BANCA D'ITALIA

EUROSISTEMA

Temi di Discussione

(Working Papers)

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Number 1066

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ISSN 1594-7939 (print)
ISSN 2281-3950 (online)

Printed by the Printing and Publishing Division of the Bank of Italy

THE HETEROGENEOUS RESPONSE OF DOMESTIC SALES AND EXPORTS TO BANK CREDIT SHOCKS

by Ines Buono* and Sara Formai*

Abstract

This paper analyzes the role of bank credit in firms' export performance. We use Italian bank-firm matched data and contribute to the existing literature by focusing on the link between bank-credit and exports in 'normal times' (1997-2008) and measuring access to credit with hard data on the credit actually extended to firms by the banking system. We also establish the causal link that goes from bank credit to exports, exploiting bank mergers and acquisitions as a source of bank credit supply shocks. We find that short-run shocks to the supply of bank credit induce exporters to decrease their export flows, without affecting their domestic sales. On the other hand, non-exporters react by reducing their domestic sales.

JEL Classification: F14, G21, G34.
Keywords: export, bank lending channel, credit shocks, mergers and acquisitions.

Contents

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1 Introduction[1]

This paper analyzes the link between bank credit and international trade, using a unique firm-bank matched dataset for Italy. In part, a country's international competitiveness and its economic growth depend on the ability of its firms to serve foreign markets. A large body of theoretical and empirical trade literature has focused on identifying those country characteristics and institutional factors that can enhance firms export capabilities. Among these characteristics, a prominent role has been ascribed to the ability to access financial instruments that may help firms overcome the liquidity problems associated with export activities. Foreign transactions are usually characterized by higher payment uncertainty and long cash cycles. Moreover, the literature has documented the need for exporters to engage in relevant fixed costs in order to enter and maintain a presence in foreign markets (see Roberts and Tybout (1997), Bernard and Jensen (2004) and Melitz (2003)).

The study of the role of bank credit in supporting export activity has become even more central after the financial crisis of 2008: international trade fell much more than global demand, suggesting that exports may be, compared to domestic sales, a credit intensive activity. However, the studies that estimate the effect of credit constraints on exports during the crisis often provide conflicting results.[2] In addition, the magnitude of the shocks that hit the global financial system in 2008-2009 was so exceptional that the effects and implications may not be indicative of a general relationship between credit access and exports.

This paper studies the link between bank credit and trade over a long time span (1997-2008), providing an estimate of the elasticity of exports to credit supply shocks in normal times. We then compare this elasticity to that for domestic revenues to test for the intensity of trade in the use of external finance. Thanks to a unique firm-bank

[1]We are grateful to Pietro Catte, Paola Conconi, Andrea Finicelli, Brent Neiman, Friederike Niepmann, Patrizio Pagano, Massimo Sbracia, Enrico Sette, Jeffrey M. Wooldridge and seminar participants at the Bank of Italy, the 2014 ASSA meetings,the 2014 European Trade Study Group, ECARES, ECB CompNet and Bocconi University for their comments on earlier drafts. The opinions expressed in this paper are the authors' own and do not necessarily reflect those of the Bank of Italy.

[2]Some conclude that credit frictions were among the factors that contributed the most to the disproportionately large decline in international trade (see Ahn, Amiti and Weinstein (2011) and Chor and Manova (2012)); others mainly attribute the trade collapse to the international fragmentation of the production process and the sectoral composition of world trade, while they find very little evidence for the credit channel (see Levchenko, Lewis and Tesar (2010) and Eaton, Kortum, Neiman and Romalis (2011)).

matched dataset, we can use a hard measure of the access to credit, given by the amount of credit actually granted to firms by the banking system. We are able to establish a causal link from bank credit to export exploiting banks mergers and acquisition episodes (henceforth, M&As) as a source of short-run credit supply shocks.

The results show that credit shocks have an effect on exports which are, within the firm, a credit intensive activity compared to domestic sales. In particular, we find that a 10% drop in the supply of bank credit induces a 4.9% fall in export flows. On the other hand, credit supply shocks do not affect domestic sales for the same sample of exporters. Finally, unlike exporters, a negative credit supply shock induces a reduction in the domestic sales of firms that do not export. These findings suggest that exporters and non-exporters behave differently when the supply of credit decreases. While non-exporters have no alternative to reducing their domestic sales, exporters keep their domestic market share unchanged at the expense of their foreign share. A plausible explanation for these results is that exporters cope with short-run credit shocks by reducing sales only to those markets which are characterized by lower expected profitability. These markets could be, for instance, those that are riskier, younger and more distant. In doing so firms may act along both the intensive and extensive margins. The trade literature suggests that exporters more frequently exit less profitable destinations (see Melitz and Redding (2014)) or destinations where they can gather little information about the market conditions (see, for instance, Aeberhardt, Buono and Fadinger (2014)). As the domestic market is usually the most consolidated one, domestic sales are not affected. Although we cannot directly test for this hypothesis, as we only have export data at the firm-level and not at the firm-destination or destination-product level, we provide some indirect evidence in support of this interpretation. We show that the elasticity of exports to credit shocks is higher for firms that belong to sectors whose export share in emerging countries is higher than the median.

This paper adds to the recent but fast growing body of empirical trade literature that looks at the relationship between credit constraints and firm export activity. The pioneering contributions tackle the issue from a perspective that is only partially comparable with ours: the credit constraints are defined as an institutional variable with a structural nuance, while our analysis looks at the effect of short-run idiosyncratic credit supply shocks. For instance, Manova (2013) incorporates financial frictions in a theoretical model a la Melitz (2003) and finds that financially vulnerable sectors grow more

in countries with greater financial development (measured as credit to private sector over GDP). Minetti and Zhu (2011) and Secchi, Tamagni and Tomasi (2012) use Italian firm-level data and proxy credit constraints with survey data on loan applications and firm credit worthiness respectively. They both employ an IV strategy based on the 1936 reform of the banking system, a strategy that captures the variability in credit restriction only at the provinces level.[3] They find that bank credit is an important determinant of export activity.

A prominent work that studied the effect of negative financial shocks on exports is Amiti and Weinstein (2011). Using data covering Japanese financial crises from 1990 through 2010, this work assesses the importance of trade finance by studying whether a bank's deteriorating health can cause client firms' exports to drop. The identification strategy is based on how the export growth of firms within a narrowly defined industry in a particular year varies with the health of its main transactional bank, measured by the market-to-book value. The results suggest that financial shocks play an important role in explaining export declines in crisis years, at least concerning the effects of trade finance on working capital. They also find that the health of banks has a much larger effect on exports than on domestic sales, thus concluding that financial shocks affect exports and domestic sales differently. Along the same lines, a more recent paper by Niepmann and Schmidt-Eisenlohr (2016), analyzes the role of the availability of letters of credit in promoting exports of US firms in a specific foreign market. Unlike these analyses, that look at the effect of trade finance, we focus on the role of total credit and study the effect of non systemic financial shocks. Moreover, our data on actual credit granted allows us to estimate a well-defined elasticity of exports to credit shocks, which is directly comparable to the one we obtain for domestic sales.

Two recent works that exploit the availability of matched firm-bank credit data are Paravisini, Rappoport, Schnabl and Wolfenzon (2015) and Del Prete and Federico (2014); they both exploit the 2008 crisis to exogenously identify the bank credit shortage and solve the endogeneity problem. In the first paper, the authors estimate the elasticity of exports to credit for Peruvian firms. Custom trade data allows them to compare changes in exports of the same product and to the same destination by firms borrowing from banks that were differentially affected by capital flow reversals during the 2008

[3]Guiso, Sapienza and Zingales (2004) show that the number of per-capita bank branches during the '90s, and consequently bank credit supply, increases differently across Italian provinces depending on the (exogenous) distribution of the types of bank in the provinces in the early '30s.

financial crisis.[4] They find that credit shortage reduces exports by raising the cost of working capital for general production. Del Prete and Federico (2014) use our same Italian matched bank-firm data to investigate the effects of credit shocks on trade during the recent financial crisis. They look specifically on the response to the trade finance crisis and find that credit shortages reduce export activity. Moreover, they find that import loans and loans for domestic activities were hit harder by the crisis than export loans.

The main difference between our work and the existing literature is that, as already mentioned, we estimate the elasticity of exports (and domestic sales) to the supply of credit in normal times, not during a specific systemic shock.

The biggest challenge in addressing this research question is finding an instrument capable of disentangling the supply from the demand of credit over a long sample period and under normal macroeconomic conditions. The choice of episodes of banks M&As as instrument is motivated by a vast banking literature showing how, in the wake of such operations, the merged banks generally reduce, at least in the short run, their supply of credit to existing borrowers (see Beretta and Del Prete (2013), Bonaccorsi Di Patti and Gobbi (2007), Degryse, Masschelein and Mitchell (2010) and Sapienza (2002)). A main reason for this effect is that large banks differ substantially from small banks in their lending practices (see Angelini, Di Salvo and Ferri (1998) and De Mitri, Gobbi and Sette (2010)). Moreover, bank M&As are generally followed by extensive organizational and strategic changes which may lead to relatively long transition periods during which difficulties in refocusing lending policies can dominate over longer term efficiency gains (Rhoades (1998)). The validity of this instrument also relies on the fact that, in the short term, the cost of changing lenders, as well as other associated impediments, prevent firms from wholly replacing their existing credit sources (see Bonaccorsi Di Patti and Gobbi (2007)). Given that the effect of M&As on the supply of credit is not long-lasting, our estimates capture the response of exports to short-run shocks to bank credit.

The rest of the paper is organized as follows. The next section discusses the data and contains descriptive statistics. Section 3 explains the empirical methodology and

[4]Their IV strategy is based on shocks to bank balance sheets due to the foreign capital flow reversal that hit Peruvian banks in mid-2008. The hypothesis behind their instrumental variable is that, after the capital flow reversal, banks with a larger fraction of funding from foreign sources disproportionately reduced their credit supply relative to other banks.

justifies the choice of the instrument. Sections 4 and 5 describe the main results and the robustness checks, and section 6 concludes.

2 The data

We collected annual data from 1997 to 2012 from four different sources.[5] The main source of firm-level variables is the Centrale dei Bilanci (CEBI), a comprehensive database which provides balance sheet data for a sample of around 30,000 medium- and large-sized Italian limited companies.

Firm-level variables definition and summary statistics are reported in Tables 1 and 2, respectively. These are based on all observations between 1997 and 2012 that survive data trimming.[6] We distinguish between observations with zero and non-zero exports. As expected, exporters are bigger, both in terms of revenues and employees, grow faster, are more productive and tend to rely less on external funding (lower leverage ratio) than non-exporting firms. It is worth noting that many of the variables in the dataset are very skewed, with the mean and median differing greatly from each other.

Data on bank-firm relationships are taken from the Italian Credit Register (henceforth CR), a confidential dataset collected by the Bank of Italy for banking supervision purposes. The CR lists all outstanding loan amounts above 75,000 euros held with banks operating in Italy, including branches and subsidiaries of foreign banks, by borrower.[7] The data that intermediaries use as a screening and monitoring device for borrowers, available on a monthly basis, is of very high quality.[8] The dataset includes both granted and drawn amounts. We focus on credit granted, as drawn credit is more closely related to demand. Loans are divided into three risk categories (revolving credit lines, term loans, and loans backed by account receivables) and into three classes of usage (export, import and other). Our main independent variable is given by the sum of all the credit

[5]Although the baseline estimations exclude the crisis period (1997-2008), we use other years in robustness checks.

[6]We excluded the observations below the 1st and above the 99th percentile for either one of the dependent variables (the 3-year growth rate of exports and domestic sales) or one of the main balance sheet variables (leverage, ROA liquidity, cash-flow, fixed assets, productivity and the sale to total asset ratio). We also excluded observations with exports greater than total sales and those for insolvent firms.

[7]The threshold was reduced to 30,000 euros in 2009. For consistency over the sample period, we drop all firm-bank relationships with total loans lower than 75,000 euros.

[8]For our analysis we aggregate the data annually. As credit is a stock variable, we downloaded quarterly data and took the average over 4 months within a given year.

categories. In robustness analysis we use revolving credit lines as a measure of short-term credit and credit used for exports as a measure of trade finance. Table 3 reports the share of each type of credit line over the total value of credit granted in 2006 to firms in our sample.[9] The bulk of credit granted is given by term loans used to finance activities other than exports and imports (95%). Trade credit to exports represents only 3% of total credit granted, a value that would increase considering the sample of only exporters.[10] Of course, loans for working capital funds that may be used to finance materials, labor and inventory related to export activity could be classified as 'other', and would not show up in the trade finance data. The bottom part of Table 2 contains descriptive statistics on firm-level access to bank credit. Exporters are much more credit intensive than non-exporters, but the credit granted grew at a similar rate between the two groups of firms in the period under analysis.

The last data source is the list of bank mergers and acquisitions, available from the Bank of Italy. For each operation, the data includes the date, the codes identifying the active banks (both as bidder or acquirer) and those identifying the passive banks (the target). For instance, as shown in Table 4, in 2000 there were a total of 41 operations: 9 mergers and 32 acquisitions. Each operation involved only one bidder/active bank, while some involved more than one target/passive bank (there were 56 targets in total).

3 Empirical strategy

This section describes the identification strategy for the causal effect of financing on exports. We assume the following log linear model for exports of firm i at time t:

$$ln(Exp_{it}) = \alpha_i + \beta ln(Cr_{it}) + \varphi X_{it} + \epsilon_{it} \tag{1}$$

where Cr_{it} is the amount of credit granted to the firm and X_{it} represents all determinants of exports other than finance. We want to estimate the elasticity of trade to credit: $\beta = \frac{\partial Exp}{\partial Cr}\frac{Cr}{Exp}$. The problem is that Cr_{it} is an equilibrium outcome that depends both on the supply of credit faced by the firm and on the firm's demand for credit, which may be driven by factors included in X_{it}. For instance, if exporters require more

[9]The share reported in this table is very stable across the years in our sample.

[10]See Del Prete and Federico (2014) for a complete description of the trade finance data available in CR.

working capital they may need more liquidity and investments and, as a consequence, demand more external funding. If this is the case, the OLS estimation of β is upward biased. On the other hand, if exporting activities generate extra liquidity, exporters may require less external funding than domestic firms and demand less credit. In this case the OLS estimation of β is downward biased. Taking differences eliminates firm fixed effects α_i from the equation (1). For reasons that will become clear later in this section, we calculate the difference between t and $t-3$. The equation we estimate is thus given by:

$$\Delta_3 ln(Exp_{it}) = \beta \Delta_3 ln(Cr)_{it} + \gamma \delta_{it} + u_{it}. \tag{2}$$

where $\Delta_3 ln(Y_{it}) = ln(Y_{it}) - ln(Y_{it-3})$ and $\varphi \Delta_3 ln(X_{it})$ has been replaced by $\gamma \delta_{it}$. The single variable δ_{it} acts as a proxy for all observed and unobserved firm heterogeneity, including elements of X_{it}, that also affect the growth rate of credit demand and must be controlled for. To consistently estimate β we instrument the supply of credit using the M&As involving firm is lenders.

The relevance of the instrument is documented by the banking literature: a common result in the analysis of the impact of M&As on bank lending is that in the short run consolidated banks generally reduce their supply of credit to continuing borrowers (see Beretta and Del Prete (2013),Bonaccorsi Di Patti and Gobbi (2007), Degryse et al. (2010) and Sapienza (2002)) and overall to medium and small-sized firms (see Berger, Saunders, Scalise and Udell (1998) and Berger, Demsetz and Strahan (1999)). Larger banks differ substantially from small banks in their lending practices. For instance, large organizations could have greater difficulty processing soft information and may have a disadvantage in relationship-based lending, which is particularly important in bank-oriented financial systems like the Italian one (see Angelini et al. (1998) and De Mitri et al. (2010)), but also in more market-oriented systems (see Petersen and Rajan (1994) and Berger and Udell (1995) for the U.S.). Moreover, bank M&As are generally followed by extensive organizational change, employee turnover, and branch downsizing, which may lead to a loss of the knowledge accumulated within each of the merging banks (see Berger and Udell (2002)). New management usually reassesses the risk of borrowers and might apply different standards to loan approval. The evidence is also consistent with relatively long transition periods during which difficulties in refocusing lending policies can dominate over longer-term efficiency gains (see Rhoades (1998) and Calomiris and Karceski (2000)). Finally, the implementation of diversification strategies

can explain the decrease of credit jointly provided by consolidated banks in case of mergers involving banks that were financing the same firm before the deal.(see Beretta and Del Prete (2013)). In the next section we show that this negative relationship between credit granted and M&As is very robust for the firm-bank couples in our sample and in various subsamples.

The validity of the instrument, which is at the firm-time level, also relies on the fact that, at least in the short run, firms are not able to react to the shortage of credit from a given bank by increasing loans from other institutions due to the switching costs and other barriers associated with changing lenders. Bonaccorsi Di Patti and Gobbi (2007) provide direct evidence for the case in which the negative supply shock is due to bank M&As. Bofondi, Carpinelli and Sette (2013) show that, during the sovereign debt crisis, Italian firms did not fully compensate for the reduction in credit from domestic banks with an increase in loans from foreign banks that were not directly hit by the crisis. Evidence of the instrument's validity at the firm-level based on our dataset is documented in section 3.2.

The exogeneity of the instrument relies on the idea that M&As between banks are usually very complex financial operations that do not depend on individual clients' characteristics and activities. In order to convince the reader that this is indeed the case, we first provide some evidence that a firms exposure to a bank M&A is not correlated with various other covariates. We then perform an auxiliary analysis that employs the empirical strategy implemented by Bofondi et al. (2013) and similar to the one used in Jiménez, Mian, Peydro and Saurina (2011). Specifically, we consider the regression of bank credit on M&As at the bank-firm level to estimate firm-time fixed effects. These represent those firm-time characteristics that affect the overall amount of credit granted to each firm in each time period and that can also be correlated with exports (henceforth $\hat{\delta}_{it}$). We may then add these estimates as a control in the analysis at the firm level. Our results are not affected by the inclusion of this firm level covariate, providing support to the exogeneity assumption.

For the instrument (the occurrence of an M&A) to be exogenous it is enough that it be uncorrelated with those unobservables that could also affect the dependent variable (export or domestic sales). Nevertheless, the reduction in the credit granted that follows these operations may be indeed correlated to firms' unobservable characteristics. For instance, a new consolidated bank may decide to modify its portfolio by reducing

credit granted to only the worst pre-M&A clients or disproportionately more to them. Analogously at the firm level, the ability to substitute the reduced credit from merging banks with credit from other financial institutions may depend on some firm characteristics that may be correlated with the firm's exporting performance. In other words, our empirical strategy may not estimate an elasticity that is representative for the entire population of firms (the average treatment effect, ATE), but just a local average treatment effect (LATE) for the group of firms that, only because of the instrument, change their treatment, meaning experience a decrease in the credit granted. This is a well-known feature of IV estimations, as discussed by Imbens and Angrist (1994). First of all, it is reasonable to expect that any shock to the supply side of the credit market is indeed transmitted only to some borrowers or at least transmitted with a different degree of intensity, according to some of the borrowers characteristics. This means that, although the estimated effect cannot be considered representative for the entire population, it is indeed relevant, at least from a policy point of view. Second, in section 3.2, we provide some direct evidence on how the effect of M&As on credit varies little with firms' characteristics.

In order to implement our strategy, we thus proceed in three steps: first we identify the shock induced by M&As at the bank-firm level and estimate the firm-time fixed effects as a proxy for the credit demand shock δ_{it} in equation (2). Second, we aggregate the M&A shock at the firm level, and provide evidence on the validity of our instrument. Finally we use the aggregate shock as an instrument for $\Delta_3 ln(Cr)_{it}$ in estimating equation (2).

3.1 The bank-firm relationship level

Using data on a single credit relationship, we estimate

$$\Delta_3 lnCr_{ibt} = \alpha + \eta M\&A_{ibt} + \theta_{ib} + \delta_{it} + \upsilon_{ibt} \tag{3}$$

where Cr_{ibt} is the annual average (based on quarterly data) of outstanding credit granted by bank b to firm i in year t. The dummy $M\&A_{ibt}$ is equal to 1 if bank b has been involved in the period [t-2,t], either as a bidder or a target bank, in any merger or acquisition (0 otherwise). In order to control for non-random matching we also include firm-bank dummies θ_{ib}, that also absorb bank fixed effects. The firm-time fixed effects

δ_{it}, as already mentioned, capture all time varying firm-level observed and unobserved heterogeneity that affects the dynamic of credit granted (including firm-level demand, firm balance sheet conditions, etc.).

The time span of three years is the one generally identified by the literature on M&As as the transition period in which the impact of the reorganization is felt. Some studies consider variables referring to M&As taking place in a specific year t, but entering the regression with a lag structure to ensure completion of the post-merger transition period (see Bonaccorsi Di Patti and Gobbi (2007), Degryse et al. (2010) and Sapienza (2002)). Others consider one three-year variable to identify the effect over the whole transition period (see Beretta and Del Prete (2013) and Focarelli, Panetta and Salleo (2002)). We chose this second approach so as to increase the relevance of our instrument and to remain impartial regarding the relevance of the different lags, which can vary depending on the sample used.

In order to compute $\Delta_3 lnCr_{ibt}$ it is necessary to ensure the comparability of the credit granted at the beginning and at the end of each three-year period. For instance, suppose that two banks, A and B, both lending to firm i, merge in year t-1 to form a new bank, C. For year $t-3$ CR data would report the credit granted by A and B separately, and for year t that granted by C. Computing a meaningful growth rate $\Delta_3 lnCr_{ibt}$ requires that for both the beginning and the end of the period the same pro-forma bank corresponds to C, summing up the credit granted by A and B in $t-3$. Following Beretta and Del Prete (2013), for each period $[t-3, t]$, any bank j existing in $t-3$ is aggregated with the banks that in the three years $t-2, t-1$ and t were involved with j in any $M\&As$ and that, by year t, end up together in the same consolidated bank b. We then pool these pro-forma observations separately, instead of considering a single panel of banks over the period 1997-2008, which would require us to consider for the whole sample the banking ownership structure at the last available date, losing all the information from intermediate M&A operations not involving the consolidated banks as at 2008.[11]

Our interest in estimating equation (3) is twofold. First, we show the validity of the instrument: despite a very demanding specification, M&As have a very significant negative effect on the credit granted at the bank-firm level (see Table 8). Column 1 shows that a firm's credit grows at a rate that is 4.8 percentage points lower if that

[11] See the Methodological Appendix for an illustration.

firm's bank is involved in an M&A. The effect is stronger for exporters (column 2), and for short-term credit (i.e. revolving credit lines, column 3); it is instead much weaker for trade finance (column 4). The effect is also much larger for target banks than for bidder banks (columns 5 and 6), as they experience more organizational and strategic adjustments after complex operations.

Second, we obtain estimates of the fixed effects δ_{it} as a proxy for the demand-side drivers of the credit granted that will be used in the firm-level analysis. The identification of these fixed effects requires us to restrict the analysis to those firms borrowing from more than one bank (see Khwaja and Mian (2008)). Multi-banking is a common practice among Italian firms which mainly rely on bank financing. As Table 5 shows, the average number of banks per firm is around 5 and the median value is 4 in 2000. The percentage of firms in our sample borrowing from more than one bank is above 85% and these numbers are quite constant over the years. Moreover, credit is not too concentrated in the main bank: as Table 6 shows, the average (and the median) share of debt that firms hold with the main bank is around 50%. Finally, as shown in Figure 1, multi-banking is even more relevant for exporting firms.

3.2 The supply credit shock at the firm level

As analytically shown in the appendix, taking the weighted average of both the left and right-hand side of equation (3), with weights equal to the share of each bank b on total credit of firm i at the beginning of the period, $w_{ibt-3} = \frac{Cr_{ibt-3}}{Cr_{it-3}}$, the firm-level relationship between the growth of credit granted and bank M&As becomes:

$$\Delta_3 lnCr_{it} = \alpha + \eta M\&A_{it} + \delta_{it} + \bar{\upsilon}_{it} \tag{4}$$

where $M\&A_{it}$ is now a firm-level weighted dummy, greater than zero if any of the banks lending to firm i are involved in an M&A in any of the years $t-2$, $t-1$ and t.

This variable represents our instrument (the supply shock at the firm level) and the equation above is the basis for the first stage equation in the IV estimation of the effect of credit supply on exports.

As stated in the previous sub-section, the main identification assumption behind this choice is that bank M&As are operations that do not depend on the characteristics of the individual clients. This means that the weighted dummy $M\&A_{it}$, that captures a

firm's exposure to merging banks, is orthogonal to other observables and unobservables that in turn may explain export performance at the firm level. One may argue, however, that firms more exposed to a reduction in exports tend to pair with banks that have a higher probability of undergoing an M&A. In order to provide evidence against this claim, Table 7 shows, for three different years, summary statistics of several firm variables for each quartile of exposure to M&A shocks (our instrument).[12] These variables are meant to capture unobserved growth opportunities and firms vulnerabilities to aggregate shocks and other characteristics that may affect the demand for credit and export growth. The absence of a systematic pattern between M&A exposure and such observables would support the assumption of orthogonality between the instrument and other potential unobserved determinants of both credit and exports. This is indeed the case in our data: the average value for the different variables is either nearly constant across quartiles or does not exhibit an increasing or decreasing trend.

A second issue about our instrument concerns the heterogeneous effects that M&As may have on firms credit lines: after M&As, banks may reduce credit depending on certain firm characteristics. This would have consequences for the interpretation of our estimates, in terms of local average treatment effects (LATE) versus average treatment effects (ATE), as explained above. Table 9 reports estimations of equation (4), augmented by those controls and fixed effects that enter our main specification in the rest of the analysis (column 1),[13] as well as with interaction terms between those firm characteristics and the weighted M&A dummy (one by one in columns 2 to 11, and all together in columns 12 and 13).[14] If the effect of M&As on the growth rate of credit granted is heterogeneous in relation to firm characteristics, the coefficient of the interaction terms should be significantly different from zero. To better interpret the coefficients, all variables are taken as deviations from the mean, so that the coefficient of the weighted M&A dummy is the effect evaluated at the average. In column 1, where there is no interaction term, the coefficient of -0.038 means that if a firm's share of debt held in merging banks were 10 percentage points higher, its credit growth would be around 0.4 percentage points lower. In column 2 we add the interaction between the

[12]The first column refers to firms whose weighted M&A dummy is below the 25th percentile, the second column reports results for firms with a weighted M&A dummy between the 25th and the 50th percentile, and so on.

[13]Specifically this is a robustness analysis on the first stage of our main regression, i.e. regression (6), that we anticipate here in order to convince about the reliability of our identification strategy.

[14]The definition of firm's characteristics here included is reported in Table 1.

weighted M&A dummy and $\hat{\delta}_{it}$, the estimated proxy for observable and unobservable determinants of credit demand. The insignificance of the coefficient reassures us that our instrument does quite well in capturing an overall average effect. Going forward, the effect of the treatment is stronger for firms that are less credit-worthy (higher Z-score, column 4) and, counter intuitively, have more liquidity (column 7). Results are confirmed when all interaction terms enter the regression (column 11). It is particularly reassuring that the effect does not depend on firms export share in the period preceding the M&As (columns 10 and 12), although the coefficient is larger for the sample of exporters. It is important to note that not only very few control variables may drive the heterogeneous effect of M&As on credit growth, but also that the estimate of the coefficient associated to the M&A dummy does not vary substantially when the interactions are added to the specification.

3.3 Instrumental variable estimation of the effect of credit supply on exports

We now have all the ingredients to estimate the effects of a shock to the supply of credit on a firm's exports.

Starting with equation (2), we also include further controls like observed firm characteristics that are widely recognized as affecting firm export capability. For instance, we include size, measured by the number of employees taken in logs, and characteristics used in the literature such as measures of financial vulnerability and credit worthiness, tangible assets proxied with the ratio between fixed assets and total assets and credit rating, measured with the Z-score, a credit rating based on balance sheet information that ranks firms from 1 (highly secure) to 9 (very high risk). To avoid further endogeneity problems, all controls are taken at the predetermined value in time $t-3$. Furthermore, all regressions include sector-time fixed effects, where the sector used is the firm's main sector, chosen from a classification of 53 industrial sectors.

Paravisini et al. (2015) show the importance of introducing a full set of time-varying export destination and product dummies, even when credit is instrumented with the banks' pre-crisis exposure to foreign capital. They claim that there is a non-random matching between firms and banks, such that Peruvian firms borrowing from exposed banks specialized in products and destinations less affected by the international crisis.

Our data does not provide details on firm exports by sector and destination, nevertheless our instrument is less susceptible to the problem of 'selection into treatment': in our case this would require that Italian firms borrowing from merging banks specialize in products and destinations systematically affected by shocks that are simultaneous with the banks' M&A operations. Moreover, if concerns of non-random matching still remain, adding $\hat{\delta}_{it}$ should do an even better job than destination-time and sector-time fixed effects in controlling for non-credit shocks at the firm-time level.

Given the set of additional controls Z_{it-3} and replacing δ_{it} with $\hat{\delta}_{it}$, the estimated relationship between credit and exports is given by:

$$\Delta_3 ln(Exp_{it}) = \beta \Delta_3 ln(Cr)_{it} + \mu \hat{\delta}_{it} + \varphi Z_{it-3} + u_{it} \tag{5}$$

and the corresponding first stage equation becomes:

$$\Delta_3 lnCr_{it} = \eta M\&A_{it} + \lambda \hat{\delta}_{it} + \phi Z_{it-3} + \xi_{it}. \tag{6}$$

4 Results

Table 10 reports the estimates of the effect of bank credit on export flows from a specification that excludes the estimated proxy for credit demand unobservables $\hat{\delta}_{it}$, while Table 11 reports the same estimates for the full specification in (5) (henceforth, the main specification). All estimations, if not differently stated, provide standard errors clustered at the firm-level.

The first column of Table 10 shows the results obtained with OLS. As discussed, the bank credit coefficient in this regression is biased. When we control for the endogeneity of bank credit using our IV methodology - see column (2) -, we obtain a higher coefficient of 0.47. This highlights an underlying downward bias, which is consistent with the idea that firms that export more demand less bank credit, probably because exports provide them with more internal funds. The first stage is reported in column (3) and shows a significantly strong relation between the M&A weighted dummy and credit supply: the coefficient of -0.081 means that when banks covering, for instance, 50% of a firm's total debt are involved in M&As between t-2 and t, the growth rate of the firm's credit supply between $t-3$ and t is, everything else equal, 4 percentage points lower than

that of a firm with no lenders involved in M&As. As corroboration of the reliability of our analysis, in column (4) we report the results of the estimation of the reduced form equation, in which export flows are regressed directly on the M&A weighted dummy. As expected, firms with a higher share of credit provided from banks involved in M&As experience lower export growth. Finally, it is worth mentioning that the sign of control variables' coefficients are in line with expectations, although they are quite often not significant at conventional levels. For instance, according to column (2), firms with a higher share of tangible assets and with more employees tend to export more, while firms that are financially less healthy, as indicated by a higher Z-score, tend to export less.[15]

As argued in the previous section, we have many reasons to believe in the instrumental variable approach used in this analysis. However, the structure of the data gives us the possibility to enrich the regression with the estimated firm-time proxy for the unobservables driving the growth in the demand for credit ($\hat{\delta}_{it}$). If results do not change, after introducing $\hat{\delta}_{it}$ in the regressions, we have a further argument in favor of the exogeneity of the instrument. Tables 11 to 14 report the results for the main specification, which includes $\hat{\delta}_{it}$.

All the comments to Table 10 apply to Table 11 as well. Column (1) shows the downward biased OLS estimation and column (2) reports the elasticity of exports to credit supply obtained with the IV: a bank credit reduction of 10% induce a fall in exports flows by 4.9%, an elasticity almost identical to the one obtained without including the $\hat{\delta}_{it}$.[16]

In Table 12 we investigate the response of domestic sales to credit supply shocks for the same sample of exporters that entered the previous regressions. Once endogeneity is ruled out, the estimate is negative but not significant at conventional levels (column (2)). This is confirmed by the results in the reduced form regression in column (4) of the same table.[17] It is worth noting that, while for export sales the comparison between

[15]We also tried other firm-level variables (such as leverage, liquidity, ROA, age). The inclusion of these variables, whose coefficients are hardly significant, leave our main results unaffected.

[16]In a previous version of this paper, circulated with the title "Bank Credit and Firm Export: Is There Really a Link?", we performed the same analysis on the smaller sample of firms included in the Bank of Italy's Survey of Industrial and Service Firms (INVIND, which covers in each year about 4000 Italian firms with at least 20 employees in manufacturing and services). In that work, given the small size of the sample, results were close in magnitude but statistically not significant at conventional levels.

[17]Notice that, since the regressions reported in Tables 11 to 13 differ only in the dependent variable,

OLS and IV reveals the existence of an attenuation bias, for domestic sales the results show an upward bias: the OLS coefficient is positive and strongly significant indicating that exporters with higher domestic sales tend to demand on average more credit. Once we correct for the endogeneity, this effect disappears.

Our analysis demonstrates that exporters respond asymmetrically to a fall in their bank credit: the negative effect falls entirely on exports, while domestic sales remain unaffected. A possible explanation for this result is that, when facing a negative supply shock, exporters react by reducing sales only in less profitable markets. Markets that are, for instance, more distant, less known, smaller or riskier will suffer larger cuts in sales when a firm faces some adverse shock. On the other hand, the domestic market, being the most consolidated one, is not affected by these short-term shocks. The reduction in export flows may take place along either the intensive or the extensive margin, depending on the role played by variable and fixed per-period costs (see Besedes and Prusa (2011)). There is extensive evidence that firms enter into and exit from specific export destinations quite regularly (see for instance Blum, Claro and Horstmann (2013) and Buono and Fadinger (2012)), while firms tend to consistently serve the domestic market. As we do not have access to export data by destination at the firm level, we cannot directly test for this hypothesis. Nevertheless, in the next section we provide an indirect test based on sector-destination level data.

For completeness, Table 13 shows results on total (domestic plus export) revenues for the same sample of exporters. Consistent with previous results, we find that the elasticity of total revenues to bank credit is positive but lower than that of export sales: exporters reduce their total revenues by 3.3%, as a result of the reduction of export sales only.

Finally, in Table 14 we compare domestic sales results for three different samples: exporters (column (1)), non-exporters (columns (4) and (5)) and all firms (columns (2) and (3)). While exporters' domestic sales are inelastic to a drop in bank credit, non exporters experience a huge drop in their domestic sales, with an elasticity equal to 1.20. Combining exporters and non-exporters, the elasticity is smaller since the positive and the null effects of the two sub-samples average out. Unlike exporters, firms that are not involved in international transactions may react to credit shocks only by reducing sales in the domestic market.

their first stage, reported in column (3) of each table, is identical.

Overall, our analysis suggests two types of asymmetries. The first is between non-exporters and exporters and the second is between foreign and domestic sales among exporters. When bank credit supply decreases by 10%, total sales decrease by 12% for non-exporters (column (4) Table 14) and by 3.3% for exporters (column (2) Table 13); this in turn is the consequence of a drop in foreign sales only, which fall by 4.9% (column (2) Table 11), while domestic sales remain inelastic to credit supply (column (2) Table 12).

The finding that, among exporters, foreign sales are credit intensive compared to domestic sales is in line with the findings by Amiti and Weinstein (2011), but partially in contrast with the results of other works that tested this hypothesis only indirectly.

Amiti and Weinstein (2011), using Japanese data from 1990 to 2010, show that the health of banks (measured by the market-to-book value) affects firms' exports while leaving exporters' domestic sales unaffected. It is worth mentioning that they do not have, as we do, firm-bank credit data, but can only link each firm with its main bank. Thus they do not estimate the elasticity of domestic and export sales to credit, but simply provide the qualitative finding that exporters, whose main bank experiences a reduction in its market-to-book value, tend to reduce exports and to leave domestic sales unchanged. Since a reduction in a bank's market value is associated with a higher decline in trade finance than in aggregate lending, the authors interpret the asymmetric effect of bank health on exports versus domestic sales as indirect evidence that they are capturing the role played by trade finance.

Other papers, instead, test for a heterogeneous response of exports and domestic sales to credit shock only indirectly. For instance, Paravisini et al. (2015) explore whether the sensitivity of exports to credit varies with the cash-cycle length of the export flows and with the trade finance arrangements between the importer and the exporter. The idea is that, if the effect of a credit shortage is specific to capital used in export activity and not to general production working capital (for instance fixed costs to export as opposed to variable production costs), then elasticity should be heterogeneous according to those dimensions, which are specific to export activity. They find no result in this direction and interpret this as evidence that the sensitivity of the intensive margin of exports is not export specific, but driven by the same working capital channel that would affect domestic sales as well.

Somehow different results are found in Manova (2013), who uses a Rajan and Zin-

gales (1998) methodology and run a country-sector-time regression of bilateral exports on the interaction between the exporter level of financial development, measured by total credit to private sector over GDP, and a measure of the sector's dependence on external finance. She finds that 25% of the impact of credit constraints on trade is driven by reductions in total output. Of the additional trade-specific effect, one third reflects limited firm entry into exporting, while two thirds are due to a contraction along the intensive margin.

5 Robustness analysis

First, we check whether our results are sensitive to the clustering of the standard errors. Table 15 shows the estimates and the standard errors when we cluster at the sector-time level. Significance levels are unchanged for the elasticity of exports and domestic sales, for both the exporters and the full sample of firms.

As mentioned in a previous section, the estimation of the fixed effects $\hat{\delta}_{it}$ requires that the analysis be restricted to firms with more than one bank. In this way we may non-randomly select the sample of firms, with consequences on the reliability of our results. To check whether this is indeed the case, we estimate again the main relationships of interest by excluding the variable $\hat{\delta}_{it}$ and enlarging the sample to those firms with only one lender. Results are reported in Table 16 and they are basically the same as those found for the sample of multi-lender firms.

Table 17 shows how the relationship between credit supply shocks and exports changes over different sample periods. The first three columns report results for 1997-2006, 1997-2008 (the same as for the rest of the analysis) and 1997-2010. The results show an increase in the magnitude of the elasticity which grows from 0.40 to 0.56. The last two columns refer to samples that exclude the years before 2000 and, again, show an increasing trend in elasticity which goes from 0.65 to 0.75, gaining also in statistical significance. These results show that the dependence of exports on bank credit is not only robust to different samples, but seems to have increased over time, even if we exclude the crisis years: the elasticity for the period 2000-2008 is almost double than that for 1997-2006.

Then, we check whether the results change in relation to firm characteristics and the type of credit (Table 18). One may argue that bank credit is particularly important

for small firms, which can rely less on internal finances. In column (2) we restrict our sample excluding those firms with a number of employees above the 75th percentile. Surprisingly, the results are not statistically significant. Given the magnitude of the coefficient (0.66) and that of its standard errors, this outcome is probably due to a more noisy relationship between credit and exports that leads to a less precise estimation. Second, by restricting our sample to manufacturing firms, the elasticity becomes slightly higher, as shown in column (3). This result suggests that these firms are more capital intensive than those in the service sector and may need more investments and more external capital. In column (4) we add crisis years and find a higher and more significant elasticity, despite the reduction of the coefficient in the first stage. It is worth noting that, given our empirical strategy, even for the crisis years we are capturing credit supply shocks which are induced by the M&As and not by the crisis itself. In column (5) we consider only short-term bank credit, defined as revolving credit lines. By eliminating long-term credit, which should be less volatile, the first stage of the analysis may be strengthened, as our strategy captures mainly short-run effects. The first stage coefficient is indeed bigger but the elasticity of exports to short-term credit becomes much smaller and not significant at conventional levels. This can be interpreted as indirect evidence of the fact that the link between exports and credit is driven by the role played by longer term loans for capital investment and fixed costs, rather than by revolving credit lines used to finance working capital. Finally, in the last column of Table 18 we restrict the analysis to the effect of the credit specifically granted to finance exporting activities (trade finance). Even if the magnitude of the elasticity is more than double than in the benchmark case (1.24 against 0.49), it is not significant at conventional levels. This is due to the failure of the first stage: the coefficient of the M&A dummy is no more significant, as reported in the last row of the table. It follows that we cannot properly interpret the IV results.

We perform the same robustness analysis for the regression of domestic sales on credit supply. The results are reported in Table 19. We find that domestic sales of exporters are never elastic to credit supply even when we consider small exporters, manufacturing firms only, a time span which includes the crisis and short term credit only.[18]

[18]Since we are looking at domestic sales we omit the regression in which we consider trade finance, this being specific to export activity.

In Table 20 we show robustness results for the elasticity of domestic sales to credit supply shocks for non-exporters. Results indicate a strong and positive causal relation in each subsample with the elasticity magnitude going from 1.2 (in the benchmark case) to 1.5 (including the crisis years).[19]

As previously discussed, the finding that exporting firms respond to credit shocks by reducing exports and leaving domestic sales unchanged may be explained by the fact that markets are segmented and firms tend to preserve more established markets (including the domestic market), at the expense of riskier/less profitable ones. Firms may also act along the extensive margin, regularly entering or exiting some of these markets. While we do not have information on firms' exports by destination, we use Eurostat data to identify those sectors in which Italy exports more to countries with a lower degree of development (as an inverse proxy of risk/profitability). More precisely, we use product classification concordance tables to retrieve, from the Eurostat's NC 8-digit data, information on total Italian exports to each country for each ATECO 4-digit manufacturing sector used in our analysis.[20] We then divide the sectors in two groups, depending on whether aggregate exports to advanced countries are above or below the median.[21] On the basis of the firm's main sector of activity, we then split our sample of firms accordingly. If the effect of credit shocks on exports depends on firms reducing their sales towards markets that are considered less profitable or riskier, because, for instance, they are smaller, more distant, or different from the domestic market, we expect the effect to be larger when we restrict our analysis to those firms that produce goods that, according to the Italian trade specialization, are more likely to be exported to emerging countries. The results in Table 21 confirm this interpretation: the effect of a credit shock on exports is confined to those firms whose main sector of activity is more oriented towards emerging markets. In this case (see column (4)), the estimated elasticity is 0.9, almost twice as much as the average elasticity obtained for the full sample, while for the other group of firms the elasticity is not significantly different from zero (column (1)). Notably, columns (2) and (4) show that the first stage holds for both the subgroups, with a similar coefficient for the effect of M&As on

[19] Although in Table 20 the coefficient for the estimated proxy of firm time-varying unobservables is always negative and significant, the results do not change when this variable is omitted.

[20] We use Eurostat data and concordance tables for 2008.

[21] Advanced countries are those classified by the IMF as high-income countries, and emerging countries those classified as either middle- or low-income countries.

credit supply. Finally, the reduced form estimations reported in columns (3) and (6) confirm the IV results.[22] To be sure that this difference is due to an export-specific strategy, and not to some other sector-specific characteristics that do not depend on the destination market, we check whether the difference between the two groups also arises for the domestic revenue elasticity. The results in Table 22 confirm the validity of our interpretation: splitting the sample into the two groups of firms has no effect on the estimations of the response of domestic revenues to credit supply shocks. This continues to be not significantly different from zero for both groups when we look at exporters only, while it continues to be positive and of similar magnitude between the two groups when we look at domestic firms only.

6 Summary and conclusions

The aim of this paper is to estimate the elasticity of firm-level export flows to bank credit supply shocks in "normal times", meaning to shocks that are not related to the 2008/2009 global financial crisis or any other systemic crisis. We use Italian bank-firm matched data on credit granted and firm-level export data between 1997 and 2008. To tackle the issue of the endogeneity of the granted bank credit, we use bank M&As as an instrument, exploiting the common finding in the finance empirical literature that consolidated banks tend to reduce, at least in the short run, the credit granted to continuing borrowers. In addition, we exploit this highly disaggregated data to estimate firm-time dummies which capture all unobservable time-varying firm characteristics which may be related to both exports and credit demand. Thus our analysis is performed both by using a standard IV methodology to isolate credit supply shocks, and by inserting a proxy for credit demand with the aim of further strengthening the instrument.

We find that trade elasticity to credit shocks is positive and significant, being much higher once the endogeneity is taken into account. The elasticity varies from 0.40 to 0.75 depending on the years considered in the sample. In order to understand whether this result is specific to exports or whether it applies to firms' overall activity, we employ the same empirical strategy to investigate how domestic sales respond to credit

[22]Since the dummy that select sectors that mainly export in advanced countries is at the 4-digit ATECO level, we insert the usual 2-digit ATECO sector-time dummy in the regressions.

supply shocks. Interestingly we find that, while exporters react to a short-run drop in bank credit supply by diminishing exports, they leave domestic sales unchanged. Non exporters, instead, react to the same shock by reducing domestic sales.

These results support the idea that export is, within the firm, a credit intensive activity. Moreover they suggest that exporters and non-exporters decide to cut different activities once hit by credit supply shocks. A plausible interpretation is that all firms react to credit shocks by reducing their "non-core" businesses, which differ between non-exporters and exporters. While the former reduce their sales in the only market they serve, the domestic one, the latter cut sales only to less favorable markets, possibly making adjustments both along the intensive and the extensive margin of trade. More distant and smaller markets are usually associated with higher variable and fixed costs. For instance, the literature shows that entering different markets is a gradual process: firms begin by entering easy markets (those that are closer, bigger, and less risky) and then expand their activity hierarchically. According to some research, the existence of friction in finding the right partner in each destination and for each product may explain the gradual expansion of exports along the extensive margin. Others suggest that firms "test the water" before deciding to establish a durable relationship within a destination country. Moreover, many trade models are based on the idea that firms need to pay per-period destination fixed costs to maintain export sales. All these mechanisms suggest that there is a strong heterogeneity within each firms export activity and that export markets can be strongly segmented with some being more established and profitable than others. It thus seems plausible that, once affected by a short-run negative shock, exporters may first cut sales to less rewarding markets, keeping intact their core business, such as sales in the domestic market. We provide some indirect evidence in support of this conclusion by showing that the elasticity of exports to credit shocks is higher for firms that belong to sectors whose export share in emerging countries is higher than the median.

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A Methodological Appendix: M&As over three-year blocks.

Consider the following example: at the beginning of the sample (1997) firm i had a relationship with bank A; between 1997 and 2008, bank A first incorporates bank B (in 2003), then bank C (in 2008). According to our procedure, we will consider the 3 banks separately up to $t = 2002$, when the relevant growth rates are given by $lnCr_{ibt} - lnCr_{ibt-3}$, for $b = A, B, C$ and $t = 2000, 2001, 2002$. From $t = 2003$ to $t = 2007$ the existing banks are $A + B$ and C and, to compute the growth rates $lnCr_{ibt} - lnCr_{ibt-3}$ for $b = A+B, C$ and $t = 2003, 2004, 2005, 2006, 2007$, A and B must be considered as one starting from $t - 3 = 2000$. For the last two years we have only one bank $A + B + C$, and this consolidation must be applied in computing the growth rates $lnCr_{ibt} - lnCr_{ibt-3}$ for $t = 2008, 2009$ and $b = A + B + C$, from $t - 3 = 2006$. If we used a single panel from 1997 to 2008, for the building of pro-forma balance sheet data it would have been necessary to merge all the banks and observe only bank A+B+C over the entire period. This would imply missing the effect of the M&A between A and B in 2003. Moreover, with a traditional panel we would have some distortions. Keeping in mind the example above, take the case of a firm j which has always been a client of only bank C. Using a traditional panel, for the only existing bank $A + B + C$ the M&A dummy would be equal to 1 both in the blocks including 2003 (for the grouping of A and B) and in those including the year 2008 (for the merger between $A + B$ and C). Firm j would appear as a client of the consolidated bank over the whole period and we would look for the effect of a merger even in 2003, although the firm was not a client of either A and B.

B The supply shock at the firm level.

Given the firm-bank relationship

$$\Delta_3 lnCr_{ibt} = \alpha + \eta M\&A_{ibt} + \delta_{it} + \upsilon_{ibt}$$

and taking the weighted average of both sides, with weights equal to the share of each bank b on total credit of firm i at the beginning of the period, $w_{ibt-3} = \frac{Cr_{ibt-3}}{Cr_{it-3}}$, we obtain:

$$\sum_{b}^{n_{it}} \Delta_3 lnCr_{ibt} w_{ibt-3} = \alpha \sum_{b}^{n_{it}} w_{ibt-3} + \eta \sum_{b}^{n_{it}} M\&A_{ibt} w_{ibt-3} + \delta_{it} \sum_{b}^{n_{it}} w_{ibt-3} + \sum_{b}^{n_{it}} w_{ibt-3} \upsilon_{ibt}$$

where n_{it} is the set of banks lending to firm i both at time t and $t-3$. The left hand side is approximately the growth rate over the period of the firm aggregate credit:

$$\begin{aligned}
\sum_{b}^{n_{it}} \Delta_3 lnCr_{ibt} w_{ibt-3} &\approx \sum_{b}^{n_{it}} \frac{Cr_{ibt} - Cr_{ibt-3}}{Cr_{ibt-3}} \frac{Cr_{ibt-3}}{Cr_{it-3}} \\
&\approx \frac{1}{Cr_{it-3}} \sum_{b}^{n_{it}} \frac{Cr_{ibt} - Cr_{ibt-3}}{Cr_{ibt-3}} Cr_{ibt-3} \\
&\approx \frac{1}{Cr_{it-3}} \left[\sum_{b}^{n_{it}} Cr_{ibt} - \sum_{b}^{n_{it}} Cr_{ibt-3} \right] \\
&\approx \frac{Cr_{it} - Cr_{it-3}}{Cr_{it-3}}.
\end{aligned}$$

Using this result, together with $\sum_{b}^{n_{it}} w_{ibt-3} = 1$, the firm level relationship between the growth of credit granted and bank M&As is given by:

$$\Delta_3 lnCr_{it} = \alpha + \eta M\&A_{it} + \delta_{it} + \bar{v}_{it} \tag{7}$$

where $M\&A_{it}$ is a firm level weighted dummy, greater than zero if any of the banks lending to firm i is involved in an M&A in any of the years $t-2$, $t-1$ and t.

C Tables and figures

Table 1: Variable Description - Firm Data

Variable	Description
Export Share	Exports/Revenues
Employment	Average Employment over the year
Fixed Assets	Fixed Assets/Total Assets
Productivity	Value Added/Employment
Leverage	Total Assets/Capital
Liquidity	Liquidity/Total Assets
Cash Flow	Cash Flow/Total Assets
ROA	Net profit/Total Assets
Z score	1 (safe) to 9 (risky)

Table 2: Summary Statistics - Firms' Data

	MEAN		MEDIAN		STD. DEVIATION	
	Exporters	Domestic	Exporters	Domestic	Exporters	Domestic
Total Revenues	69.9	9.9	19.1	5.3	271.4	85.0
Exports	25.0		6.4		109.9	
Domestic Revenues	44.9	9.8	10.2	5.3	187.6	85.0
Revenues/Tot.Assets	1.3	1.5	1.2	1.3	0.7	0.9
Export Share	41.6%		38.5%		28.1%	
3y Growth Rate Tot. Rev	15.9%	13.0%	14.3%	11.9%	39.0%	43.5%
3y Growth Rate Exp.	-1.7%		4.1%		62.6%	
3y Growth Rate Dom. Rev.	17.9%	13.1%	15.5%	11.9%	70.7%	43.5%
Productivity	77.1	69.3	63.1	53.9	57.4	62.4
Employment	194.0	64.5	68.0	25.0	542.6	328.5
Leverage	8.1	13.3	4.7	6.7	11.9	18.3
Liquidity	6.2%	7.4%	2.7%	3.1%	8.5%	10.0%
Cash Flow	0.1%	0.2%	0.0%	0.1%	0.1%	0.8%
ROA	5.5	5.4	4.8	4.7	7.5	6.8
Fixed Assets	0.2	0.2	0.1	0.1	0.2	0.2
Credit Rating	5.0	4.8	5.0	5.0	1.8	1.8
Granted Credit	25.5	4.0	7.6	1.9	73.5	18.7
3y Growth Rate Credit	41.1%	37.3%	23.7%	21.3%	100.1%	80.6%
Used Credit	14.1	2.4	3.7	1.0	48.5	12.6
Granted ST	9.2	1.6	3.8	0.9	20.7	5.2
Granted TF	1.6	0.1	0.3	0.0	5.8	0.6

Note: data refer to the period 1997-2012 and for the sample of all firms, excluding outliers. Exports, revenues and credit are in millions of euros. Credit Rating is between 1 (highly secure) to 9 (very high risk). Other variables are described in Table 1. **Sources:** CEBI, Centrale dei Bilanci and Credit Register, Bank of Italy.

Table 3: Share of credit by type and destination

	Export	Import	Other	Total
Loans backed by account-receivables	2.7	0.0	20.4	23.1
Term loans	0.0	2.2	55.3	57.5
Revolving credits lines	0.0	0.1	19.4	19.5
Total	2.7	2.3	95.0	100

Note: Data represent the share of each type on the total amount of credit granted in 2006. **Sources:** Credit Register, Bank of Italy.

Table 4: Mergers and Acquisitions

	N. Mergers	N. Acquisitions	N. Bidders	N. Targets
1997	5	18	23	24
1998	3	27	30	34
1999	6	42	48	59
2000	9	32	41	56
2001	6	23	29	36
2002	3	33	36	40
2003	6	24	30	35
2004	0	16	16	17
2005	0	6	6	7
2006	1	11	12	13
2007	1	8	9	10
2008	4	13	17	19
2009	1	13	14	15
2010	1	18	19	24
2011	0	21	21	23
2012	1	26	27	32

Source: Albo Operazioni Bancarie, Bank of Italy.

Table 5: Number of Banks by Firm

	2000	2006	2011
Average	5.2	4.8	4.3
Max	90	66	61
Min	1	1	1
Median	4.0	4.5	4.0
Standard Deviation	3.9	3.6	3.2
Number of firms	43048	54184	57045
Share with more than 1 bank	88%	86%	84%

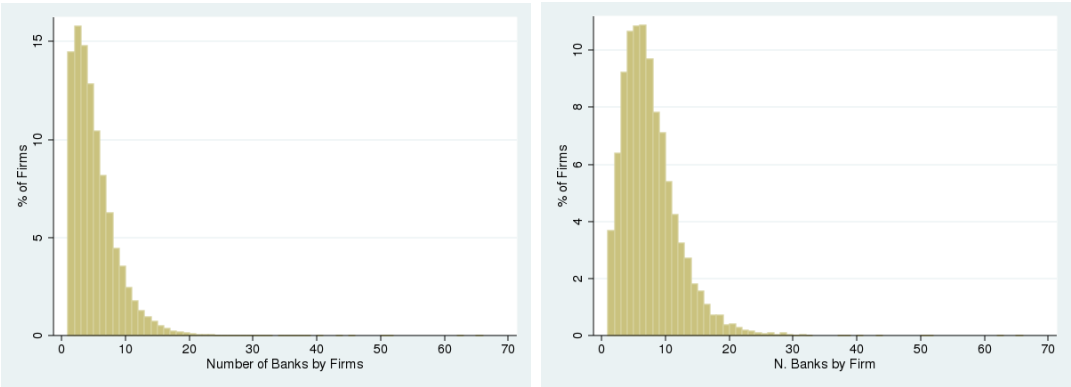
Source: CEBI, Centrale dei Bilanci and Credit Register, Bank of Italy.

Table 6: Credit Share of the Main Bank

	2000	2006	2011
Average	0.5	0.5	0.6
Max	1	1	1
Min	0.1	0.1	0.1
Median	0.4	0.5	0.5
Standard Deviation	0.3	0.3	0.3

Source: Credit Register, Bank of Italy.

Figure 1: Number of banks per firm: All (sx panel) and exporters (dx panel)



Source: Italian Credit Register, Bank of Italy. Data refer to year 2006

Table 7: Balancing of covariates

Variable	Quartile of Firm Exposure				
	1	2	3	4	Std. Dev.
			2002		
Credit growth	0.13	0.15	0.12	0.11	0.32
Leverage	13.7	12.2	11.4	11.2	18.1
ROA	7.2	6.9	6.8	7.0	6.9
Cash Flow	0.002	0.001	0.001	0.001	0.002
Fix Assets	0.18	0.19	0.17	0.18	0.16
Liquidity	0.08	0.06	0.06	0.07	0.09
Credit Rating	4.4	4.9	4.7	4.5	1.9
V.A./Worker	66.1	60.7	62.7	63.0	45.7
Sales/Assets	1.7	1.5	1.5	1.6	0.9
Export Share	0.64	0.62	0.62	0.61	0.47
			2006		
Credit growth	0.10	0.14	0.12	0.9	0.3
Leverage	11.9	10.2	10.2	9.7	15.5
ROA	5.7	4.9	5.4	5.6	6.7
Cash Flow	0.001	0.001	0.001	0.001	0.002
Fix Assets	0.18	0.19	0.17	0.16	0.16
Liquidity	0.08	0.06	0.06	0.08	0.10
Credit Rating	4.4	5.0	4.8	4.4	1.8
V.A./Worker	68.2	68.5	67.1	71.3	55.3
Sales/Assets	1.6	1.2	1.4	1.5	0.9
Export Share	0.44	0.46	0.45	0.47	0.29
			2010		
Credit growth	0.00	0.03	0.01	0.00	0.23
Leverage	8.1	8.4	8.0	8.6	12.2
ROA	3.9	3.2	3.4	3.5	7.0
Cash Flow	0.001	0.001	0.001	0.001	0.003
Fix Assets	0.22	0.24	0.21	0.20	0.21
Liquidity	0.10	0.06	0.06	0.07	0.1
Credit Rating	4.0	4.8	4.7	4.6	2.0
V.A./Worker	78.0	72.8	71.4	72.3	70.0
Sales/Assets	1.4	1.2	1.2	1.3	0.8
Export Share	0.48	0.48	0.48	0.49	0.30

Source: Credit Register, Bank of Italy and CEBI. **Note:** Columns 2 to 4 report averages by quartile (0.25, 0.50, 0.75 and 1). The last column reports the standard deviation for the entire sample.

Table 8: M&As and Credit Granted - firm-bank level.

Firms	All	Exporters	All	All	All	All
Credit	Total	Total	Short	Trade	Total	Total
M&As	All	All	All	All	Target	Bidder
$M\&A_{ibt}$	-0.048***	-0.075***	-0.066***	-0.016**	-0.108***	-0.027***
	(0.001)	(0.004)	(0.002)	(0.008)	(0.003)	(0.001)
N	2.354.026	224.709	1.634.140	340.610	2.354.026	2.354.026

Note: Results of regressions (3). Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 9: M&A effect by firm characteristics. Dependent variable: $\Delta_3 ln(Cr)_{it}$

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
$M\&A_{it}$	-0.038***	-0.037***	-0.037***	-0.039***	-0.036***	-0.032***	-0.038***	-0.038***	-0.038***	-0.035***	-0.079***	-0.031***	-0.091***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.017)	(0.007)	(0.019)
$Empl_{it-3}$	-0.036***	-0.036***	-0.036***	-0.036***	-0.035***	-0.033***	-0.036***	-0.036***	-0.036***	-0.032***	-0.033***	-0.031***	0.826***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.025)
$\hat{\delta}_{it}$	0.791***	0.798***	0.791***	0.791***	0.784***	0.786***	0.792***	0.791***	0.791***	0.790***	0.820***	0.791***	-0.058
	(0.006)	(0.011)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.014)	(0.011)	(0.048)
$fixassets_{it-3}$	-0.143***	-0.143***	-0.136***	-0.143***	-0.135***	-0.106***	-0.152***	-0.143***	-0.143***	-0.099***	-0.140***	-0.068***	0.025**
	(0.012)	(0.012)	(0.018)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.025)	(0.019)	(0.004)
$RATING_{it-3}$	0.010***	0.010***	0.010***	0.014***	0.009***	0.026***	0.008***	0.010***	0.010***	0.012***	0.005***	0.027***	-0.031***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.004)
$M\&A_{it}\hat{\delta}_{it}$		-0.021										-0.031	-0.043
		(0.023)										(0.023)	(0.055)
$M\&A_{it}fixassets_{it-3}$			-0.019									-0.020	-0.044
			(0.038)									(0.041)	(0.106)
$M\&A_{it}RATING_{it-3}$				-0.010***								-0.012***	-0.017*
				(0.003)								(0.004)	(0.009)
$M\&A_{it}leverage_{it-3}$					-0.000							-0.000	-0.001
					(0.000)							(0.000)	(0.001)
$leverage_{it-3}$					0.000***							0.000***	0.001**
					(0.000)							(0.000)	(0.000)
$M\&A_{it}roa_{it-3}$						-0.001						-0.002**	-0.003
						(0.001)						(0.001)	(0.002)
roa_{it-3}						0.008***						0.008***	0.009***
						(0.000)						(0.000)	(0.001)
$M\&A_{it}liquidity_{it-3}$							0.225***					0.168**	-0.060
							(0.071)					(0.076)	(0.154)
$liquidity_{it-3}$							-0.205***					-0.199***	-0.148**
							(0.032)					(0.033)	(0.071)
$M\&A_{it}cashflow_{it-3}$								0.012				-0.022	1.525
								(0.041)				(0.041)	(1.486)
$cashflow_{it-3}$								-0.005				-0.006	-7.559
								(0.006)				(0.006)	(4.828)
$M\&A_{it}prod_{it-3}$									-0.000			-0.000**	0.000
									(0.000)			(0.000)	(0.000)
$prod_{it-3}$									0.000*			-0.000	-0.000
									(0.000)			(0.000)	(0.000)
$M\&A_{it}rev/assets_{it-3}$										0.010		0.009	-0.016
										(0.008)		(0.008)	(0.023)
$rev/assets_{it-3}$										0.042***		0.035***	0.047***
										(0.004)		(0.004)	(0.011)
$M\&A_{it}expsh_{it-3}$											0.005		0.010
											(0.040)		(0.041)
$expsh_{it-3}$											-0.029		-0.029
											(0.019)		(0.019)
Observations	174238	174238	174238	174238	171795	174165	171425	174180	174232	174238	36605	168918	35936

Note: Results based on regression (6). All firm variables are taken as deviation from the yearly average. Column (1) reports the baseline regression; from column (2) interaction terms are introduced. Column (11) has a much reduced sample size as it includes exporting firms only. Variables are defined in the appendix. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 10: Total Credit and Foreign Sales - specification without credit demand dummy. Sample: Exporters Only.

	Dependent variable: $\Delta_3 ln(Exp)_{it}$			
	(1)	(2)	(3)	(4)
	OLS	IV	FS	RF
$\Delta_3 ln(Cr)_{it}$	0.199***	0.472*		
	(0.010)	(0.251)		
$fixassets_{it-3}$	0.070	0.106*	-0.132***	0.043
	(0.033)	(0.046)	(0.031)	(0.034)
$RATING_{it-3}$	0.000	-0.000	0.001	0.000
	(0.002)	(0.002)	(0.002)	(0.002)
$Empl_{it-3}$	-0.003	0.010	-0.047***	-0.012**
	(0.004)	(0.012)	(0.005)	(0.004)
$M\&A_{it}$			-0.081***	-0.038*
			(0.019)	(0.020)
F test excl. instr.			17.44	
Observations	29601	29601	29601	29601

Note: Results of regression (5). Column (1) reports OLS estimate; column (2) reports the IV estimates and column (3) the corresponding first stage (regression (6)); column (4) reports the reduced form regression. All regressions include sector-time fixed effects. The sample period is 1997-2008. Standard errors clustered at the firm-level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 11: Total Credit and Foreign Sales - main specification. Sample: Exporters Only.

	Dependent variable: $\Delta_3 ln(Exp)_{it}$			
	(1)	(2)	(3)	(4)
	OLS	IV	FS	RF
$\Delta_3 ln(Cr)_{it}$	0.212***	0.488*		
	(0.012)	(0.262)		
$\hat{\delta}_{it}$	-0.055**	-0.285	0.832***	0.121***
	(0.018)	(0.218)	(0.015)	(0.016)
$fixassets_{it-3}$	0.072	0.106*	-0.128***	0.044
	(0.033)	(0.046)	(0.028)	(0.034)
$RATING_{it-3}$	0.000	-0.001	0.004*	0.001
	(0.002)	(0.003)	(0.002)	(0.002)
$Empl_{it-3}$	-0.003	0.009	-0.042***	-0.011***
	(0.004)	(0.012)	(0.004)	(0.004)
$M\&A_{it}$			-0.077***	-0.038*
			(0.018)	(0.020)
F test excl. instr.			19.14	
Observations	29601	29601	29601	29601

Note: Results of regression (5). Column (1) reports OLS estimate; column (2) reports the IV estimates (this is our baseline regression) and column (3) the corresponding first stage; column (4) reports the reduced form regression. All regressions include sector-time fixed effects. The sample period is 1997-2008. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 12: Total Credit and Domestic Sales - main specification. Sample: Exporters Only

	Dependent variable: $\Delta_3 ln(Dom)_{it}$			
	(1)	(2)	(3)	(4)
	OLS	IV	FS	RF
$\Delta_3 ln(Cr)_{it}$	0.189***	-0.128		
	(0.016)	(0.402)		
$\hat{\delta}_{it}$	0.047*	0.311	0.832***	0.204***
	(0.027)	(0.336)	(0.015)	(0.026)
$fixassets_{it-3}$	0.097**	0.057	-0.128***	0.074
	(0.047)	(0.071)	(0.028)	(0.048)
$RATING_{it-3}$	-0.003	-0.001	0.004**	-0.002
	(0.003)	(0.004)	(0.002)	(0.003)
$Empl_{it-3}$	0.002	-0.011	-0.042***	-0.006
	(0.006)	(0.018)	(0.004)	(0.006)
$M\&A_{it}$			-0.077***	0.010
			(0.018)	(0.031)
F test excl. instr.			19.14	
Observations	29601	29601	29601	29601

Note: Results of regression (5). Column (1) reports OLS estimate; column (2) reports the IV estimates and column (3) the corresponding first stage; column (4) reports the reduced form regression. All regressions include sector-time fixed effects. The sample period is 1997-2008. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 13: Total Credit and Total Sales (Foreign + Domestic) - main specification. Sample: Exporters Only.

	Dependent variable: $\Delta_3 ln(Rev)_{it}$			
	(1)	(2)	(3)	(4)
	OLS	IV	FS	RF
$\Delta_3 ln(Cr)_{it}$	0.207***	0.325**		
	(0.008)	(0.139)		
$\hat{\delta}_{it}$	-0.032***	-0.131	0.832***	0.140***
	(0.010)	(0.116)	(0.015)	(0.009)
$fixassets_{it-3}$	0.075***	0.090***	-0.128***	0.049**
	(0.018)	(0.025)	(0.028)	(0.019)
$RATING_{it-3}$	-0.002	-0.002	0.004**	-0.001
	(0.001)	(0.001)	(0.002)	(0.001)
$Empl_{it-3}$	-0.000	0.005	-0.042***	-0.009***
	(0.002)	(0.006)	(0.004)	(0.003)
$M\&A_{it}$ y			-0.077***	-0.025**
			(0.018)	(0.011)
F test excl. instr.			19.14	
Observations	29601	29601	29601	29601

Note: Results of regression (5). Column (1) reports OLS estimate; column (2) reports the IV estimates and column (3) the corresponding first stage; column (4) reports the reduced form regression. All regressions include sector-time fixed effects. The sample period is 1997-2008. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 14: Total Credit and Domestic Sales. Sample: Exporters Only, All, Non-Exporters Only.

	Dependent variable: $\Delta_3 ln(Dom)_{it}$				
Sample	Exporters	All		Domestic	
	IV	IV	FS	IV	FS
	(1)	(2)	(3)	(4)	(5)
$\Delta_3 ln(Cr)_{it}$	-0.128	0.807***		1.195***	
	(0.402)	(0.162)		(0.226)	
$\hat{\delta}_{it}$	0.311	-0.469***	0.809***	-0.782***	0.805***
	(0.336)	(0.131)	(0.006)	(0.182)	(0.006)
$fixassets_{it-3}$	0.057	0.088**	-0.066*	0.117*	-0.064*
	(0.071)	(0.044)	(0.034)	(0.062)	(0.034)
$RATING_{it-3}$	-0.001	-0.003**	0.007***	-0.006***	0.007***
	(0.004)	(0.001)	(0.001)	(0.002)	(0.001)
$Empl_{it-3}$	-0.011	0.027***	-0.034***	0.025***	-0.031***
	(0.018)	(0.006)	(0.002)	(0.008)	(0.002)
$M\&A_{it}$			-0.039***		-0.035***
			(0.006)		(0.007)
F test excl. instr.			38.89		27.23
Observations	29601	213051	213051	183450	183450

Note: Results of regression(5). Column (1) reports the IV estimate for the exporters sample (the same as in (2) of Table 12); column (2) reports the IV estimates for the entire sample (exporters and domestic firms) and column (3) the corresponding first stage; column (4) reports the IV estimates for the sample of domestic firms and column (5) the corresponding first stage. All regressions include sector-time fixed effects. The sample period is 1997-2008. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 15: Robustness I: Main Results with sector-time clustered s.e.

Dependent variable	$\Delta_3 ln(Exp)_{it}$		$\Delta_3 ln(Dom)_{it}$		$\Delta_3 ln(Dom)_{it}$	
Sample	Exporters		Exporters		All	
	IV	FS	IV	FS	IV	FS
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta_3 ln(Cr)_{it}$	0.488*		-0.128		0.807***	
	(0.267)		(0.445)		(0.172)	
$\hat{\delta}_{it}$	-0.285	0.832***	0.311	0.832***	-0.469***	0.809***
	(0.234)	(0.012)	(0.365)	(0.012)	(0.133)	(0.009)
$fixassets_{it-3}$	0.106*	-0.128***	0.057	-0.128***	0.088*	-0.066*
	(0.061)	(0.031)	(0.076)	(0.031)	(0.047)	(0.036)
$RATING_{it-3}$	-0.001	0.004*	-0.001	0.004*	-0.003	0.007***
	(0.003)	(0.002)	(0.004)	(0.002)	(0.003)	(0.002)
$Empl_{it-3}$	0.009	-0.042***	-0.011	-0.042***	0.027***	-0.034***
	(0.011)	(0.005)	(0.020)	(0.005)	(0.006)	(0.004)
$M\&A_{it}$		-0.077***		-0.077***		-0.039***
		(0.017)		(0.017)		(0.007)
F test excl. instr.		21.60		21.60		34.63
Observations	29601	29601	29601	29601	213051	213051

Note: Results of regression (5). Columns (1) and (2) report the IV and FS estimate for the exporters sample (the same as in (2) and (3) of Table 11); columns (3) and (4) report the IV and FS estimate of domestic sales for the exporters sample (as in (2) and (3) of Table 12); columns (5) and (6) report the IV and FS estimates of domestic sales for the entire sample (exporters and domestic firms, as in (2) and (3) of Table 14). All regressions include sector-time fixed effects. The sample period is 1997-2008. Standard errors clustered at the sector-time level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 16: Robustness II: Main Results without credit demand dummy - including single-bank firms.

Dependent variable	$\Delta_3 ln(Exp)_{it}$		$\Delta_3 ln(Dom)_{it}$		$\Delta_3 ln(Dom)_{it}$	
Sample	Exporters		Exporters		All	
	IV	FS	IV	FS	IV	FS
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta_3 ln(Cr)_{it}$	0.379*		-0.094		0.627***	
	(0.212)		(0.294)		(0.139)	
$fixassets_{it-3}$	0.087**	-0.129***	0.065	-0.129***	0.089**	-0.086**
	(0.042)	(0.037)	(0.060)	(0.037)	(0.042)	(0.041)
$RATING_{it-3}$	0.002	-0.002	-0.003	-0.002	0.002**	0.001
	(0.002)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)
$Empl_{it-3}$	0.009	-0.057***	-0.018	-0.057***	0.025***	-0.047***
	(0.013)	(0.006)	(0.018)	(0.006)	(0.007)	(0.002)
$M\&A_{it}$		-0.095***		-0.095***		-0.043***
		(0.027)		(0.027)		(0.008)
F test excl. instr.		21.60		21.60		34.63
Observations	31503	31503	31503	31503	242105	242105

Note: Results of regression (5). Columns (1) and (2) report the IV and FS estimate for the exporters sample (the same as in (2) and (3) of Table 11, adding single-bank firms); columns (3) and (4) report the IV and FS estimate of domestic sales for the exporters sample (as in (2) and (3) of Table 12, adding single-bank firms); columns (5) and (6) report the IV and FS estimates of domestic sales for the entire sample (exporters and domestic firms, as in (2) and (3) of Table 14, adding single-bank firms).All regressions include sector-time fixed effects. The sample period is 1997-2008. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 17: Robustness III: Total Credit and Export Sales. Sample: Exporters Only. Different Years.

	Dependent variable: $\Delta_3 ln(Exp)_{it}$. IV Estimation.				
	(1)	(2)	(3)	(4)	(5)
	1997-2006	1997-2008	1997-2011	2000-2008	2000-2006
$\Delta_3 ln(Cr)_{it}$	0.398*	0.488*	0.562*	0.747**	0.654
	(0.236)	(0.262)	(0.318)	(0.390)	(0.408)
$\hat{\delta}_{it}$	-0.210	-0.285	-0.331	-0.485	-0.384
	(0.217)	(0.218)	(0.262)	(0.322)	(0.316)
$fixassets_{it-3}$	0.121**	0.106**	0.098**	0.120**	0.141**
	(0.053)	(0.046)	(0.044)	(0.059)	(0.067)
$RATING_{it-3}$	0.003	-0.001	0.001	-0.008*	-0.004
	(0.003)	(0.003)	(0.002)	(0.004)	(0.004)
$Empl_{it-3}$	0.003	0.009	0.010	0.031*	0.028
	(0.011)	(0.012)	(0.013)	(0.019)	(0.020)
F test excl. instr.	19.56	19.14	12.91	10.08	10.19
Observations	22087	29601	36843	21372	13858

Note: Results of regression (5). All regressions are performed with the IV methodology for different years. Regression reported in column (2) is the baseline. All regressions include sector-time fixed effects. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 18: Robustness IV: Total Credit and Export Sales. Sample: Exporters Only.

	Dependent variable: $\Delta_3 ln(Exp)_{it}$. IV Estimation.					
	(1)	(2)	(3)	(4)	(5)	(6)
	benchmark	small	manuf.	with crisis	short-term	trade finance
$\Delta_3 ln(Cr)_{it}$	0.488*	0.659	0.603*	0.699**		
	(0.262)	(0.401)	(0.325)	(0.344)		
$\Delta_3 ln(ShortTermCr)_{it}$					0.260	
					(0.265)	
$\Delta_3 ln(TradeCredit)_{it}$						1.244
						(0.931)
$\hat{\delta}_{it}$	-0.285	-0.380	-0.380	-0.448	-0.074	-0.609
	(0.218)	(0.304)	(0.272)	(0.286)	(0.140)	(0.487)
$fixassets_{it-3}$	0.106**	0.141**	0.126**	0.100**	0.062	0.053
	(0.046)	(0.067)	(0.052)	(0.037)	(0.041)	(0.086)
$RATING_{it-3}$	-0.001	-0.002	-0.000	0.002	-0.002	-0.032
	(0.003)	(0.004)	(0.003)	(0.002)	(0.003)	(0.024)
$Empl_{it-3}$	0.009	-0.007	0.011	0.014	-0.008	0.030
	(0.012)	(0.021)	(0.015)	(0.015)	(0.009)	(0.026)
$M\&A_{it}$	-0.077***	-0.058***	-0.068***	-0.049***	-0.082***	-0.063
	(0.018)	(0.016)	(0.019)	(0.014)	(0.020)	(0.046)
F test excl. instr.	19.14	12.81	12.89	11.97	17.23	1.82
Observations	29601	22442	26340	43651	24602	11730

Note: Results of regression (5). All regressions are performed with the IV methodology. Column (1) reports the baseline regression (the same as in 2 of Table 11); column (2) reports results for small firms (excluding firms with number of employees in the top 25 percentile); column (3) reports results for manufacturers only; column (4) reports results including the crisis years, thus the sample is 1997-2012; in column (5) we consider only short-term granted credit and in column (6) we consider only granted credit used for trade purposes. All regressions include sector-time fixed effects. Standard errors clustered at the firm level in parentheses. In the last rows we report the $M\&A_{it}$ coefficient of the first stage regression and the correspondent F test. * p<0.10, ** p<0.05, *** p<0.01.

Table 19: Robustness V: Total Credit and Domestic Sales. Sample: Exporters Only.

	Dependent variable: $\Delta_3 ln(Dom)_{it}$. IV Estimation.				
	(1) benchmark	(2) small	(3) manuf.	(4) with crisis	(5) short-term
$\Delta_3 ln(Cr)_{it}$	-0.128	0.248	-0.513	-0.251	
	(0.402)	(0.610)	(0.495)	(0.485)	
$\Delta_3 ln(ShortTermCr)_{it}$					0.125
					(0.417)
$\hat{\delta}_{it}$	0.311	0.021	0.616	0.385	0.036
	(0.336)	(0.462)	(0.413)	(0.392)	(0.269)
$fixassets_{it-3}$	0.057	0.129	-0.009	0.060	0.067
	(0.071)	(0.100)	(0.081)	(0.053)	(0.060)
$RATING_{it-3}$	-0.001	-0.003	0.001	-0.002	-0.003
	(0.004)	(0.005)	(0.004)	(0.003)	(0.005)
$Empl_{it-3}$	-0.011	-0.020	-0.023	-0.018	0.007
	(0.018)	(0.033)	(0.023)	(0.021)	(0.014)
$M\&A_{it}$	-0.077***	-0.058***	-0.068***	-0.049***	-0.082***
	(0.018)	(0.016)	(0.019)	(0.014)	(0.020)
F test excl. instr.	19.14	12.81	12.89	11.97	17.23
Observations	29601	22442	26340	43651	24602

Note: Results of regression (5). All regressions are performed with the IV methodology. Column (1) reports the baseline regression (the same as in (2) of Table 12); column (2) reports results for small firms (excluding firms with number of employees in the top 25 percentile); column (3) reports results for manufacturers only; column (4) reports results including the crisis years, thus the sample is 1997-2012; in column (5) we consider only short-term granted credit. All regressions include sector-time fixed effects. Standard errors clustered at the firm level in parentheses. In the last rows we report the $M\&A_{it}$ coefficient of the first stage regression and the correspondent F test. * p<0.10, ** p<0.05, *** p<0.01.

Table 20: Robustness VI: Total Credit and Domestic Sales. Sample: Non-Exporters.

	Dependent variable: $\Delta_3 ln(Dom)_{it}$. IV Estimation.				
	(1)	(2)	(3)	(4)	(5)
	benchmark	small	manuf.	with crisis	short-term
$\Delta_3 ln(Cr)_{it}$	1.195***	1.390***	1.520***	1.218***	
	(0.226)	(0.320)	(0.451)	(0.209)	
$\Delta_3 ln(ShortTermCr)_{it}$					1.058***
					(0.250)
$\hat{\delta}_{it}$	-0.782***	-0.911***	-1.029***	-0.788**	-0.506***
	(0.182)	(0.246)	(0.357)	(0.169)	(0.143)
$fixassets_{it-3}$	0.117*	0.119	0.324***	-0.000***	0.154***
	(0.062)	(0.077)	(0.060)	(0.000)	(0.020)
$RATING_{it-3}$	-0.006***	-0.010**	-0.011***	-0.003***	-0.014***
	(0.002)	(0.003)	(0.006)	(0.001)	(0.004)
$Empl_{it-3}$	0.025***	0.026	0.050**	0.023***	0.015*
	(0.008)	(0.019)	(0.023)	(0.005)	(0.008)
$M\&A_{it}$	-0.035***	-0.031***	-0.029***	-0.030***	-0.036***
	(0.007)	(0.007)	(0.009)	(0.005)	(0.009)
F test excl. instr.	27.23	17.88	10.56	34.04	17.71
Observations	183454	132742	85320	271740	128958

Note: Results of regression (5). All regressions are performed with the IV methodology. Column (1) reports the baseline regression (the same as in (4) of Table 14); column (2) reports results for small firms (excluding firms with number of employees in the top 25 percentile); column (3) reports results for manufacturers only; column (4) reports results including the crisis years, thus the sample is 1997-2012; in column (5) we consider only short-term granted credit. All regressions include sector-time fixed effects. Standard errors clustered at the firm level in parentheses. In the last rows we report the $M\&A_{it}$ coefficient of the first stage regression and the correspondent F test. * p<0.10, ** p<0.05, *** p<0.01.

Table 21: Robustness VII: Total Credit and Exports - Type of Destination at the Sector Level. Sample: Exporters Only.

Dependent variable: $\Delta_3 ln(Exp)_{it}$.

	Exports in Advanced Countries			Exports in Emerging Countries		
	(1)	(2)	(3)	(4)	(5)	(6)
	IV	FS	RF	IV	FS	RF
$\Delta_3 ln(Cr)_{it}$	0.384			0.898*		
	(0.488)			(0.516)		
$\hat{\delta}_{it}$	-0.198	0.819***	0.116***	-0.646	0.850***	0.117***
	(0.400)	(0.023)	(0.024)	(0.438)	(0.023)	(0.023)
fixassets_3	0.045	-0.137***	-0.008	0.179**	-0.123***	0.068
	(0.082)	(0.040)	(0.051)	(0.080)	(0.046)	(0.049)
RATING_3	0.001	0.003	0.002	-0.004	0.005*	0.001
	(0.004)	(0.003)	(0.004)	(0.005)	(0.003)	(0.003)
lnEmp_3	0.005	-0.045***	-0.012*	0.021	-0.042***	-0.017***
	(0.023)	(0.007)	(0.006)	(0.024)	(0.007)	(0.006)
$M\&A_{it}$		-0.060**	-0.023		-0.072**	-0.064**
		(0.026)	(0.029)		(0.029)	(0.029)
Observations	12977	12977	12977	12186	12186	12186

Note: Results of regression (5). Columns (1) to (3) report results for the subsample of firms that belong to sectors (defined at ATECO 2007 4-digit) whose export share in advanced countries (defined according to IMF classification) is higher than the median. Columns (4) to (6) report results for the subsample of firms that belong to sectors whose export share in advanced countries is lower than the median. All regressions include sector-time fixed effects. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 22: Robustness VIII: Total Credit and Domestic Revenues - Type of Destination at the Sector Level. Sample: Exporters (1,3) and Non Exporters (2,4).

	Dependent variable: $\Delta_3 ln(Dom)_{it}$. IV Estimation.			
	Exports in Advanced Countries		Exports in Emerging Countries	
	(1)	(2)	(3)	(4)
	IV	IV	IV	IV
	Exp.	Non Exp.	Exp.	Non Exp.
$\Delta_3 ln(Cr)_{it}$	-1.026	1.142***	-0.114	1.581**
	(0.880)	(0.422)	(0.646)	(0.764)
$\hat{\delta}_{it}$	1.026	-0.725**	0.304	-1.119*
	(0.723)	(0.334)	(0.550)	(0.621)
fixassets_3	-0.074	0.274***	-0.003	0.324***
	(0.148)	(0.063)	(0.108)	(0.091)
RATING_3	0.003	-0.006	-0.003	-0.009
	(0.006)	(0.005)	(0.006)	(0.009)
lnEmp_3	-0.039	0.027	-0.013	0.043
	(0.041)	(0.018)	(0.029)	(0.036)
Observations	12977	46962	12186	35178

Note: Results of regression (5). Columns (1) and (2) report results for the subsample of firms that belong to sectors (defined at ATECO 2007 4-digit) whose export share in advanced countries (defined according to IMF classification) is higher than the median. Columns (3) to (4) report results for the subsample of firms that belong to sectors whose export share in advanced countries is lower than the median. Columns (1) and (3) refer to exporters, columns (2) and (4) to domestic firms only. All regressions include sector-time fixed effects. Standard errors clustered at the firm level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

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