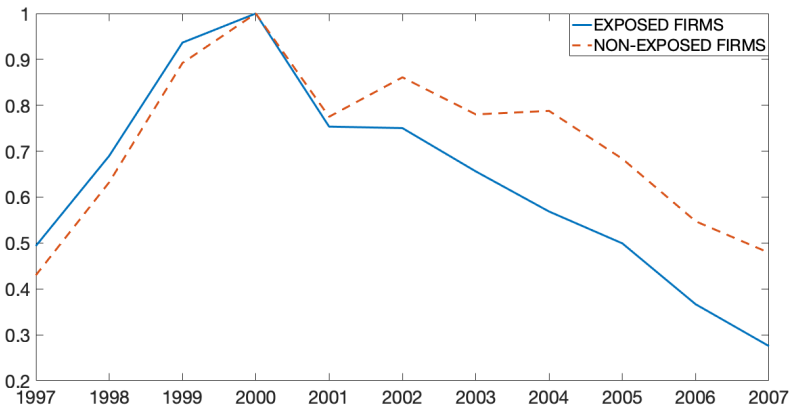
– measured in terms of ROA – and the cumulative fraction of firm non-performing loans (NPLs) for the median firm facing Chinese imports competition and the median firm in non-exposed sectors between 1997 and 2006. All lines are normalized to 1 in 2000. The graphs highlight two main facts. First, firms facing Chinese import pressures experienced a 40% drop in profitability relatively to firms in non-exposed sector between 2000 and 2006.[11] This is consistent with the evidence of Xu (2012), Hombert and Matray (2018), and Autor et al. (2020) on the negative effect of import competition on firm profitability. Second, the drop in profitability due to Chinese imports is associated with a rapid increase of the likelihood that exposed firms could not pay off their debt. From 2000 to 2006 the NPLs of exposed firms have increased by 45% more than in non-exposed sectors, whereas from 1997 to 2000 the dynamics of NPLs were very similar across exposed and non-exposed firms.

Panel C of Figure 3 reports a similar plot on total bank credit for both exposed and non-exposed firms. Although the entire period of time is characterized by a progressive loosening of financial conditions which led to a rise in the overall amount of corporate credit (Martin et al., 2018; Jimenez et al., 2020), again there is a substantial asymmetry in the dynamics of total loans from the year 2000 on, such as total credit grows much faster among non-exposed firms. Again, there is no pre-existing trend, as the dynamics of credit of exposed and non-exposed firms are remarkably similar up to the 2000. Instead, Panel D reports the dynamics of corporate loans at the bank level, comparing exposed and non-exposed institutions, and reveals that bank corporate loans have been trending up independently on whether banks' portfolios were relatively more tilted towards firms competing with Chinese goods. The relative drop in bank credit of firms facing foreign competition and the lack of differential trends across bank with different exposure to these companies points out to the existence of a loan portfolio reallocation: banks cut the credit to

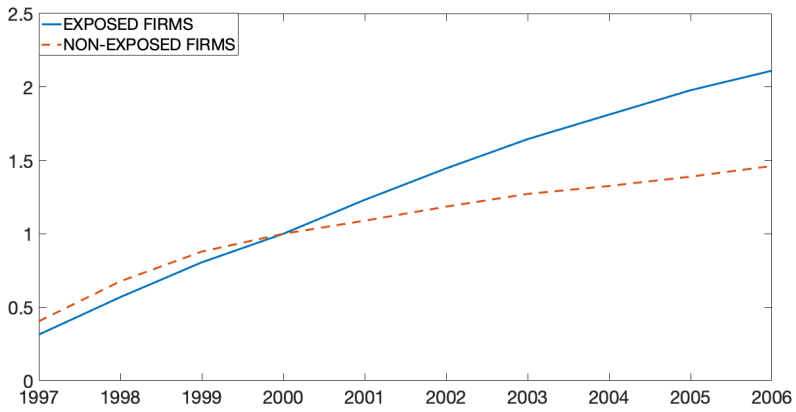
[11] Panel A of Figure 3 indicates that the profitability of all firms decreases from the year 2000 on. This decline could be due to the rising misallocation of resources in the Spanish economy documented by Gopinath et al. (2017) over the same period of time.

Figure 3: Exposure to Chinese Competition and the Dynamics of the Corporate Loan Market.

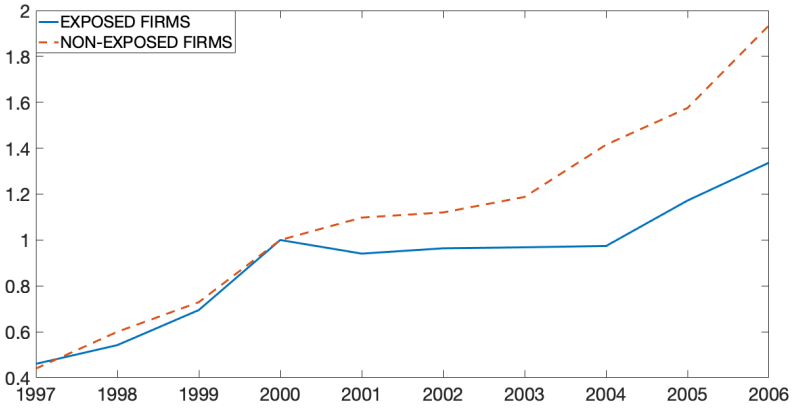
(A) Firm ROA



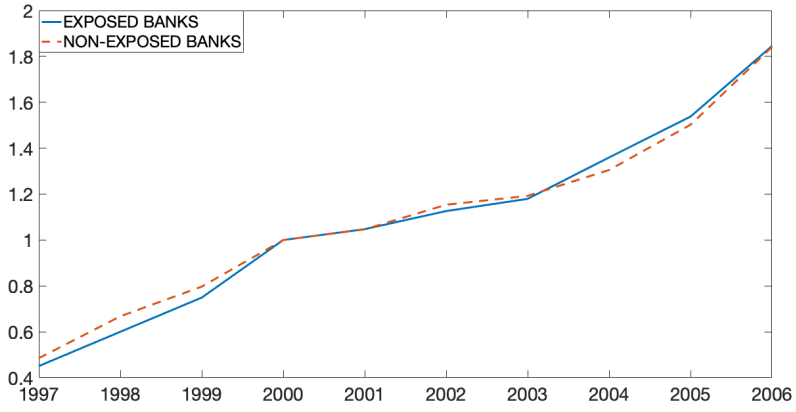
(B) Firm Non-Performing Loans



(C) Firm Credit



(D) Bank Credit



Note: Panel A reports the profitability in terms of ROA for both firms exposed to Chinese import competition (continuous line) and firms not exposed to Chinese import competition (dashed line), from 1997 to 2006. Panel B reports the cumulative ratio of non-performing and doubtful loans over total loans for both firms exposed to Chinese import competition (continuous line) and firms not exposed to Chinese import competition (dashed line), from 1997 to 2006. Panel C reports the total amount of bank loans for firms exposed to Chinese import competition (continuous line) and the total amount of bank loans for firms not exposed to Chinese import competition (dashed line), from 1997 to 2006. Panel D reports the total amount of bank loans for banks exposed to Chinese import competition (continuous line) and the total amount of bank loans for banks not exposed to Chinese import competition (dashed line), from 1997 to 2006. All lines are normalized to 1 in 2000.

firms competing with foreign imports, while lending more to firms in non-exposed industries. To isolate the role of foreign import competition on credit supply, in what follows we exploit the bank-firm-level dimension of our data.

3.1 First Stage: Firm Profitability and NPLs

Our focus on the credit supply channel of foreign import competition builds on the premise that the rising pressures of Chinese goods led to a drop in firms' profitability, which in turn affected firms' ability to meet their debt obligations. Then, the banks that were lending substantially to firms operating in sectors affected by the Chinese competition are now exposed to the risk of experiencing a large surge in NPLs in their balance sheets.

This section shows that the prima-facie evidence of Figure 3 on the link between exposure to Chinese imports and the drop in firm profitability and ability to meet debt obligations uncovers a causal relationship. To do so, we run a firm-level analysis in which we regress the change in firms' ROA and NPLs between 2000 and 2006 on the index of sectoral import penetration over the same period of time, that is

$$\Delta Y_{f,s,2000-2006} = \beta \Delta IP_{s,2000-2006} + \mathbf{X'_{f,2000}}\gamma_1 + \mathbf{X'_{s,2000}}\gamma_2 + \epsilon_{f,s,2000-2006} \qquad (6)$$

where $\Delta Y_{f,s,2000-2006}$ is either the change in firm ROA or NPLs (i.e., an indicator function which equals one if a firm defaults on a loan) between 2000 and 2006, $\Delta IP_{s,2000-2006}$ is the sectoral exposure to Chinese imports, $\mathbf{X'_{f,2000}}$ are firm controls which consist of leverage, the liquidity ratio, the return on assets, and size measured in logarithm of assets, and $\mathbf{X'_{s,2000}}$ are sectoral controls (i.e., the average values of firm controls within each 3-digit industry). The regression also includes 1-digit sector fixed effects as well as province fixed effects.

To identify the causal effect, we estimate Equation (6) not only with OLS methods, but also by instrumenting the sectoral exposure to foreign imports $\Delta IP_{s,2000-2006}$ with either the sectoral exposure computed over a pool of foreign non-E.U. advanced

Table 1: Chinese Import Competition, Firm Profitability, and Firm Non-Performing Loans.

	Firm Profitability			Firm Non-Performing Loans		
	(1) OLS	(2) IV	(3) IV Shipping Costs	(4) OLS	(5) IV	(6) IV Shipping Costs
$\Delta IP_{s,2000-2006}$	-0.56*	-0.36*	-0.71**	0.31**	0.27*	0.40**
	(0.33)	(0.20)	(0.36)	(0.14)	(0.14)	(0.16)
Firm Controls	YES	YES	YES	YES	YES	YES
Sector 3-digit Controls	YES	YES	YES	YES	YES	YES
Sector 1-digit Fixed Effects	YES	YES	YES	YES	YES	YES
Province Fixed Effects	YES	YES	YES	YES	YES	YES
R^2	0.25	0.24	0.22	0.37	0.33	0.33
Observations	92,350	92,350	92,350	92,350	92,350	92,350

Note: This table reports the results of regressions at the firm-firm level, in which the independent variable of interest is the change in sectoral exposure to Chinese competition between 2000 and 2006, $\Delta IP_{s,2000-2006}$. Columns (1) - (3) consider as a dependent variable the change in firm profitability – measured in terms of ROA – between 2000 and 2006. Columns (4) - (6) consider as a dependent variable a dummy variable that equals one if any loan granted by bank b to firm f is non-performing in any month between 2000 and 2006. Columns (1) and (4) estimate the regressions with OLS methods. Columns (2) and (5) instrument the sectoral exposure to China with that of a pool of foreign advanced economies, $\Delta IP^{\star}_{s,2000-2006}$. Columns (3) and (6) instrument the sectoral exposure to China with sectoral shipping costs $SC_{s,2000}$. The regressions also include firm controls in the year 2000 (i.e., leverage, the liquidity ratio, the return on assets, and size measured in logarithm of assets), sectoral controls in the year 2000 (i.e., the average of firm controls within each 3-digit industry), 1-digit sector fixed effects, and province fixed effects. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

economies $\Delta IP^{\star}_{s,2000-2006}$, or with industry-level shipping costs $SC_{s,2000}$

Columns (1) - (3) of Table 1 confirm the previous evidence of Xu (2012), Hombert and Matray (2018), and Autor et al. (2020) by highlighting that rising import competition caused a drop in the profitability of exposed firms. The negative effects of the sectoral exposure to Chinese imports on firm profitability holds regardless of whether we estimate the regression with either OLS or IV methods, and is economically relevant: the baseline IV regression implies a one standard deviation increase in firm exposure to Chinese imports reduces profitability by 6%, which accounts for 22% of the standard deviation of ROA across companies.

Columns (4) - (6) contribute to the China shock literature by showing that rising imports also caused a rise in the probability that a firm cannot meet its debt obligations. Again, this effect holds across OLS and IV specifications and is economically relevant: the baseline IV regression implies a one standard deviation increase in firm exposure to Chinese imports boosts NPLs by 3 percentage points, which accounts for 18% of the standard deviation of NPLs across firms.

These findings validate the first stage of our analysis: rising Chinese imports hurt firms ability to meet their debt obligations. Hence, banks that lend substantially to firms operating in exposed industries face the risk of experiencing a rise in the fraction of non-performing loans in their balance sheet. In the next section, we show that banks manage to contain this risk by shifting their loan portfolios away from companies competing with Chinese imports and towards non-exposed firms.

3.2 The Changes in Bank Credit Supply

We identify the causal effect of banks' exposure to China on their credit supply policies by explicitly taking into account the fact that banks' exposure to China could influence asymmetrically the supply of credit towards firms, depending on firms' direct exposure to Chinese import competition. To unveil these patterns, we run the regression

$$\Delta C_{b,f,s,2000-2006} = \beta_1 \Delta IP_{b,2000-2006} + \beta_2 \Delta IP_{b,2000-2006} \times \Delta IP_{s,2000-2006} + \dots$$
$$\dots + \mathbf{X'_{b,2000}}\gamma + \delta_f + \epsilon_{b,f,s,2000-2006} \quad (7)$$

where $\Delta C_{b,f,s,2000-2006}$ is the log-change in the amount of credit from bank b to firm f operating in sector s between 2000 and 2006. The coefficient β_1 captures the effect of bank exposure to China on the lending towards firms in non-exposed sectors (i.e., sectors with $\Delta IP_{s,2000-2006} = 0$), whereas the coefficient β_2 informs on how the changes in credit supply depend on firms' direct exposure to Chinese imports. As long as the estimated signs of the coefficients β_1 and β_2 differ between each other, then bank exposure to China causes asymmetric changes in credit supply across industries with different levels of direct exposure to foreign imports.

This regression includes also a set of bank controls $\mathbf{X_{b,2000}}$, such as as the size of the balance sheet (i.e., log of total assets), the liquidity ratio (i.e., the ratio of cash plus fixed income over total assets), leverage (i.e., the ratio of net worth over total assets), the fraction of NPLs (i.e., the ratio of doubtful assets over total assets), ROA (i.e., the ratio of EBITDA over assets), sector specialization (i.e., the fraction of credit granted to firms in a given sector over total credit), province specialization (i.e., the fraction of credit granted to firms in a given province over total credit), and relationship lending (e.g., a dummy variable that equals 1 if bank b is the bank with the highest share of credit for firm f).

We identify the change in credit supply associated with bank exposure to import penetration through multi-bank firms, as in Khwaja and Mian (2008). By focusing on these companies, we can saturate the cross-section regression with firm fixed effects δ_f and leverage the variation of bank-firm credit within any given firm. Since the firm fixed effect absorbs the unobserved firm credit demand, any remaining variation in lending comes from supply motives. The Spanish economy represents an ideal case for this identification strategy, as around 80% of all firms in our sample borrow from more than one bank. Instead, in other advanced economies the share of

multi-bank firms is well below 50% (Degryse et al., 2019). Moreover, Spanish firms are highly bank dependent. For instance, only 94 non-financial companies issued a bond at any time between 2006 and 2015 (Arce et al., 2018). In this way, we can exclude the possibility that any variation in bank loans is substituted with alternative sources of financing. Finally, Spanish banks were obliged to keep in their balance sheets all securitized loans. This regulation ensures that the securitization activity did not dampen the bank lending channel (Loutskina and Strahan, 2009), which is the key mechanism that links the rising non-performing loans of the industries facing Chinese competition to banks' rebalancing to non-exposed firm.

The identification of the credit supply channel hinges on two key assumptions: (i) firms' credit demand is held constant across banks and (ii) changes in credit supply do not vary systematically across firms. This second assumption is challenged by the evidence of Paravisini et al. (2018), which highlight the presence of firm- and sector-specific patterns in credit supply due to bank specialization. To address this issue, the regression explicitly controls for both lending relationships at the firm-bank level, and bank specialization across industries and provinces, as in De Jonghe et al. (2020). This approach allows us to elicit an identification strategy which isolates the role of bank exposure to China on credit supply that holds above and beyond any pattern of bank specialization at the firm-, sectoral-, and province-level.

Column (1) of Table 2 reports the results of the regression (7) estimated with OLS methods. We find that bank exposure to Chinese competition had an asymmetric effect on firms depending on firm direct exposure to Chinese imports. Indeed, we estimate a positive and highly statistically significant coefficient β_1, which implies that banks increased their lending towards firms in non-exposed industries. Instead, the fact that the estimated coefficient β_2 is negative – and again highly statistically significant – implies that banks reduced the supply of credit to firms facing competing pressures from China.

Column (2) shows the results of the estimation in which the sectoral and the bank

Table 2: Bank Exposure to China and Credit Supply.

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$					
	(1) OLS	(2) IV	(3) IV Shipping Costs	(4) OLS	(5) IV	(6) IV Shipping Costs
$\Delta IP_{b,2000-2006}$	1.59***	1.95***	1.39***	0.79**	0.75**	0.79**
	(0.31)	(0.34)	(0.39)	(0.32)	(0.35)	(0.40)
$\Delta IP_{b,2000-2006} \times \mathbb{I}_{Low\,Capital\,Bank_b}$				4.20***	4.61***	5.33***
				(1.40)	(1.67)	(1.55)
$\Delta IP_{b,2000-2006} \times \Delta IP_{s,2000-2006}$	-13.31**	-16.99**	-14.00*	-12.88**	-17.20**	-12.61**
	(5.79)	(7.71)	(7.88)	(5.79)	(7.73)	(5.92)
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES	YES
R^2	0.46	0.44	0.44	0.46	0.44	0.44
Observations	249,782	249,782	249,782	249,782	249,782	249,782

Note: This table reports the results of a regression in which the dependent variable is $\Delta C_{b,f,s,2000-2006}$, the log-change in the credit between bank b and firm f between 2000 and 2006, and the independent variables are the change in bank import penetration $\Delta IP_{b,2000-2006}$ and the change in sectoral import penetration $\Delta IP_{s,2000-2006}$, and bank controls, such as the size of the balance sheet (i.e., log of total assets), the liquidity ratio (i.e., the ratio of cash plus fixed income over total assets), leverage (i.e., the ratio of net worth over total assets), the fraction of NPLs (i.e., the ratio of doubtful assets over total assets), ROA (i.e., the ratio of EBITDA over assets), sector specialization (i.e., the fraction of credit granted to firms in a given sector over total credit), province specialization (i.e., the fraction of credit granted to firms in a given province over total credit), and relationship lending (e.g., a dummy variable that equals 1 if bank b is the bank with the highest share of credit for firm f). The regression includes firm fixed effects. Column (1) reports the results for the case in which the regression is estimated using OLS. Column (2) reports the results for the case in which the regression is estimated using IV, in which the change in bank exposure to Chinese imports $\Delta IP_{b,2000-2006}$ and the change in the sectoral exposure to Chinese imports $\Delta IP_{s,2000-2006}$ are instrumented using $\Delta IP^{\star}_{b,2000-2006}$ and $\Delta IP^{\star}_{s,2000-2006}$, respectively. These instruments are derived by exploiting the change in the sectoral import penetration of a pool of non-E.U. advanced economies. Column (3) reports the results for the case in which the regression is estimated using IV, in which the change in bank exposure to Chinese imports $\Delta IP_{b,2000-2006}$ and the change in the sectoral exposure to Chinese imports $\Delta IP_{s,2000-2006}$ are instrumented using $SC_{b,2000}$ and $SC_{s,2000}$, respectively. These instruments are derived by exploiting the shipping costs computed by Bernard et al. (2006). Columns (4)-(6) also introduce an interaction between the change in bank exposure to Chinese imports $\Delta IP_{b,2000-2006}$ and a dummy that equals one for the banks in the lowest quartile of the distribution of capital ratios, a variable which we refer to as $\mathbb{I}_{Low\,Capital\,Bank_b}$. In these cases, we also control for the dummy $\mathbb{I}_{Low\,Capital\,Bank_b}$ independently of the interaction with $\Delta IP_{b,2000-2006}$. In all cases, standard errors clustered at the industry-location-size level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

index of import penetration $\Delta IP_{s,2000-2006}$ and $\Delta IP_{b,2000-2006}$ are instrumented with the indexes that use the imports of Chinese goods in a pool of non-E.U. advanced economies, that is, $\Delta IP^{\star}_{s,2000-2006}$ and $\Delta IP^{\star}_{b,2000-2006}$. This approach raises slightly the magnitude of the coefficients, while maintaining the high statistical significance of both the cut in the supply of credit to exposed sectors and the increase in the lending to non-exposed firms. The results do not change if we use the alternative instrumental strategy of Column (3), in which $\Delta IP_{s,2000-2006}$ and $\Delta IP_{b,2000-2006}$ are instrumented with shipping costs $SC_{s,2000}$ and $SC_{b,2000}$. Overall, these results highlight that rising foreign imports triggered changes in the supply of credit that affected asymmetrically firms, as banks shifted their loan portfolios away from firms competing with Chinese goods.

Our evidence raises the question of why banks were not lending to non-exposed firms in the very first place, and just did so once rebalancing their loan portfolios away from firms facing Chinese competition. We show that this process of portfolio rebalancing towards non-exposed industries is mainly concentrated among banks with low capital ratios. Since low capital ratios imply higher frictions in the ability to fund lending, low-capital banks could raise the supply of credit to firms in non-exposed sectors only when they cut the loans to the manufacturing industries competing with China. To uncover this channel, we estimate the regression

$$\Delta C_{b,f,s,2000-2006} = \beta_1 \Delta IP_{b,2000-2006} + \beta_2 \Delta IP_{b,2000-2006} \times \Delta IP_{s,2000-2006} + \dots$$
$$\dots + \beta_3 \Delta IP_{b,2000-2006} \times \mathbb{I}_{Low\,Capital\,Bank_b} + \mathbf{X}'_{\mathbf{b,2000}}\gamma + \delta_f + \epsilon_{b,f,s,2000-2006} \qquad (8)$$

which extends the specification of regression (7) by interacting banks' exposure to Chinese competition $\Delta IP_{b,2000-2006}$ with a dummy variable which equals one if bank b has a capital ratio in the lowest quartile of the distribution, $\mathbb{I}_{Low\,Capital\,Bank_b}$. Importantly, we also control for the level of the variable $\mathbb{I}_{Low\,Capital\,Bank_b}$ independently of its interaction with $\Delta IP_{b,2000-2006}$ within the set of bank controls $\mathbf{X_{b,2000}}$. In this setting, the coefficient β_3 captures the additional amount of portfolio rebalancing

towards firms in non-exposed sectors which is due to banks with low capital ratios.

Columns (4) - (6) of Table 2 report the outcomes of the regression (8) estimated with OLS and both IV methods, respectively. The results confirm that banks with a weaker capital position engaged more actively in the rebalancing of the loan portfolios toward firms in non-exposed industries. This evidence is consistent with the literature on internal capital markets (Stein, 1997; Scharfstein and Stein, 2000), which highlights that whenever a constrained headquarter allocates its resources across different projects, it shifts its portfolio if a project becomes relatively more profitable. Interestingly, our evidence mirrors that of Chakraborty et al. (2018), in which the rebalancing of banks' portfolios towards mortgage lending due to the housing boom was concentrated among the intermediaries with low capital ratios.

3.3 Evidence Across Sectors

To dig deeper in the process of banks' loan portfolio reallocation, we run the baseline regression (7) on four different samples: one looking only at exposed manufacturing firms, a sample on non-exposed manufacturing firms, one focusing on services firms, and one looking at construction and real estate companies. In each case we identify the variation in credit supply by focusing on multi-bank firms and absorbing firm credit demand with firm fixed effects. The results of Table 3 highlight once again that exposed banks reduced their supply of credit to exposed manufacturing firms, while raising lending to firms in all non-exposed sectors. These patterns hold true independently on whether we estimate the regression with OLS or IV methods. Moreover, Appendix C shows that the reduction in credit supply to exposed firms happened both at the extensive margin, with banks ending established relationships with exposed firms, and the intensive margin, so that banks also reduced the total amount of loans with those exposed firms with whom they kept a relationship.

When interpreting the economic implications of these regressions, we find that

Table 3: The Effect of Bank Exposure to China on Credit Supply - Evidence Across Sectors.

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$							
	Exposed Manufacturing		Non-Exposed Manufacturing		Services		Construction	
	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV	(7) OLS	(8) IV
$\Delta IP_{b,2000-2006}$	0.83	1.86**	1.88***	2.04***	1.67**	2.22***	2.03***	2.13***
	(0.63)	(0.74)	(0.48)	(0.50)	(0.72)	(0.78)	(0.68)	(0.75)
$\Delta IP_{b,2000-2006} \times \Delta IP_{s,2000-2006}$	-10.31*	-16.23*						
	(6.13)	(9.59)						
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES	YES	YES	YES
R^2	0.41	0.39	0.45	0.43	0.54	053	0.50	0.47
Observations	75,395	75,395	94,521	94,521	33,092	33,092	46,774	46,774

Note: This table reports the results of a regression in which the dependent variable is $\Delta C_{b,f,s,2000-2006}$, the log-change in the credit between bank b and firm f between 2000 and 2006, and the independent variables are the change in bank import penetration $\Delta IP_{b,2000-2006}$ and the change in sectoral import penetration $\Delta IP_{s,2000-2006}$, and bank controls as in Table 2. The regression includes firm fixed effects. Column (1) reports the results for the case in which the regression is estimated using OLS on a sample of exposed manufacturing firms. Column (3) reports the results for the case in which the regression is estimated using OLS on a sample of non-exposed manufacturing firms. Column (5) reports the results for the case in which the regression is estimated using OLS on a sample of services firms. Column (7) reports the results for the case in which the regression is estimated using OLS on a sample of construction firms. Columns (2), (4), (6), and (8) report the results for the case in which the regression is estimated using IV, in which the change in bank exposure to Chinese imports $\Delta IP_{b,2000-2006}$ and the change in the sectoral exposure to Chinese imports $\Delta IP_{s,2000-2006}$ are instrumented using $\Delta IP^{\star}_{b,2000-2006}$ and $\Delta IP^{\star}_{s,2000-2006}$, respectively. These instruments are derived by exploiting the change in the sectoral import penetration of a pool of non-E.U. advanced economies. In all cases, standard errors clustered at the industry-location-size level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

a one standard deviation increase in bank exposure to Chinese imports reduced the amount of credit at the bank-firm pair in the exposed manufacturing sector by 7%. Instead, the portfolio rebalancing of exposed banks generated an increase in the credit at the bank-firm pair by around 4% in non-exposed firms. This portfolio rebalancing due to banks' exposure to Chinese imports amounts to 8% of the variation in credit growth of non-exposed firms between 2000 and 2006.

Appendix D corroborates that our findings are robust to two alternative strategies for the identification of credit supply. In the first one, we follow Chakraborty et al. (2018) and rather than focusing only on multi-bank, we look at all firms and absorb credit demand with the combination of firm controls and (3-digit)sector-size fixed effects. In this case, the identification strategy posits that within each 3-digit industry/size bin and conditional on firm characteristics, any variation in bank-firm credit is due to credit supply motives. In the second one, we saturate even further the regressions and consider (3-digit)sector-size-province fixed effects, in the spirit of Lin and Paravisini (2013) and Degryse et al. (2019).

Finally, the baseline regressions look at the effects of bank exposure to Chinese import penetration on the change in the supply of credit in a given bank-firm pair. This level of analysis allows us to saturate the regressions with firm fixed effects to absorb credit demand and identify the variation in credit supply. However, the drop in the supply of credit between a given exposed bank and a given exposed firm could be offset if the firm manages to borrow from other financial institutions. Appendix E shows that the results of Table 3 holds even when we look at the change in credit at the firm level. Moreover, the appendix reports a regression at the bank level which indicates that exposed banks did not shrink their balance sheets vis-á-vis non-exposed banks. This result confirms that banks offset the reduction in the supply of credit to exposed manufacturing firms by lending more to industries with no competition threats from China.

3.4 The Role of Firms' Profitability

To isolate the drivers of banks' portfolio reallocation, we leverage the heterogeneity across firms and evaluate whether the effects of banks' exposure to Chinese industries on the supply of credit depend on firms' profitability. Namely, we investigate whether banks reduced the supply of credit to the least profitable firms among those facing Chinese import competition and rebalanced their portfolios towards the most profitable firms in non-exposed industries. To do so, we run the same analysis of the previous section, with the difference that rather than estimating the regression (7) in four different samples depending on firms' sector of operation (i.e., exposed manufacturing industries, non-exposed manufacturing industries, services, and construction), we split each case in two samples depending on firms' profitability: one sample with firms whose ROA in the year 2000 is above the median level in the economy, and one sample with firms with a ROA below the median.

The results of Table 4 reveal that banks cut their supply of credit to firms facing Chinese import competition depending on their profitability, as the reduction in lending to the exposed manufacturing firms with low profitability is almost twice as large as the reduction in credit supply to the high-profitability firms in those very same industries. Firms' profitability also characterizes the change in lending towards non-exposed industries, as the credit reallocation is larger among the firms with high ROA.

This evidence confirms that banks shielded their balance sheets from the decline in profitability – and the rise in non-performing loans – of firms facing Chinese import competition by rebalancing their credit portfolios towards profitable firms in non-exposed sectors. However, the surge in lending towards the construction sector did not depend on firms' profitability. This side of banks' portfolio reallocation cannot be due to a searching-for-yield motive, as the surge in credit to low-profitability firms is only concentrated in the construction sectors, and not in other non-exposed

Table 4: Bank Exposure to China and Credit Supply - The Role of Firms' Profitability

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$							
	Exposed Manufacturing		Non-Exposed Manufacturing		Services		Construction	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Low ROA Firms	High ROA Firms	Low ROA Firms	High ROA Firms	Low ROA Firms	High ROA Firms	Low ROA Firms	High ROA Firms
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
$\Delta IP_{b,2000-2006}$	0.56	0.99	1.65	2.15***	1.24	1.88**	1.94**	2.01**
	(1.01)	(0.78)	(1.16)	(0.70)	(1.10)	(0.95)	(0.86)	(0.93)
$\Delta IP_{b,2000-2006} \times \Delta IP_{s,2000-2006}$	-11.77**	-6.77*						
	(5.82)	(3.88)						
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES	YES	YES	YES
R^2	0.43	0.39	0.47	0.43	0.56	0.51	0.52	0.47
Observations	30,211	45,181	52,030	42,491	13,526	19,556	26,753	20,021

Note: This table reports the results obtained by the same regressions of Table 3, with the only difference being the fact that in this case we split the firms within each sector in a sample of firms with high profitability (i.e., firms with a ROA above the median value in the economy), which we refer to as "High ROA Firms", and sample of firms with high profitability (i.e., firms with a ROA above the median value in the economy), which we refer to as "Low ROA Firms". In all cases, standard errors clustered at the industry-location-size level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

industries.[12] In the next section, we investigate the determinants of this result.

4 The Portfolio Reallocation To Construction

This section establishes that the surge in the lending to low-profitability construction firms is not due to the housing boom of the early 2000s. Rather, banks' credit reallocation to construction relates to the characteristics of local economic activity. The combination of the marked spatial agglomeration of manufacturing industries competing with Chinese imports and the fact that in our sample also bank lending is highly geographically concentrated implies that local banks had fewer alternatives to local construction firms for rebalancing their portfolios.

4.1 The Role of the Housing Boom

The surge in lending to the construction sector independently of firms' profitability could be driven by the housing boom of the early 2000s. Indeed, Chakraborty et al. (2018), Cuñat et al. (2018), Martin et al. (2018) show that banks reacted to the housing boom by shifting their loans to construction firms and mortgage lending. To rule out this hypothesis, we highlight that the effect of bank exposure to China on the surge in lending towards construction holds above and beyond bank exposure to the housing boom.

To do so, we add to our baseline regression three further controls. Column (1) of Table 5 introduces the share of mortgages in overall bank credit as of 2000, a variable that Martin et al. (2018) use to capture bank exposure to the housing price boom and the related shifts in bank lending towards construction. Column

[12]The rise in credit to low-profitability construction firms is not due to a hold-up problem on the bank side, in which banks exposed to China had established lending relationships with low-profitability construction firms, and therefore increased the supply of credit to these companies when rebalancing their portfolios. Indeed, Appendix C shows that the surge in lending to construction firms happens not only at the intensive margin (i.e., with exposed banks raising the supply of credit to firms with established relationship), but also at the extensive one (i.e., with exposed banks establishing new credit relationships).

Table 5: The Portfolio Reallocation to Construction and the Housing Boom.

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$		
	Construction		
	(1) OLS	(2) OLS	(3) OLS
$\Delta IP_{b,2000-2006}$	4.84***	2.74***	2.23***
	(0.71)	(0.80)	(0.85)
$\left(\frac{\text{Mortgages}}{\text{Total Credit}}\right)_{b,2000}$	0.33***	0.34***	0.33***
	(0.03)	(0.03)	(0.03)
$\Delta\left(\frac{\text{Mortgages}}{\text{Total Credit}}\right)_{b,2000-2006}$		0.19***	0.19***
		(0.04)	(0.04)
Δ House Price$_{b,2000-2006}$			0.08*
			(0.04)
Firm Fixed Effects	YES	YES	YES
Bank Controls	YES	YES	YES
R^2	0.51	0.51	0.51
Observations	46,774	46,774	46,774

Note: This table reports the results of regressions at the bank-firm level as in Table 3, in which we consider additional control variables. Column (1) adds the share of mortgages in overall bank credit as of 2000. Column (2) adds the change in the share of mortgages in overall bank credit between 2000 and 2006. Column (3) adds a measure of house price change defined as the bank-level, which weights the changes in house price at the province level with the shares of credit that a given bank gives to each province. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

(2) adds also the change in the share of mortgages in total bank credit between 2000 and 2006. Finally, Column (3) introduces a measure of house price change defined at the bank-level using the same approach of Chakraborty et al. (2018): we weight the house price change in a given province with the share of credit that a given bank allocates to that province, and then sum over all provinces. The results of Table 5 highlight that the coefficients associated to the change in the supply of credit to construction firms due to bank exposure to Chinese competition are highly statistically significant even after controlling for these measures of bank exposure to the housing boom.

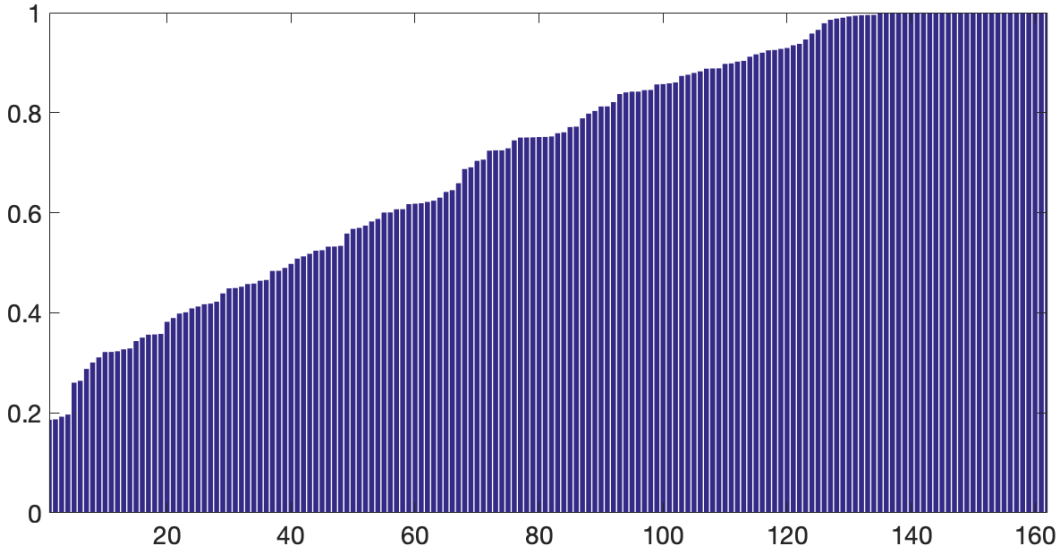
Appendix F reports further evidence corroborating the fact that the credit supply channel of foreign import competition holds above and beyond bank exposure to the housing boom. Namely, we run a placebo exercise: we change the definition of bank exposure by focusing on bank specialization in those manufacturing firms which operate in sectors which have *not* been affected by Chinese import competition (i.e., firms within non-exposed manufacturing industries), and evaluate whether also this alternative measure implies a change in credit across sectors from 2000 to 2006. We find that bank exposure to non-exposed manufacturing firms implies no reallocation whatsoever to other sectors, not even to construction firms.

4.2 Local Economic Activity and the Geographical Concentration of Bank Lending

To uncover the link between the characteristics of the local economic activity and the lending to construction, we start by documenting that in the early 2000s the corporate loan portfolios of Spanish banks were highly geographically concentrated. To make this point, we compute how much banks lend across Spanish provinces, and report the highest province share of lending for each bank in Figure 4.

The plot shows that the median bank was concentrating 75% of its corporate

Figure 4: The Local Concentration of Bank Lending.



Note: This graph reports the highest share of corporate lending that each bank supply to firms located in one single province.

loan portfolio just in one province. Although there is quite a large dispersion in the amount of lending concentration, as the maximum province share varies between 19% and 100%, roughly 75% of the banks in our sample have at least half of their corporate loan portfolios tilted to one province. Importantly, the evidence of Table A.2 in the Appendix indicates that bank exposure to Chinese competition does not correlate with the geographical concentration of bank portfolios, as in our sample all banks are poorly geographically diversified.

Then, we show that the portfolio reallocation to low-profitability construction firms is largest among local banks, that is, those financial institutions whose corporate loan portfolios are highly geographically concentrated. To unveil this result, we estimate the following regression

$$\Delta C_{b,f,s,2000-2006} = \beta_1 \Delta IP_{b,2000-2006} + \beta_2 \Delta IP_{b,2000-2006} \times \mathbb{I}_{Local\ Bank_b} + \ldots$$
$$\ldots + \mathbf{X'_{b,2000}}\gamma + \delta_f + \epsilon_{b,f,s,2000-2006} \qquad (9)$$

in which we interact banks' exposure to Chinese imports, $\Delta IP_{b,2000-2006}$ with the variable $\mathbb{I}_{Local\ Bank_b}$, which is a dummy that equals one if the bank granting the loan

has a corporate loan portfolio with a geographical concentration above the median value across all banks. Importantly, we also control for the level of the variable $\mathbb{I}_{Local\ Bank_b}$ independently of its interaction with $\Delta IP_{b,2000-2006}$ within the set of bank controls $\mathbf{X_{b,2000}}$. In this setting, the parameter β_2 captures the additional amount of credit reallocation to construction firms which is due to local banks.

We estimate the regression (9) on two samples depending on firms' profitability (i.e., high ROA firms vs. low ROA firms). The results of Table 6 indicate that the surge in credit to low-profitability construction firms holds only among those bank exposed to Chinese competition that had highly geographically concentrated corporate loan portfolios. Instead, banks with a a higher degree of geographical diversification of their loan portfolios raised the supply of credit only to construction firms with high ROA. Hence, the rebalancing to construction firms with low profitability is entirely due to local banks.

The role of local banks in explaining the surge in credit supply to non-profitable construction firms can be rationalized by looking into the characteristics of the local economic activity. Indeed, the geographical concentration of the loan portfolios of Spanish banks interacts with the high levels of spatial clustering of the industries facing Chinese import penetration. The marked geographical concentration of manufacturing industries has been extensively studied in the literature (Krugman, 1991; Ellison and Glaeser, 1997; Ellison et al.; 2010). However, it turns out that the industries affected by Chinese competition are among the sectors with the highest level of spatial agglomeration: the index of geographical concentration of Ellison and Glaeser (1997) for all the industries in our sample in 2000 strongly correlates – with a value around 0.7 – with the rise of Chinese import penetration over 2000-2006.

We then show that the high degree of geographical concentration of the industries exposed to Chinese competition left banks fewer alternatives to local construction firms for rebalancing their portfolios. To do so, we extend our baseline regression by interacting banks' exposure to China with a measure of local investment oppor-

Table 6: The Portfolio Reallocation to Construction, Firms' Profitability, and Local Banks.

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$	
	(1) Low ROA Construction Firms	(2) High ROA Construction Firms
	OLS	OLS
$\Delta IP_{b,2000-2006}$	1.02	1.28**
	(0.79)	(0.62)
$\Delta IP_{b,2000-2006} \times \mathbb{I}_{Local\ Bank_b}$	2.98***	1.84*
	(1.46)	(1.08)
Firm Fixed Effects	YES	YES
Bank Controls	YES	YES
Housing Boom Controls	YES	YES
R^2	0.52	0.47
Observations	26,753	20,021

Note: This table reports the results of regressions at the bank-firm level as in Table 3, in which we focus only on construction firms, and split them in two samples depending on their profitability, measured in terms of ROA: one sample with all firms whose ROA is above the median value of profitability in the economy, and one sample with all firms whose ROA is below the median. We also interact the change in banks' exposure to Chinese imports with a dummy which equals one for all banks whose geographical concentration of the corporate loan portfolios is above the median value across all banks, $\mathbb{I}_{Local\ Bank_b}$. The regression also controls for the dummy variable $\mathbb{I}_{Local\ Bank_b}$ independently of its interaction with banks' exposure to Chinese competition. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

tunities. Namely, we derive the investment opportunities that banks face in a given province p in 2000 as

$$IO_{p,2000} = \frac{\sum_{f \in \text{province p}} \left(Y_{f,2000}^{\text{NonExpManuf}} + Y_{f,2000}^{\text{Serv}} \right)}{\sum_{f \in \text{province p}} \left(Y_{f,2000}^{\text{ExpManuf}} + Y_{f,2000}^{\text{NonExpManuf}} + Y_{f,2000}^{\text{Serv}} \right)}, \tag{10}$$

which defines for each province the fraction of sales of firms which do not operate in either exposed manufacturing industries or the construction sector over total sales of all firms. A high value of the variable $IO_{p,2000}$ implies that in a given province there are relatively more investment opportunities outside of both exposed manufacturing and construction. If a bank operates in areas with fewer investment opportunities, then the only way it may reshuffle its loan portfolio out of exposed manufacturing firms is by lending to construction companies.

Column (1) of Table 7 shows that the portfolio reallocation to construction firms is larger in areas with fewer investment opportunities outside of exposed manufacturing firms, as the coefficient associated to the interaction between $\Delta IP_{b,2000-2006}$ and $IO_{p,2000}$ is highly negative and statistically significant. Column (2) and (3) replicate the same analysis by splitting the sample into low-profitability and high-profitability construction firms. Although banks' exposure to China leads to more lending to profitable construction firms independently on the characteristics of the province in which banks operate, the surge in lending to low-profitability construction firms strongly depends on the amount of investment opportunities at the province level. Indeed, the reallocation to construction firms with low levels of ROA was particularly severe in provinces with fewer investment opportunities outside of the exposed manufacturing firms.

Table 7: The Portfolio Reallocation to Construction and Local Economic Activity.

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$		
	(1) All Construction Firms	(2) Low ROA Construction Firms	(3) High ROA Construction Firms
	OLS	OLS	OLS
$\Delta IP_{b,2000-2006}$	2.07***	2.01*	1.97**
	(0.68)	(0.92)	(0.75)
$\Delta IP_{b,2000-2006} \times IO_{p,2000}$	-4.50*	-6.34**	-3.84
	(2.51)	(3.18)	(2.49)
Firm Fixed Effects	YES	YES	YES
Bank Controls	YES	YES	YES
Housing Boom Controls	YES	YES	YES
R^2	0.50	0.58	0.48
Observations	46,774	26,753	20,021

Note: This table reports the results of regressions at the bank-firm level as in Table 3, in which we consider the interaction of bank exposure to Chinese imports $\Delta IP_{b,2000-2006}$ with a variable $IO_{p,2000}$, which defines bank investment opportunities outside of exposed manufacturing-firms and construction firms for each province p. In the interaction term, the variables $IO_{p,2000}$ is demeaned with its cross-sectional average. Column (1) estimates the regression on all construction firms, whereas Column (2) and Column (3) focus on low-profitability construction firms and high-profitability construction firms. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

5 Real Effects

This section shows that the bank portfolio reallocation not only shaped the dynamics of the corporate loan market, but also affected the real economic activity of Spanish firms. To quantify the real effects of the bank portfolio reallocation, we study the effect of rising Chinese competition on the change in firm employment between 2000 and 2006 by estimating the regression

$$\Delta Y_{f,s,2000-2006} = \beta_1 \Delta IP_{s,2000-2006} + \beta_2 \Delta \hat{IP}_{b,2000-2006} + \mathbf{X'_{f,s,2000}}\gamma_1 + \dots \\ \dots + \mathbf{X'_{s,2000}}\gamma_2 + \hat{\delta}_f + \epsilon_{f,2000-2006} \tag{11}$$

where $\Delta Y_{f,s,2000-2006}$ is the change in employment between 2000 and 2006 of firm f operating in industry s. The variable $\Delta \hat{IP}_{b,2000-2006}$ denotes the bank exposure to China measured at the firm level, and it is defined as

$$\Delta \hat{IP}_{b,2000-2006} = \frac{\sum_b C_{b,f,s,2000} \times \Delta IP_{b,2000-2006}}{\sum_b C_{b,f,s,2000}}. \tag{12}$$

This variable weights the bank exposure indexes with the share of credit between firm f and each bank with which the firm has a relationship. In case a firm has only one lending relationship, then $\Delta \hat{IP}_{b,2000-2006}$ coincides with the bank exposure index $\Delta IP_{b,2000-2006}$. The regression includes the same set of firm characteristics $\mathbf{X'_{f,s,2000}}$ of regression (6), a set of sector characteristics $\mathbf{X'_{s,2000}}$ (i.e., the sectoral averages of each firm control), and both 1-digit sectoral and province fixed effects.

The regression (11) evaluates to what extent the change in firm employment between 2000 and 2006 has been influenced by either the direct exposure of each firm to Chinese competition, $\Delta IP_{s,2000-2006}$, or by the exposure of the banks associated with each firm $\Delta \hat{IP}_{b,2000-2006}$. However, the rising Chinese imports could affect firm employment by changing firm credit demand. To address this concern, we follow Bonaccorsi di Piatti and Sette (2016), Cingano et al. (2016), and Jimenez et al. (2020) and add to the regression the firm fixed effect δ_f as estimated in the bank-

firm-level regression (7). The inclusion of the estimated fixed effect let us control explicitly for potential changes in credit demand of the firms exposed to Chinese competition, so that the estimated parameter β_2 informs on the effect of bank exposure to Chinese imports on firm real outcomes above and beyond firm direct exposure to Chinese competition as well as any variation in firm credit demand.

Finally, to be consistent with the literature that investigates the real effects of the China shock on local labor market, households, and firms by instrumenting the sectoral exposure to China $\Delta IP_{s,2000-2006}$ with a similar variable derived on a panel of non-E.U. advanced economies, $\Delta IP^{\star}_{s,2000-2006}$, we estimate the employment regression with IV methods. In our case, we also instrument bank exposure to foreign inputs $\Delta \hat{IP}_{b,2000-2006}$ with $\Delta \hat{IP}^{\star}_{b,2000-2006}$, that is derived by combining the instrument of bank exposure as of Equation (4) with the definition of bank exposure at the firm level as of Equation (12).

Table 8 confirms the findings of the China shock literature and indicates that rising imports depressed the economic activity of firms operating in sector subject to the competition of imported goods. Indeed, the coefficient associated to firm direct exposure to Chinese imports $\Delta IP_{s,2000-2006}$ is negative and statistically significant. The regression implies that a one-standard deviation increase in the direct sectoral exposure to Chinese imports reduced employment in exposed manufacturing firms between 2000 and 2006 by 11%.

However, the fact that the parameter associated to the variable $\Delta \hat{IP}_{b,2000-2006}$ is also negative and statistically significant highlights the existence of a new channel, through which firms competing with Chinese imports experienced an additional drop in employment due to the cut in the supply of credit from exposed banks. This novel mechanism accounts for half of the negative effects due to firms' direct exposure to foreign imports, as a one-standard deviation increase in bank exposure to Chinese imports between 2000 and 2006 reduces firm employment by 6%.

On the other hand, banks' portfolio reallocation triggered a surge in the real

Table 8: Real Effects - Employment.

	Dependent Variable: ΔValue Added$_{f,s,2000-2006}$			
	Exposed Manufacturing	Non-Exposed Manufacturing	Services	Construction
	(1) IV	(2) IV	(3) IV	(4) IV
$\Delta \hat{IP}_{b,2000-2006}$	-0.54** (0.24)	0.26** (0.12)	0.18* (0.10)	0.42*** (0.14)
$\Delta IP_{s,2000-2006}$	-0.70** (0.29)			
Sector 1-digit Fixed Effects	YES	YES	YES	YES
Province Fixed Effects	YES	YES	YES	YES
Credit Demand Controls	YES	YES	YES	YES
Firm Controls	YES	YES	YES	YES
Sector Controls	YES	YES	YES	YES
R^2	0.12	0.11	0.10	0.16
Observations	23,555	35,441	15,181	18,173

This table reports the results of a regression in which the dependent variable is the change in employment of firm f between 2000 and 2006, and the independent variables are the change in bank import penetration defined at the firm level $\Delta \hat{IP}_{b,2000-2006}$ and the change in sectoral import penetration $\Delta IP_{s,2000-2006}$, firm controls as in Table 1, sector controls defined as the 3-digit sector average of the variables used as firm controls, 1-digit sector fixed effects, province fixed effects, and credit demand controls in the form of the estimated firm-fixed effect from the bank-firm-level regressions. In all cases, standard errors clustered at the industry-location level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

outcomes on firms in non-exposed sectors. This channel is relatively more important for construction firms. Indeed, a one-standard deviation increase in bank exposure to China raised the employment of non-exposed manufacturing firms, services firms, and construction firms 2000 and 2006 by 4%, 3%, and 6%, respectively. The larger response of the employment of construction firms is consistent with the evidence on the differential change in the supply of credit across non-exposed industries: while banks increased their lending – and only at the intensive margin – to profitable firms in non-exposed manufacturing and services industries, the portfolio reallocation to construction shifted credit to non-profitable companies, also via the establishment of new credit relationships.

These results contribute to the debate on the effects of rising Chinese competition on advanced economies. The literature so far has highlighted how firms operating in sectors more exposed to competitive pressures from Chinese imports experienced a sharp drop in profitability, sales, employment, capital expenditures, and innovation (e.g., Xu, 2012; Acemoglu et al., 2016; Bloom et al., 2016; Pierce and Schott, 2016; Hombert and Matray, 2018; Autor et al., 2020). We add to these findings on two dimensions. First, we highlight a novel amplification channel, through which changes in the supply of credit towards firms in exposed manufacturing industries generate a further drop in firms' economic activity. Second, bank exposure to China implies a reallocation of bank lending towards non-exposed sectors. In particular, this spillover effect has generated a rise in the economic activity of the firms operating in non-exposed industries, and has contributed to the construction sector boom of the early 2000s.

6 Conclusion

This paper studies the effects of the rising Chinese import penetration in the early 2000s on the Spanish corporate loan market. We show that banks reshuffled their

loan portfolios by cutting the supply of credit to firms in exposed sectors, and lending more to profitable firms in non-exposed industries. This evidence not only provides a novel amplification channel of the negative effects of foreign rising imports on the activity of competing domestic firms, but also uncovers a positive spillover effect to firms in non-exposed industries which have enjoyed a looser access to credit.

In addition, our results indicate that banks also reallocated credit to the construction sector, independently of firms' profitability. This is not due to banks' direct exposure the the housing boom. Rather, the surge in credit to low-profitability construction firms relates to the characteristics of local economic activity, as it is concentrated in areas in which the high geographical concentration of the manufacturing industries competing with China left local banks with fewer alternatives to local construction firms for rebalancing their loan portfolios. This result provides a novel narrative for the Spanish construction boom of the early 2000s, that could also rationalize – via the portfolio rebalancing to low-profitability firms – the rising fragility which ultimately contributed to the bust of the sector.

References

Acemoglu, D., D. Autor, D. Dorn, G. Hanson, and B. Price. 2016. Import Competition and the Great U.S. Employment Sag of the 2000s. *Journal of Labor Economics*, 34, 141-98.

Arce, O., R. Gimeno, and S. Mayordomo. 2018. Making Room for the Needy: The Credit-Reallocation Effects of the ECB's Corporate QE. *Mimeo.*

Autor, D., D. Dorn, and G. Hanson. 2013. The China Syndrome: Local Labor Market Effects of Import Competition in the United States. *American Economic Review*, 103, 2121-68.

Autor, D., D. Dorn, G. Hanson, G. Pisano, and P. Shu. 2020. Foreign Competition and Domestic Innovation: Evidence from U.S. Patents. *American*

Economic Review: Insights, forthcoming.

Autor, D., D. Dorn, G. Hanson, and J. Song. 2014. Trade Adjustment: Worker Level Evidence. *Quarterly Journal of Economics*, 129, 1799-860.

Barrot, J.-N., E. Loualiche, M. Plosser, and J. Sauvagnat. 2018. Import Competition and Household Debt. *Mimeo.*

Barrot, J.-N., E. Loualiche, and J. Sauvagnat. 2019. The Globalization Risk Premium. *Journal of Finance*, 74, 2391-439.

Bentolilla, S., M. Jensen, and G. Jimenez. 2018. When Credit Dries Up: Job Losses in the Great Recession. *Journal of the European Economic Association*, 16, 650-95.

Bernard, A., B. Jensen, and P. Schott. 2006. Survival of the Best Fit: Exposure to Low-Wage Countries and the (Uneven) Growth of U.S. Manufacturing Plants. *Journal of International Economics*, 68, 219-37.

Bloom, N., M. Draca, and J. Van Reenen. 2016. Trade Induced Technical Change? The Impact of Chinese Imports on Innovation, IT, and Productivity. *Review of Economic Studies*, 83, 87-117.

Bonaccorsi di Piatti, E., and E. Sette. 2016. Did the Securitization Market Freeze Affect Bank Lending During the Financial Crisis? Evidence from a Credit Register. *Journal of Financial Intermediation*, 25, 54-76.

Brandt, L., J. Van Biesebroeck, and Y. Zhang. 2012. Creative Accounting or Creative Destruction? Firm-Level Productivity Growth in Chinese Manufacturing. *Journal of Development Economics*, 97, 339-51.

Chakraborty, I., I. Goldstein, and A. MacKinlay. 2018. Housing Price Booms and Crowding-out Effects in Bank Lending. *Review of Financial Studies*, 31, 2806-53.

Cortes, K., and P. Strahan. 2017. Tracing Out Capital Flows: How Financially Integrated Banks Respond to Natural Disasters. *Journal of Financial Economics*, 125, 182-99.

Cingano, F., F. Manaresi, and E. Sette. 2016. Does Credit Crunch Investment Down? New Evidence on the Real Effects of the Bank-Lending Channel. *Review of Financial Studies*, 29, 2737-73.

Cuñat, V., D. Cvijanovic, and K. Yuan. 2018. Within-Bank Spillovers of Real Estate Shocks. *Review of Corporate Finance Studies*, 7, 157-93.

Degryse, H., O. De Jonghe, S. Jakovljevic, K. Mulier, and G. Schepens. 2019. Identifying Credit Supply Shocks with Bank-Firm Data: Methods and Applications. *Journal of Financial Intermediation*, 40, 100813.

De Jonghe, O., H. Dewachter, K. Mulier, S. Ongena, and G. Schepens. 2020. Some Borrowers are More Equal than Others: Bank Funding Shocks and Credit Reallocation. *Review of Finance*, 24, 1-43.

Desai, M., C. Fritz Foley, and K. Forbes. 2008. Financial Constraints and Growth: Multinational and Local Firm Responses to Currency Depreciations. *Review of Financial Studies*, 21, 2857-87.

Ellison, G., and E. Glaeser. 1997. Geographic Concentration in U.S. Manufacturing Industries: A Dartboard Approach. *Journal of Political Economy*, 105, 889-927.

Ellison, G., E. Glaeser, and W. Kerr. 2010. What Causes Industry Agglomeration? Evidence from Co-agglomeration Patterns. *American Economic Review*, 100, 1195-213.

Gan, J. 2007. The Real Effects of Asset Market Bubbles: Loan- and Firm-Level Evidence of a Lending Channel. *Review of Financial Studies*, 20, 1941-73.

Giannetti, M., and F. Saidi. 2019. Shock Propagation and Banking Structure. *Review of Financial Studies*, 32, 2499-2540.

Gilje, E., E. Loutskina, and P. Strahan. 2016. Exporting Liquidity: Branch Banking and Financial Integration. *Journal of Finance*, 71, 1159-84.

Gopinath, G., S. Kalemli-Ozcan, L. Karabarbounis, and C. Villegas-Sanchez. 2017. Capital Allocation and Productivity in South Europe. *Quarterly*

Journal of Economics, 132, 1915-67.

Haurin, D. 2017. International Perspectives on Homeownership and Home Equity Extraction by Senior Households. *Journal of European Real Estate Research*, 10, 245-76.

Hombert, J., and A. Matray. 2018. Can Innovation Help U.S. Manufacturing Firms Escape Import Competition from China? *Journal of Finance*, 73, 2003-39.

Houston, J., C. James, and D. Marcus. 1997. Credit Market Frictions and Internal Capital Markets in Banking. *Journal of Financial Economics*, 46, 135-64.

Hsieh, C.-T., and P. Klenow. 2009. Misallocation and Manufacturing TFP in China and India. *Quarterly Journal of Economics*, 124, 1403-48.

Hsieh, C.-T., and R. Ossa. 2016. A Global View of Productivity Growth in China. *Journal of International Economics*, 102, 209-24.

Jimenez, G., A. Mian, J.-L. Peydro, and J. Saurina. 2020. The Real Effects of the Bank Lending Channel. *Journal of Monetary Economics*, forthcoming.

Jimenez, G., S. Ongena, J.-L. Peydro, and J. Saurina. 2012. Credit Supply and Monetary Policy: Identifying the Bank Balance-Sheet Channel with Loan Applications. *American Economic Review*, 102, 2301-26.

Jimenez, G., S. Ongena, J.-L. Peydro, and J. Saurina. 2017. Macroprudential Policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments. *Journal of Political Economy*, 125, 2126-77.

Khwaja, A. and A. Mian. 2008. Tracing the Impact of Bank Liquidity Shocks: Evidence from an Emerging Market. *American Economic Review*, 98, 1413-42.

Krugman, P. 1991. Increasing Returns and Economic Geography. *Journal of Political Economy*, 99, 483-99.

Lin, H., and D. Paravisini. 2013. The Effect of Financing Constraints on Risk. *Review of Finance*, 17, 229-59

Loutskina, E., and P. Strahan. 2009. Securitization and the Declining Impact

of Bank Finance on Loan Supply: Evidence from Mortgage Originations. *Journal of Finance*, 64, 861-89.

Martin, A., E. Moral-Benito, and T. Schmitz. 2018. The Financial Transmission of Housing Bubbles: Evidence from Spain. *Mimeo.*

Paravisini, D., V. Rappoport, and P. Schnabl. 2018. Specialization in Bank Lending: Evidence from Exporting Firms. *Mimeo.*

Pierce, J., and P. Schott. 2016. The Surprisingly Swift Decline of US Manufacturing Employment. *American Economic Review*, 106, 1632-62.

Saurina, J., and C. Trucharte. 2017. The countercyclical provisions of the Banco de España 2000-2016. Mimeo.

Scharfstein, D., and J. Stein. 2000. The Dark Side of Internal Capital Markets: Divisional Rent Seeking and Inefficient Investment. *Journal of Finance*, 55, 2537-64.

Stein, J. 1997. Internal Capital Markets and the Competition for Corporate Resources. *Journal of Finance*, 52, 111-33.

Valta, P. 2012. Competition and the Cost of Debt. *Journal of Financial Economics*, 105, 661-82.

Xu, J. 2012. Profitability and Capital Structure: Evidence from Import Penetration. *Journal of Financial Economics*, 106, 427-46.

A Descriptive Statistics

This section reports two tables which resume the characteristics of the sample studied in the paper.

Panel A of Table A.1 shows the descriptive statistics associated to the values of the sectoral exposure to Chinese imports $\Delta IP_{s,2000-2006}$ for all the firms operating in the exposed manufacturing sectors. We do not report the statistics for non-exposed companies as in this case it equals to zero. Panel B reports the descriptive statistics on the change in log credit between 2000 and 2006 at the firm level, with information also at the sectoral level. Panel C reports the descriptive statistics on other selected firm variables, that is, firm total assets, the ratio of equity over firm total assets, the ratio of liquid assets over firm total assets, the return on assets (ROA), and the fraction of non-performing loans.

Instead, Table A.2 shows that there is no statistically significant difference in a set of key observable variables for the banks with either low or high exposure to Chinese import competition. In this case, we focus on bank total assets, the ratio of bank liquid assets over total liabilities, the ratio of bank equity over total liabilities, the fraction on non-performing loans, profitability measured in terms of the return on assets (ROA), and finally the average share of credit for a specific province-sector combination.

Table A.1: Descriptive Statistics.

	Mean	Median	P5	P95	SD	N
			Panel A. $\Delta IP_{s,2000-2006}$			
Exposed Manufacturing Firms	0.13	0.11	0.01	0.86	0.16	84,896
			Panel C. $\Delta \text{Log}\left(\text{Credit}_{2000-2006}\right)$			
All Firms	0.13	0.11	-0.79	0.97	0.56	300,579
Exposed Manufacturing Firms	0.11	0.08	-0.80	0.96	0.56	84,896
Non-Exposed Manufacturing Firms	0.12	0.10	-0.77	0.93	0.55	111,113
Services Firms	0.14	0.14	-0.76	0.96	0.56	45,144
Construction Firms	0.17	0.16	-0.84	1.07	0.61	59,425
			Panel D. Firm Characteristics			
Total Assets (TA) (,000)	5,695.79	472.72	46.87	6,641.00	40,705.06	92,350
Equity/TA	0.25	0.22	-0.10	0.74	0.27	92,350
Liquid Assets/TA	0.09	0.04	-0.01	0.36	0.14	92,350
ROA	0.02	0.03	-0.12	0.21	0.26	92,350
Fraction of NPLs	0.03	0.00	0.00	0.00	0.17	92,350

Note: Panel A reports the measure of sectoral exposure to Chinese imports for the firms operating in the exposed manufacturing industries. We do not report the statistics for non-exposed companies as in this case it equals to zero. Panel B reports the descriptive statistics on the change in log credit between 2000 and 2006 at the firm level, with information also at the sectoral level. Panel C reports the descriptive statistics on other selected firm variables, that is, firm total assets, the ratio of equity over firm total assets, the ratio of liquid assets over firm total assets, the return on assets (ROA), and the fraction of non-performing loans. $P5$ denotes the fifth percentile, $P95$ denotes the ninety-fifth percentile, SD is the standard deviation, and N is the number of observations.

Table A.2: Bank Import Penetration and Bank Characteristics

	Banks with Low Exposure to China	Banks with High Exposure to China	Difference
Log Total Assets	13.09	13.91	-0.82 (0.56)
Liquid Assets/Total Liabilities (%)	14.27	14.24	0.03 (1.48)
Equity/Total Liabilities (%)	9.77	8.87	0.90 (1.01)
NPLs (%)	1.72	1.40	0.32 (0.22)
ROA (%)	0.81	0.92	-0.11 (0.07)
Average Credit Share at Province-Sector Level (%)	20.57	16.80	3.78 (2.33)

Note: This table reports bank characteristics for banks with high exposure to China, defined as the banks in the top tercile in terms of bank exposure to Chinese imported goods $\Delta IP_{b,2000-2006}$, and banks with low exposure to China, defined as the banks in the lowest two terciles in terms of bank exposure to Chinese imported goods $\Delta IP_{b,2000-2006}$. The bank characteristics are the log of total assets, the ratio of liquid assets over total liabilities in percentage values, the ratio of equity over total liabilities in percentage values, the fraction of non-performing loans (NPLs) in percentage values, the return on assets (ROA) in percentage values, and the average share of banks' overall total corporate credit loans which is concentrated at the province-sector level in percentage values. The last column reports the difference between the values in bank characteristics across the two groups of banks, with the values in brackets reporting the standard errors associated with a test of difference in the means.

B The Role of Bank Sector Market Share

The results of Table 3 showing that banks exposed to foreign imports reduce credit supply to firms competing with Chinese goods differs from the mechanism of Giannetti and Saidi (2019), in which high-market-share lenders dampen the reduction in credit supply to distressed industries. If we use the terminology of De Jonghe et al. (2020), our measure of bank exposure is the bank specialization in a given set of sectors (i.e., the share of bank credit towards the industries competing with Chinese goods over total bank credit). Instead, Giannetti and Saidi (2019) look at the bank sector market share (i.e., the share of bank credit over total credit within a sector). In this section, we show that the reduction in credit supply to firms competing with Chinese goods is concentrated among banks with high degrees of specialization and low market shares in these sectors, consistently with the findings of Giannetti and Saidi (2019).

To do so, Columns (1) and (2) of Table B.3 report the results of regression of Equation (7) estimated only across exposed manufacturing firms – i.e., the same set of estimates displayed in Columns (1) and (2) of Table 3 – whereas Columns (3) and (4) focus on the credit between exposed manufacturing firms and banks with low-market-shares in these industries, defined as the banks with the market shares in the lowest quartile of the distribution of market shares across all Spanish financial institutions. The results highlight that in the sample of low-market-share banks the coefficients of the interaction between bank exposure to Chinese imports $\Delta IP_{b,2000-2006}$ and the sectoral exposure to China $\Delta IP_{s,2000-2006}$ is between two times and three times as large as the values estimated on the entire sample of banks.

Table B.3: Bank Sector Market Share and the Credit Supply to Exposed Manufacturing.

Dependent Variable: $\Delta C_{b,f,s,2000-2006}$ in Exposed Manufacturing Firms				
	All Banks		Low-Market-Share Banks	
	(1) OLS	(2) IV	(3) OLS	(4) IV
$\Delta IP_{b,2000-2006}$	0.83	1.86**	0.95	2.03
	(0.63)	(0.74)	(1.00)	(1.32)
$\Delta IP_{b,2000-2006} \times \Delta IP_{s,2000-2006}$	-10.31*	-16.23*	-23.49**	-40.45***
	(6.13)	(9.59)	(10.59)	(12.61)
Firm Fixed Effects	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES
R^2	0.41	0.39	0.47	0.40
Observations	75,395	75,395	28,748	28,748

Note: This table reports the results of a regression in which the dependent variable is $\Delta C_{b,f,s,2000-2006}$, the log-change in the credit between bank b and firm f operating in exposed manufacturing industries between 2000 and 2006, and the independent variables are the change in bank import penetration $\Delta IP_{b,2000-2006}$ and the change in sectoral import penetration $\Delta IP_{s,2000-2006}$, and bank controls as in Table 2. The regression includes firm fixed effects. Column (1) reports the results for the case in which the regression is estimated using OLS on the baseline sample with all banks lending to exposed manufacturing firms. Column (3) reports a similar result focusing on a sample of low-market-share banks, that is, banks which are in the lowest quartile of market shares in each of the exposed manufacturing industries, where the market share is the share of bank credit in a sector over the overall credit of that sector. Columns (2) and (4) report the results for the case in which the regression is estimated using IV, in which the change in bank exposure to Chinese imports $\Delta IP_{b,2000-2006}$ and the change in the sectoral exposure to Chinese imports $\Delta IP_{s,2000-2006}$ are instrumented using $\Delta IP^{\star}_{b,2000-2006}$ and $\Delta IP^{\star}_{s,2000-2006}$, respectively. These instruments are derived by exploiting the change in the sectoral import penetration of a pool of non-E.U. advanced economies. In all cases, standard errors clustered at the industry-location-size level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

C Extensive and Intensive Margins

In the baseline analysis, we show that exposed banks reduce their supply of credit to firms competing with Chinese imports, while rebalancing their loan portfolios towards firms not exposed to Chinese competition. In this section, we study whether the changes in bank-firm credit due to bank and sectoral exposure to China competition worked mainly through either an extensive margin. Namely, we investigate whether exposed banks changed their decisions at the extensive margin by establishing new lending relationships while ending old ones, or at the intensive margin, such that exposed banks altered the amount of credit which is granted to firms with established relationships.

To isolate the role of the extensive margin, we run a regression in which the dependent variable is an indicator function which equals 1 in case we observe the establishment of a new credit relationship with a given bank and given firm between 2000 and 2006. Instead, we isolate the role of the intensive margin by looking into the change in lending over the period 2000-2006 between a given bank and a given firm, conditional on this bank-firm pair being already established in 2000.

Table C.4 shows that the drop in credit supply towards firms in the exposed manufacturing industries worked through both the intensive and extensive margins. On the other hand, while the rise in lending towards firms in non-exposed manufacturing industries and services worked only at the intensive margin, the extra supply of credit to construction firms was channeled both by establishing new credit relationships and raising the amount of lending to firms with established bank connections. This is consistent with the evidence of Table 4, which shows that although the bank portfolio rebalancing benefited profitable firms in non-exposed sectors, banks increased their supply of credit to construction firms independently of their profitability.

Table C.4: Bank Exposure to China and Credit Supply - Extensive and Intensive Margins.

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$							
	Exposed Manufacturing		Non-Exposed Manufacturing		Services		Construction	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ext. Margin	Int. Margin	Ext. Margin	Int. Margin	Ext. Margin	Int. Margin	Ext. Margin	Int. Margin
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
$\Delta IP_{b,2000-2006}$	-1.34**	0.87	0.34	1.91***	0.39	1.90**	1.02*	2.17***
	(0.53)	(0.65)	(0.45)	(0.49)	(0.58)	(0.77)	(0.54)	(0.72)
$\Delta IP_{b,2000-2006} \times \Delta IP_{s,2000-2006}$	-12.49**	-11.39*						
	(5.91)	(6.83)						
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES	YES	YES	YES
R^2	0.45	0.39	0.49	0.43	0.59	0.50	0.56	0.47
Observations	75,395	73,259	94,521	91,299	33,092	30,701	46,774	43,937

Note: This table reports the results of regressions analogous to those in Table 3, with the only difference that the dependent variable in Columns (1), (3), (5), and (7) is an indicator function that equals 1 if between 2000 and 2006 we observe a new bank-firm pair which was not established as of 2000, whereas in Columns (2), (4), (6), and (8) the dependent variable is the change in credit of a given bank-firm pair between 2000 and 2006, conditional on observing the bank-firm pair as already established as of 2000.

D Alternative Demand Controls

In the baseline analysis, we identify the change in credit supply associated with bank exposure to import penetration through multi-bank firms, as in Khwaja and Mian (2008). Namely, we saturate the the cross-section regression with firm fixed effects, so that we can leverage the variation of bank-firm credit within any given firm. In this way, the firm fixed effect absorbs the unobserved firm credit demand, and any remaining variation in lending comes from supply motives. This identification of the credit supply channel hinges on two key conditions. First, we assume that firms' demand of credit does not vary across banks. Second, we assume that banks' credit supply does not vary systematically across firms.

In this section, we show that our results on the credit supply channel of foreign import competition are robust to two alternative settings for the identification of credit supply. In the first one, we follow Chakraborty et al. (2018) and rather than focusing only on multi-bank, we look at all firms and absorb credit demand with the combination of firm controls and (3-digit)sector-size fixed effects. In this case, the identification strategy posits that within each 3-digit industry/size bin and conditional on firm characteristics, any variation in bank-firm credit is due to credit supply motives. In the second one, we saturate even further the regressions and consider (3-digit)sector-size-province fixed effects, in the spirit of Lin and Paravisini (2013) and Degryse et al. (2019). In this way, we can address the limitations of the firm fixed effect approach to absorb credit demand the presence of firm- and sector-specific patterns in credit supply due to bank specialization, as highlighted by Paravisini et al. (2018).

Table D.5 shows that the main conclusions of our analysis do not change if we absorb firm credit demand with these two alternative strategies.

Table D.5: Bank Exposure to China and Credit Supply - Alternative Credit Demand Controls.

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$							
	Exposed Manufacturing		Non-Exposed Manufacturing		Services		Construction	
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) OLS	(8) OLS
$\Delta IP_{b,2000-2006}$	1.00	1.01	1.75***	1.82***	1.27***	1.65**	2.04***	2.10***
	(0.70)	(0.74)	(0.38)	(0.36)	(0.52)	(0.54)	(0.49)	(0.50)
$\Delta IP_{b,2000-2006} \times \Delta IP_{s,2000-2006}$	-11.36**	-9.22*						
	(5.41)	(5.36)						
Firm Fixed Effects	NO	NO	NO	NO	NO	NO	NO	NO
Sector-Size Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Sector-Province-Size Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES
Firm Controls	YES	YES	YES	YES	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES	YES	YES	YES	YES
R^2	0.16	0.18	0.20	0.21	0.33	0.34	0.28	0.29
Observations	84,521	84,521	111,060	111,060	44,871	44,871	59,403	59,403

Note: This table reports the results obtained by the same regressions of Table 3, with the only difference being the alternative settings to control for credit demand. Columns (1), (3), (5), and (7) uses all-bank firms and controls for demand with the combination of sector-size fixed effects and firms covariates, which consist of leverage, the liquidity ratio, the return on assets, and size measured as the logarithm of assets. Columns (2), (4), (5), and (6) consider all firms and controls for demand with the combination of sector-province-size fixed effects and firms covariates. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

E Evidence at the Firm Level and Bank Level

Our baseline regressions look at the effects of bank exposure to Chinese import penetration on the change in the supply of credit in a given bank-firm pair. This level of analysis let us exploit within-firm credit variation and identify banks' credit supply. However, the drop in the supply of credit between a given exposed bank and a given exposed firm could be offset if the firm manages to borrow from other financial institutions. To verify whether the changes in bank exposure to China alter the overall credit of firms, we run the following regression at the firm level using only the sample of multi-bank firms

$$\Delta C_{f,s,2000-2006} = \beta_1 \Delta \hat{IP}_{b,2000-2006} + \beta_2 \Delta \hat{IP}_{b,2000-2006} \times \Delta IP_{s,2000-2006} + \dots$$
$$\dots + \mathbf{X'_{f,s,2000}}\beta_3 + \mathbf{X'_{s,2000}}\beta_4 + \hat{\delta}_f + \epsilon_{f,s,2000-2006} \quad \text{(E.1)}$$

where we define bank exposure to China at the firm level $\Delta \hat{IP}_{b,2000-2006}$ as in Equation (12).

The regression also includes a set of firm characteristics $\mathbf{X'_{f,s,2000}}$, which consist of leverage, the liquidity ratio, the return on assets, and size measured in terms of assets, a set of sector characteristics $\mathbf{X'_{s,2000}}$, which consist of the sectoral averages of each firm control, and both sectoral and province fixed effects. Since our focus is now at the firm level, we cannot employ anymore firm fixed effects, which implies that the estimated change in credit supply could be biased if bank exposure correlates with firms' credit demand. To address this concern, we follow Bonaccorsi di Piatti and Sette (2016), Cingano et al. (2016), and Jimenez et al. (2020) and add to the regression the firm fixed effect $\hat{\delta}_f$ as estimated in the bank-firm-level regression (7). The inclusion of the estimated fixed effect let us control explicitly for potential changes in credit demand of the firms exposed to Chinese competition. Columns (1) - (4) in Table E.6 confirms that even at the firm level we observe a drop in the amount of lending to exposed manufacturing companies, and a rise in the supply of

credit to firms in non-exposed industries.

Finally, we look at the changes in the total amount of lending at the bank level. Indeed, the results of the regressions at the bank-firm-level do not reveal whether either bank exposure to Chinese competition caused a decline in the total amount of bank corporate loans, or banks did not change the size of their balance sheets, and offset the reduction in the supply of credit to exposed manufacturing firms with an increase in lending to non-exposed industries. To evaluate the effects of bank exposure to import competition on the size of bank corporate loan portfolios, we run the following regression at the bank level

$$\Delta C_{b,2000-2006} = \beta_1 \Delta IP_{b,2000-2006} + \mathbf{X}'_{\mathbf{b,2000}} \beta_2 + \hat{\delta}_b + \epsilon_{b,2000-2006}. \tag{E.2}$$

The regression includes not only the same set of bank controls of regression (7), but also the estimated firm fixed effects to control for any possible variation in firm credit demand. Given the estimates of firm fixed effects of regression (7), we define the new set of fixed effects $\hat{\delta}_b$ as

$$\hat{\delta}_b = \frac{\sum_f C_{b,f,s,2000} \times \hat{\delta}_f}{\sum_f C_{b,f,s,2000}} \tag{E.3}$$

which weights the estimated firm fixed effects $\hat{\delta}_f$ by the share of credit of the bank-firm pair on the overall size of bank corporate loans.

Column (5) of Table E.6 shows that the coefficient that relates the changes in the overall bank corporate loans to bank exposure to Chinese imports is not statistically significant. This finding corroborates the evidence of Figure 3, pointing out that exposed banks did not shrink their balance sheets vis-á-vis non-exposed banks, but rather offset the reduction in the supply of credit to exposed manufacturing firms by lending more to industries with no competition threat from China.

Table E.6: Bank Exposure to China and Credit Supply - Firm-Level and Bank-Level Evidence.

	Dependent Variable: $\Delta C_{f,s,2000-2006}$				Dependent Variable: $\Delta C_{b,2000-2006}$
	Exposed Manufacturing	Non-Exposed Manufacturing	Services	Construction	All Banks
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
$\Delta \hat{IP}_{b,2000-2006}$	6.80**	7.18***	8.28**	7.46**	
	(2.87)	(2.16)	(3.36)	(3.67)	
$\Delta \hat{IP}_{b,2000-2006} \times \Delta IP_{s,2000-2006}$	-37.89***				
	(14.19)				
$\Delta IP_{b,2000-2006}$					10.24
					(6.50)
Sector 1-digit & Province Fixed Effects	YES	YES	YES	YES	NO
Credit Demand Controls	YES	YES	YES	YES	YES
Firm & Sector Controls	YES	YES	YES	YES	NO
Bank Controls	NO	NO	NO	NO	YES
R^2	0.31	0.31	0.25	0.32	0.12
Observations	25,189	36,699	17,076	21,076	162

Note: Columns (1) - (4) of this table report the results of a regression in which the dependent variable is $\Delta C_{f,s,2000-2006}$, the change in the credit of firm f in sector s between 2000 and 2006, and the independent variables are the change in bank import penetration defined at the firm-level $\Delta \hat{IP}_{b,2000-2006}$ and the change in sectoral import penetration $\Delta IP_{s,2000-2006}$, firm controls as in Table D.5, sector controls defined as the sector average of the variables used as firm controls, 1-digit sector fixed effects, province fixed effects, and credit demand controls in the form of the estimated firm-fixed effect from the bank-firm-level regressions. In all these four columns, standard errors clustered at the industry-location-size level are reported in brackets. Column (5) reports the results of a regression in which the dependent variable is $\Delta C_{b,2000-2006}$, the change in the credit of bank b between 2000 and 2006, and the independent variables are the change in bank import penetration $\Delta IP_{b,2000-2006}$ and bank controls, such as the size of the balance sheet, the liquidity ratio, leverage, the fraction of NPLs, ROA, sector specialization, province specialization, relationship lending, and estimated firm fixed effects from the bank-firm-level regressions, which are then defined at the bank level by weighting the fixed-effect of each firm with the share of credit of that firm over the overall credit position of the bank. In this case, standard errors clustered at the bank level are reported in brackets. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

F Placebo Exercise

Section 4.1 shows that the rebalancing of bank loan portfolios towards construction firms holds above and beyond bank exposure to the contemporaneous housing boom. In this section, we provide further evidence corroborating the fact that the surge in the supply of credit to the construction sector due to Chinese import competition does not capture any confounding dynamics driven by the marked housing boom that characterized the Spanish economy in the early 2000s.

To do so, we run a placebo exercise: we change the definition of bank exposure by focusing on bank specialization in those manufacturing firms which operate in sectors which have *not* been affected by Chinese import competition (i.e., firms within non-exposed manufacturing industries), and evaluate whether also this alternative measure implies a change in credit across sectors from 2000 to 2006. More precisely, we compute bank exposure as

$$SPEC_b^{\text{Non-Exposed}} = \frac{\sum_{f \in \text{non-exposed manuf.}} C_{b,f,2000}}{\sum_f C_{b,f,2000}}. \tag{F.4}$$

Table F.7 reports the results of this placebo. The specialization in non-exposed manufacturing firms leads to a larger supply of credit to firms which operate exactly in these industries, corroborating the fact that our measure does capture patterns of bank specialization in lending across sectors. However, there is no reallocation whatsoever to other sectors, and especially to construction firms. This finding confirms that the portfolio switching towards the construction sector does depend on bank exposure to Chinese imports, and that our empirical strategy isolates the role of rising foreign imports on banks' credit supply policies.

Table F.7: Placebo Exercise.

	Dependent Variable: $\Delta C_{b,f,s,2000-2006}$			
	Exposed Manufacturing	Non-Exposed Manufacturing	Services	Construction
	(1) OLS	(2) OLS	(3) OLS	(4) OLS
$SPEC_b^{\text{Non-Exposed}}$	0.05	0.09***	0.06	0.03
	(0.04)	(0.03)	(0.04)	(0.04)
Firm Fixed Effects	YES	YES	YES	YES
Bank Controls	YES	YES	YES	YES
R^2	0.41	0.45	0.53	0.50
Observations	75,395	94,521	33,092	46,774

Note: This table reports the results of regressions at the bank-firm level as in Table 3 in which the main independent variable is bank specialization in non-exposed manufacturing firms $SPEC_b^{\text{Non-Exposed}}$, defined as the share of credit to these firms in the overall bank corporate loan portfolio, as of 2000. *, **, and *** indicate statistical significance at the 10%, 5% and 1%, respectively.