Policy Research Working Paper 10384

Access to Credit and Bank Ownership

Evidence from Firm-Level Data

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WORLD BANK GROUP
Finance, Competitiveness and Innovation Global Practice
March 2023

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Abstract

This paper uses a unique dataset with matched information at the firm-bank level covering 13,000 firms and 550 banks in 36 emerging and developing economies over 2012–20. The analysis tests whether government-owned banks fulfill their social mandate by targeting credit constrained firms or firms that are more likely to generate positive externalities. The findings show that credit constrained firms are more likely to borrow from government-owned banks, and that this is especially the case in countries with good institutions. However, the paper does not find any evidence that government-owned banks target innovative firms or "green" firms. The findings show that in firms that borrow from government-owned banks, employment reacts less to business cycle conditions relative to firms that borrow from private banks. The paper further shows that employment is more stable in credit constrained firms that have a relationship with a government-owned banks with respect to credit constrained firms that borrow from a private bank.

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Access to Credit and Bank Ownership
Evidence from Firm-Level Data[1]

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Keywords: G21, H11, O16
JEL: Banking, State-owned banks, MSMEs, Credit Constraints

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For helpful comments and suggestions, we would like to thank Roberta Gatti, Martin Melecky, Eva Gutierrez, Abdoulaye Sy, Marina Wes, Djibrilla Issa, Irina Astrakhan, Onur Ozlu, and Randy Kotti. We thank Jorge Rodriguez Meza and Joshua Wimpey of the Enterprise Analysis Unit of the World Bank's Global Indicators Department and Asif Islam of the World Bank's Middle East and North Africa Chief Economist Office for providing access to the Enterprise Surveys data. All remaining errors are our own. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Contents

1. Introduction

This paper uses a unique dataset with matched information at the firm-bank level covering 36 emerging and developing economies over 2012-20 to test whether government-owned banks target credit constrained firms or firms that are more likely to generate positive externalities. We find that government-owned banks do target credit constrained firms and that this is particularly the case for government-owned banks located in countries with good institutions and during economic recessions, when credit constraints are more likely to be binding. Instead, we do not find evidence that government-owned banks are more likely to lend to firms that innovate or that engage in green activities.

Government ownership of banks is normally justified by the presence of market failures (Stiglitz, 1994, Lewis, 1950 and Gerschenkron, 1962). According to this view, government-owned bank can play a useful role by alleviating credit constraints and lending to firms that generate positive externalities. However, there is also a less benign view of government-owned banks, which is based on the idea that state-owned enterprises only exist to provide rents to the policy makers that control them (Kornai, 1979). A number of authors have shown that government-owned banks engage in political lending (Sapienza, 2004, study the case of Italy, Khwaja and Mian, 2005, focus on Pakistan, Carvalho, 2014, on Brazil, Bircan and Saka, 2021 on Türkiye, and Micco et al., 2007, provide cross-country evidence). La Porta et al. (2002) provide cross-country evidence of the distortionary effect of political lending by showing that government ownership of banks is associated with lower future financial depth and GDP growth. Lazzarini et al. (2015) study the case of the Brazilian National Development Bank (BNDES). They find that BNDES does not systematically lend to underperforming firms, does not address credit constraints, and has no positive effect on firm performance or investment.

The perception that political failures are more important than the market failures that could be potentially addressed by state-owned enterprises was the basis for several privatization episodes that started in the 1980s and continued throughout the 1990s. In the case of the banking system, privatization reduced the average share of bank assets under direct government control from well above 70% in the 1980s to about 30% in 2019 (Panizza, 2022).[2]

The global financial crisis partly reversed the privatization trends started in the 1980s. It also led to new research, which paints a more nuanced picture of the role of government-owned banks. For instance, a series

[2] These figures are for emerging and developing economies. The corresponding values for advanced economies are 40% and 18%, respectively (Panizza, 2022).

of papers have shown that state-owned banks could be useful in smoothing the lending cycle (Micco and Panizza, 2006, , Brei and Schclarek, 2013, Cull and Martinez-Peria, 2013, Coleman and Feler, 2015, Bertay et al., 2015, Duprey 2015, Allen et al., 2017, Ture, 2021, and Panizza, 2022). Additional research that used more recent data and moved beyond pure cross-sectional regressions did not find a significant correlation between government ownership of banks and economic growth or financial depth (Levy Yeyati et al., 2007, and Panizza, 2022). Argentieri (2022) studies the effect of bank privatization in Brazil, and finds that privatized banks became more profitable, that they also contracted their credit supply, and that this credit contraction had a negative effect on economic activity (see also Sanches et al., 2018).

One problem with the existing literature is that country or industry-level data do not allow controlling for unobservable factors that are jointly correlated with state ownership and the outcomes of interest. Given that the cross-country and over time distribution of government-owned banks is not random, the correlation between the observed level of state-ownership and each of financial and economic growth could either be driven by political failures (in this case, a larger share of government-owned banks causes worse economic outcomes) or by the presence of market failures (in this case, economic outcomes cause the share of state-owned banks) or by the joint presence of these different types of failures (see Rodrik, 2012, for a formal model). Models that include country-fixed effects can partly address this problem, but only if the source of endogeneity only varied across countries and is time-invariant within countries.

The literature that uses bank-level data can partly address endogeneity concerns by looking at what different types of banks do while controlling for country-year fixed effects. However, this strand of literature can tell us what banks do (for instance if they lend more or less during recessions), but does not tell us anything about the impact of different types of bank lending on economic activity. In order to address this question, it is necessary to link bank-level information with firm-level information. While we are aware of studies that match firm-level data with bank level data (including some studies that are able to do so at the loan-by loan level, see Jiménez et al., 2014), these studies require confidential information and usually focus on just one country. To the best of our knowledge, we are the first to use firm-bank matched data for a large number of countries.

We use confidential information from the World Bank Enterprise Survey (WBES) and the bank-level dataset described in Panizza (2022) to match bank-firm information for a sample of nearly 13,000 firms in 36 countries observed over 2012-2020.[3] We then use this matched bank-firm data to test whether firms that

[3] We also have data for 5 advanced economies but do not include these countries in the analysis.

have a relationship with a state-owned bank or government-owned bank are more likely to be credit constrained, to innovate, or to engage in environmentally friendly activities. While we do find that credit constrained firms are more likely to borrow from government-owned banks, and that this is especially the case in countries with good institutions, we do not find any evidence that government owned banks target innovative firms or "green" firms.

Although WBES does not contain detailed balance sheet and income statement data, it does include information on firm characteristics, such as ownership, size, and employment. In the first part of our analysis, we use some of these characteristics as control variables, in the second part we use employment growth as the dependent variable. We start by showing that, in terms of employment growth, firms that borrow from government-owned banks do not differ from firms that borrow from private banks. Next, we show that in firms that borrow from government-owned banks employment reacts less to business cycle conditions than in firms that borrow from private banks. This result is in line with bank-level evidence that lending by government-owned banks is less procyclical than lending by private banks (see, among others, Micco and Panizza, 2006). Next, we study the role of credit constraints and show that having a relationship with a government-owned bank is particularly useful for credit constrained firms. Specifically, we find that employment is much more stable in credit constrained firms that have a relationship with a government-owned bank with respect to credit constrained firms that borrow from a private bank. These results are robust to controlling for country-year fixed effects that absorb all possible country specific shocks and are also robust to controlling for firm fixed effects.

The rest of the paper proceeds as follows. Section 2 describes our data with special focus on the matching of WBES data with bank-level data and on the construction of three latent variables aimed at measuring the presence of credit constraints, innovation, and green activities. Sections 3 and 4 describe our empirical strategy and present regression results. Section 5 concludes.

2. Data

This paper uses 3 types of data: (i) bank-level data from Fitch Connect; (ii) firm survey data from the World Bank Enterprise Survey, and (iii) macroeconomic data from the IMF-WEO database and from the World Bank World Development Indicators. We start by describing the bank-level dataset, we then move to WBES and describe how we matched these two datasets, and conclude by describing the construction of three latent variables aimed at measuring credit constraints, innovation, and green activities.

Fitch Connect data provide information on income statements and balance sheets for up to 34,400 banks since 1995. As this dataset does not report ownership information, we augment the dataset with hand-coded ownership information assembled using the procedure developed in Panizza (2021).

Next, we merge the bank-level dataset with firm-level characteristics from the World Bank's Enterprise Survey (WBES). WBES consists of a series of firm-level surveys covering a broad range of business environment topics including *access to finance*, *corruption*, *infrastructure*, and *competition*. It includes more than 180,000 firms in more than 150 countries over a 16-year period.[4] Most of the countries covered by WBES have been surveyed 2 or 3 times over 2006-21. For example, the Arab Republic of Egypt was surveyed in 2013, 2016, and 2020, while Tunisia was surveyed in 2013 and 2020.

A key component of the survey is the *Access to Finance* module. This module includes questions that focus on the various dimension of firms' financing. Among other things, there is a question on whether the enterprise has a line of credit or if it has contracted a loan in the last 24 months. If the answer is yes, there is a follow-up question that asks the name of the bank that provided the most recent line of credit or loan.[5] While the answer to the second question is not available in the published version of the survey, we were able to obtain bank names on a confidential basis. We then used the answer to this question to connect firms in WBES with bank-level data from Fitch Connect.

The full WBES covers 180,000 firms in more than 150 countries. However, we only have information on banking relationships for 41 countries (27 in Europe, 8 in Asia, and 6 in the Middle East and North Africa), including 63,000 records and 108 surveys. (Table 1). Of these initial records, about one-fifth belong to surveys that did not include the bank identity question.[6] Of the remaining records, which are all from surveys that include the bank name question, about one-third report the name of the bank. Lack of reporting could be due to the absence of a formal banking relationship, but there are many firms that report having a banking relationship but did not provide the name of a specific bank. This could be because the firm uses multiple banks or because it prefers not to divulge such information. Overall, 25 percent of surveyed firms (15,718 records) provided the name of their bank.

To merge bank-level data with firm-level data form WBES, we first dropped records (about 3% of the total) with inconclusive bank names such as "Commercial Bank", "Cooperative bank", "Doesn't know" or

[4] The survey focuses on low- and middle-income economies, but it also includes 5 high-income countries (Cyprus, Greece, Italy, Malta, and Portugal).
[5] The question is "Which Bank Provided the Most Recent Line of Credit or Loan?"
[6] Surveys conducted in 2008-2009 do not feature the bank name question.

"Other" and then hand-matched bank names from the survey with bank names from Fitch Connect. Hand-matching was necessary because the survey included spelling mistakes and in several cases the name of the bank was in local language in the survey and in English in Fitch Connect. After dropping observations with banks for which Fitch Connect does not report any financial information, we were left with a dataset of approximately 13,000 firms and more than 500 banks. While we use the matched dataset to analyze the effect of state-ownership on firms' access to finance, we retain all the unmatched firm records to test for potential statistically significant differences in firm characteristics between matched and unmatched firms.

Note that WBES also includes data from 5 advanced European economies, but we do not use these data in our empirical analysis which focuses on emerging and developing economies. After dropping these five countries we are left with 11,840 records with a bank-firm match.

Summary Statistics

We report summary statistics of firm characteristics in Table 2, 3, and 4. Table 2 includes the full sample of firms, while Table 3 and Table 4 report the sub-samples of firms matched to private banks, and to state-owned banks, respectively. There is a good degree of similarity among these 3 groups. The average firm size, measured by the number of workers employed by the firm, is 75 for the full sample, 81 for the subsample of firms matched to private banks, and 108 for the subsample of firms matched to state-owned banks. The average age is 18 years for the full sample, and 20 for the 2 subsamples of matched enterprises. Financing conditions faced by firms also appear to be similar across the three samples. The reported value of collateral needed for a loan, measured as percent of the loan value, is 167 for the full sample, 188 percent for firms that have a relationship with private banks, and 183 percent for firms that are financed by government-owned banks. Similarly, the proportion of loans requiring collateral is 76 percent when considering the full sample, 75 for firms matched to private banks, and 74 for firms matched to government-owned banks. Interestingly, the number of years that firms report to have operated without formal registration is 0.4 for firms that are financed by private banks, 0.6 for firms financed by state-owned banks, and 1 for the full sample of firms. This difference seems plausible, as informal firms are less likely to apply for credit from the commercial banks sector, and commercial banks are less likely to extend credit to the informal sector.

We then report summary statistics of bank characteristics in Table 5 (full sample of matched banks), Table 6 (private banks only), and Table 7 (state-owned banks only). A simple comparison of these three groups shows that the average state-owned bank is more than twice as large as the average private-owned bank, is

half as profitable, and has slightly lower capital adequacy but similar asset quality when compared to the average private bank. Average size, as measured by total assets, is 41 billion USD for private banks, and 97 billion USD for state-owned banks. Profitability, as measured by average Return on Assets (ROA), is 1.1 percent for private banks, and 0.5 percent for state-owned banks. Asset quality, as measured by the share of non-performing loans over gross loans, is remarkably consistent across the subsamples, i.e., at 9.1 percent and 9.9 percent for private and state-owned banks, respectively. Finally, the average Tier 1 Capital ratio stands at 16.6 for private banks and 15.5 for state-owned banks.

Latent Variables

State-owned banks are supposed to target credit constrained firms or firms that generate positive externalities. This section describes the construction of three indexes aimed at capturing the presence of credit constraints, innovation, and green activities.

The Enterprise Survey contains several variables that indicate the potential presence of credit constraints. For instance, one question asks whether access to finance is an obstacle; another question asks whether access to finance is the major obstacle faced by the firm (hence, unlike the first question, this question focuses on the relative importance of credit constraint); yet another question asks if the firm is credit constrained (the possible answers are fully constrained, partially constrained, and unconstrained) and a further question (included in a different set of surveys) asks if the firm is partially credit constrained. Finally, the survey includes a variable that measures the share of investment financed with bank loans.

Each of these variables is likely to be correlated with some latent continuous variable that measures whether a firm is credit constrained. We assign numerical scores to each of these questions and use factor analysis to extract this latent variable.[7]

One problem with applying factor analysis to the variables listed above is that not all questions are asked in all surveys. Moreover, there are missing answers for certain firms, even when a given question is asked. Such missing values lead to a substantial loss of observations. We address this issue by using multivariate imputation to fill the missing values. Specifically, we use the Stata command "mi impute mvm" which accommodates arbitrary missing-value patterns by using an iterative Markov chain Monte Carlo method.

[7] For the categorial variables we assign scores that increase with the tightness of credit constraints (hence, for the first question, we assign 0 to firms that respond that access to credit is not an obstacle and 1 to other responses). For the percentage of investment that is financed with bank loans, we multiply the answer by -1. Hence, the potential range of the answer is [-100,0].

Table 8 shows summary statistics for the original variables before and after imputation and for the latent variable obtained by applying factor analysis to the imputed variables.

As mentioned, we measure potential externalities, by focusing on innovation and 'green' activities. In the case of innovation, the latent variable is built by applying factor analysis to the answers to the following five questions: (i) Has the firm introduced new products/services over the last 3 years (0: No; 1: Yes); (ii) Has the firm introduced new or significantly improved methods of production in the last 3 years (0: No; 1: Yes); (iii) Has the firm introduced new or significantly improved inputs in the last 3 years (0: No; 1: Yes); (iv) Has the firm introduced new or significantly improved processes during the last three years (0: No; 1: Yes); (v) During the last three years, did the firm spend on formal R&D activities? (0: No; 1: Yes).

As for the latent index of credit constraints, we use imputation to fill the missing values in the original variables. Given that all variables are binary, we use a logit imputation mechanism. This is a parametric method that assumes an underlying logistic model for the imputed variable, and it is applied to one variable at a time. Table 9 reports summary statistics for the innovation index and its components before and after imputation.

Finally, we use the following 6 questions to build a latent variable of green activities: (i) Over the last 3 years, did this establishment monitor its energy consumption? (0: No; 1: Yes); (ii) In the last FY, did this establishment's strategic objectives mention environmental or climate change issues? (0: No; 1: Yes); (iii) In the last FY, did this establishment have a manager responsible for environmental or climate issues? (0: No; 1: Yes); (iv) Over the last 3 years, did this establishment monitor its water usage? (v) Over the last 3 years, did this establishment have targets on energy consumption? (0: No; 1: Yes); (vi) Over the last 3 years, did this establishment have targets for CO2 emissions? (0: No; 1: Yes). Again, before using factor analysis to build the latent variable, we impute missing values using logit imputation. Table 10 reports summary statistics for the index of green activities and its components before and after imputation.

3. Empirical strategy

We focus on two key questions. The first question is about what types of firms borrow from government-owned banks. Specifically, we are interested in exploring whether government owned banks tend to target credit constrained firms or firms that generate positive externalities. We also check whether institutional quality matters. Thus, we test whether government-owned banks are more likely to fulfill their mandate of lending to credit constrained firms and firms that produce positive externalities in countries with better institutions.

Our second key question is whether government-owned banks help in relaxing credit constraints during recessions. While there is evidence that lending by government-owned banks is less procyclical than lending by private banks (see, among others, Micco and Panizza, 2006, and Panizza, 2022), previous research could not establish whether countercyclical lending by government-owned banks has an effect on firm outcomes and whether lending countercyclicality particularly benefits credit constrained firms. This is important because credit constrained firms are likely to suffer the most from credit contractions during recessions. Our bank-firm matched dataset allows us to study this specific question. Note that access to credit in good and bad times will change for firms that are always completely excluded from the financial markets. However, all the firms in our sample do have a banking relationship and have borrowed at some point in time.

What type of firms borrow from state-owned banks?

To assess whether government-owned banks target credit constrained firms or firms that generate positive externalities, we use the three indicators described above to estimate the following model:

$$FC_{i(c)t} = \alpha_{ct} + \beta GOB_{b(i)t} + X_{b(i)t}\Gamma + W_{i(c)t}\Phi + \varepsilon_{ct} \quad (1)$$

The dependent variable is a firm characteristic based on one of the indexes described in the previous section (presence of credit constraints, innovation, green activities) for firm i, located in country c, in year t; $GOB_{b(i)t}$ is a dummy variable that takes value one if bank b used by firm i in year t is government-owned, $X_{b(i)t}$ is a matrix of bank-level controls (size, proxied by the log of total assets, and profitability, proxied by return on assets), $W_{i(c)t}$ is a matrix of firm-level controls (log size, log age, a dummy for state-owned firms, and a dummy for female-owned firms), and α_{ct} is a set of country-year fixed effects that control for all possible country-year specific factors. We also estimate models in which the dependent variable takes value 1 if the firm invested in year t. The idea is that there could be positive externalities associated with increasing investment. We estimate Equation 1 (and all the models described below) using the survey weights reported in the World Bank Enterprise Survey rescaled to add up to one for the firms included in the regressions.

While Equation 1 cannot tell us if the possible relationship between firms and government owned banks is driven by demand (i.e., firms with specific characteristics prefer to borrow from government-owned banks) or supply considerations (i.e., government-owned banks seek firms with certain characteristics), this is not an issue for us. If firms with certain characteristics prefer government owned banks, it must be the case that these banks offer them better conditions (in terms of quantity or cost of credit) which are specific to these

types of firms with respect to private banks. This is equivalent to having government-owned banks specifically targeting firms with certain characteristics.

It is plausible that government-owned banks are better managed and more likely to fulfill their mandate when they are located in countries with good policies and institutions. To test this hypothesis, we interact the government-ownership variable with a set of indexes of institutional quality from the World Governance Indicators (we focus on Control of Corruption, Rule of Law, and Government Effectiveness). Formally, we estimate variants of the following model:

$$FC_{i(c)t} = \alpha_{ct} + GOB_{b(i)t}(\beta + \delta \times (1 - IQ_{ct})) + X_{b(i)t}\Gamma + W_{i(c)t}\Phi + \varepsilon_{ct} \quad (2)$$

Where IQ_{ct} is a country-year level measure of institutional quality rescaled to range between 0 (lowest possible institutional quality) and 1 (highest possible institutional quality) and all other variables are defined as above. The main effect of IQ_{ct} cannot be estimated separately because it is absorbed by the country-year fixed effects.

In the set-up of Equation 2, β indicates whether government-owned banks are more likely to target firms with certain characteristics in countries that have the highest possible level of institutional quality and $\beta + \delta$ indicates whether government-owned banks are more likely to target firms with certain characteristics in countries that have the lowest possible level of institutional quality. Hence, δ indicates whether institutional quality affects the likelihood that government-owned banks fulfill their mandate of lending to credit constrained firms or firms that generate positive externalities.

Lending over the business cycle

As mentioned, there is evidence that state-owned banks contribute to smoothing credit over the business cycle. Our firm-bank level matched data allow us to test whether this mechanism affect firm-specific outcomes and if it is particularly important for credit constrained firms.

While our matched data do not have information on the amount of credit disbursed by a given bank to a given firm, we do have information on an important firm-level outcome: employment growth. We thus test whether having a relationship with a government owned bank reduces the correlation between macroeconomic shocks and firm-level employment growth and if this effect is particularly important for credit constrained firms. We start by estimating the following model:

$$EGR_{i(c)t} = \alpha_{ct} + GOB_{b(i)t}(\beta + \delta M_{ct}) + X_{b(i)t}\Gamma + W_{i(c)t}\Phi + \varepsilon_{ct} \quad (3)$$

Where $EGR_{i(c)t}$ is employment growth in firm i (based in country c) in year t, M_{ct} is a country-year level measure of macroeconomic conditions (the difference between real GDP growth in year t and country-specific average real GDP growth or a dummy that takes value 1 when real GDP growth is above the country-specific average) and all other variables are defined as in Equation 1 (note that the main effect of macroeconomic conditions is absorbed in the country-year fixed effects). In this set up, a negative value of δ, indicates that employment responds less to macroeconomic shocks (i.e., is more stable) in firms that have a relationship with a government owned bank.

Next, we explore the role of credit constraints by augmenting Equation 3 with a triple interaction aimed at assessing whether the way in which the relationship with a government-owned bank affects firm-level employment growth over the business cycle depends on the presence of credit constraints. Specifically, we estimate the following model:

$$EGR_{i(c)t} = \alpha_{ct} + GOB_{b(i)t}\left(\beta + \delta_1(M_{ct}) + \delta_2\left(CC_{i(c)t}\right) + \delta_3\left(CC_{i(c)t} \times M_{ct}\right)\right) \quad (4)$$
$$+\delta_4\left(CC_{i(c)t} \times M_{ct}\right) + X_{b(i)t}\Gamma + W_{i(c)t}\Phi + \varepsilon_{ct}$$

In Equation 4, $CC_{i(c)t}$ is a dummy that takes value one if the firm is credit constrained and all the other variables are defined as above.[8] In this set up, δ_1 measures how having a relationship with a government-owned bank affects the sensitivity of employment growth to macroeconomic shocks for unconstrained firms, δ_2 measures how having a relationship with government-owned banks affect employment growth for credit constrained firms when $M_{ct} = 0$, and δ_2 measures the presence of credit constraints affects the correlation between business cycle conditions and employment growth for firms that do not have a relationship with a government-owned bank.

Our variable of interest is the triple interaction $GOB_{b(i)t} \times CC_{i(c)t} \times M_{ct}$ and its associated coefficient δ_3. A negative value of δ_3 would indicate that having a relationship with a government-owned bank is particularly helpful in reducing the correlation between business cycle conditions and employment fluctuations for credit constrained firms.

[8] The dummy is built using the credit constraint index described in the previous section. We use a dummy instead of the continuous variables of the previous section for interpretation purposes.

Panel data estimations

For a subset of firms, we also have a panel dimensions (i.e., we have the same firms observed in different waves of the survey). We use this subsample of firms to estimate a variant of Equation 4.[9] Formally:

$$EGR_{i(c)t} = \alpha_{ct} + \gamma_i + GOB_{b(i)t}\left(\beta + \delta_1(M_{ct}) + \delta_3\left(CC_{i(c)t} \times M_{ct}\right)\right) + \\ +\delta_4\left(CC_{i(c)t} \times M_{ct}\right) + X_{b(i)t}\Gamma + W_{i(c)t}\Phi + \varepsilon_{ct} \quad (5)$$

Where γ_i are firm fixed effects and all other variables are as in Equation 4. Note that Equation 5 does not include the $CC_{i(c)t} \times GOB_{i(c)t}$ interaction because this variable has limited within-firm variation. Also, the matrix of firm-specific controls $W_{i(c)t}$ does not include firm-level time-invariant variables such as age, female ownership, and state ownership.[10]

4. Results

We start by estimating Equation 1 by using the credit constraint indicator as dependent variable. When we do not control for bank-specific characteristics, we find a positive but not statistically significant correlation between credit constrained firms and government-owned banks (column 1, Table 11). This result is likely to be downward biased because government-owned banks tend to be large and large banks are more likely to deal with large firms. Large firms, in turn, are less likely to be credit constrained. When we augment the model with bank-level characteristics (size and profitability), the correlation between the presence of credit constraints and the relationship with a government-owned bank increases in size and becomes statistically significant (column 2). As expected, we also find that bank size (as proxied by log total assets) is negatively correlated with the probability of having a banking relationship with a credit constrained firm.

[9] A model with firm fixed effects is not suitable for estimating equations 1 and 2 because firms rarely change banks. Hence, the firm fixed effects would be collinear with the dummy that identifies a relationship with a government-owned bank (IQ_{ct} has also limited time variability). The model with firm fixed effects, instead, works well in Equation 4 because our main variable of interest is an interaction with macroeconomic conditions which have substantial over time variation. Note that certain firms are observed in three waves of the survey but we could identify the bank only in two waves and certain firms are observed in two waves, but we can identify the bank only in one wave. We assume that these firms did not change banks.

[10] While firm age varies over time, this variable is collinear with the joint presence of firm and year fixed effects.

Next, we augment the model with the interaction between the presence of a relationship with government-owned bank and country-level institutional quality (i.e., Equation 2). When we measure institutional quality with control of corruption, we find that in countries with high institutional quality, credit constrained firms are always more likely to bank with government-owned institutions (columns 3 and 4 of Table 11). This not the case for countries with low levels of institutional quality (if anything $\beta + \delta < 0$, albeit not statistically significant). We find similar results when we measure institutional quality with rule of law (columns 5 and 6), and government effectiveness (columns 7 and 8).

When we estimate regressions similar to those reported in Table 11 but focus on whether the firms invest, we find that firms that have a relationship with a government-owned bank are more likely to invest (columns 1-2 of Table 12), but that this correlation does not depend on institutional quality (columns 3-8). We also find no evidence that government-owned banks target firms that innovate (Table 13) and firms that invest in green activities (Table 14).

Taken together, the results of Tables 11-14 suggest that government-owned banks target credit constrained firms and that this is particularly the case in countries with good institutions. We also find that government-owned banks target firms that invest (independently from institutional quality). However, there is no evidence that government-owned banks target firms that innovate or that are more engaged in green activities.

We now move to testing whether government-owned banks contribute to reducing the correlation between GDP growth and employment growth. We start by estimating Equation 3 without the interaction $GOB_{b(i)t} \times M_{ct}$. Column 1 of Table 15 shows that firms that have a relationship with a government-owned bank do not have an average level of employment growth which is significantly different from the average level of employment growth of firms that do not bank with government-owned institutions.

Column 2 estimates Equation 3 by setting M equal to GDP growth. It shows that the interactive effect is negative and statistically significant. This indicates that employment growth in firms that have a relationship with a government-owned bank reacts less to the business cycle with respect to firms that do not borrow from government owned banks. We find the same result if we the continue measure of GDP growth with a dummy substitute for GDP growth that takes value one when growth is above the country-specific average (column 3).

While we control for several firm characteristics such as size, age, and ownership, some of these characteristics are likely to be jointly correlated with employment volatility and the presence of relationship with a state-owned bank. For instance, it is plausible that employment reacts less to the business cycle in large firms (or state-owned firms). We also saw that large firms (and state-owned firms) are more likely to bank with government-owned banks. It is thus possible that δ in Equation 3 captures the effect of firm size or firm ownership. We check if this is the case by augmenting Equation 3 with the interaction of macroeconomic conditions with firm size, age, and ownership. First one variable at time and then all together. Table 16 shows that our results are robust to including these interactions.

Next, we explore the role of credit constraints (columns 4 and 5 of Table 15). There are two notable results here. First, we find that credit constrained firms tend to have higher average employment growth when they bank with a government owned bank (i.e., the estimate of δ_2 in Equation 4 is both positive and statistically significant). Second, we find that the triple interaction is both negative and statistically significant. This indicates that the employment stabilizing role of state-owned banks is particularly strong for credit constrained firms.

Our results are also robust to using the firm fixed effects model described in Equation 5 (column 6 of Table 15). Even though the sample is now much smaller (1,700 observations instead of more than 13,000 observations), the estimate of the coefficient attached to the triple interaction remains negative, statistically significant, and with a magnitude close to that of column 4.

Regional Context – Middle East and North Africa

Are the results presented so far robust to different geographic regions, and to what extent are they applicable to the Middle East and North Africa (MENA) region? To answer this question, we replicate the analysis of the previous section, first by considering the subsample of firms located in the MENA region only, and then by replicating the analysis on the full sample, with the addition of an interaction between the state-owned bank variable and a region-specific dummy that takes the value 1 when the firm is in the MENA region. Our analysis suggests that government-owned banks in the MENA region do not target credit constrained firms or firms that innovate, invest or that are more engaged in green activities, and that government-owned banks in the MENA region do not play a role in stabilizing employment.[11]

[11] Detailed results for this section are reported in the ANNEX.

5. Conclusions

There are diametrically opposed views on the role of government-owned banks. Those who subscribe to the development view maintain that these institutions can play a useful role by alleviating credit constraints and lending to firms that generate positive externalities. Those who subscribe to the political view maintain that government-owned banks only exist to provide political rent. While there is ample evidence that politics does play a role in the activities of government-owned banks, government-owned banks could still play a useful role despite these political failures (Rodrik, 2012). Assessing this possible role is, however, complicated by the presence of reverse causality.

In this paper, we use a unique dataset that matches firm-level information with bank-level information covering 36 emerging and developing economies over 2012-20 to assess if government-owned banks achieve their mandate by targeting credit constrained firms or firms that are more likely to generate positive externalities. We find mixed evidence that government-owned banks play a useful role. On the one hand, we find that government-owned banks target credit constrained firms, but only when they operate in countries with good institutions. We also find that state-owned banks are especially useful for credit constrained firms during recessions, when credit is likely to be particularly scarce. On the other hand, we find no evidence that government-owned banks are more likely to lend to firms that innovate or that engage in green activities.

These results suggest that government-owned banks are effective in terms of the quantitative allocation of credit because they do lend to firms that tend to lack access. However, government-owned banks are less effective in the qualitative allocation of credit as they do not seem to target firms that generate positive externalities. We also find that there is substantial regional heterogeneity and that state-owned banks are less likely to play a useful role in the Middle East and North Africa. In future work, it would be interesting to further explore the role of bank heterogeneity both within and across countries.

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Tables

Table 1: Enterprise Surveys – Countries and Years Surveyed
(bold denotes presence of question "Which Bank Provided the Most Recent Line of Credit or Loan?")

Region	Country	Survey Years	Region	Country	Survey Years
Europe	Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Moldova, Montenegro, North Macedonia, Poland, Romania, Serbia, Slovak Republic, Slovenia	2009, **2013, 2019**	Asia	Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia	2009, **2013, 2019**
				Georgia, Tajikistan, Uzbekistan	2008, **2013, 2019**
	Belarus	2008, **2013, 2018**			
	Türkiye, Ukraine	2008, **2013, 2019**		Armenia	2009, **2013, 2020**
	Russian Federation	2009, **2012, 2019**			
			Middle East and North Africa	Egypt, Arab Rep.	**2013**, 2016, **2020**
	Cyprus, Italy, Malta, Portugal	**2019**			
	Greece	**2018**		Tunisia	**2013, 2020**
				Jordan, Lebanon, Morocco, West Bank and Gaza	**2013, 2019**

Table 2: Summary Statistics, Firm Characteristics, Full Sample

	N. Obs.	Mean	St. Dev.	p10	p25	Median	p75	p90
Ownership type (foreign vs. domestic)	62,069	8	27	0	0	0	0	0
Exporter (exporters vs. non exporters)	62,068	18	38	0	0	0	0	100
size	62,871	2	1	1	1	2	2	3
Access to finance	56,886	13	34	0	0	0	0	100
Number of years firms operated without formal registration	62,161	1	5	0	0	0	0	0
Value of collateral needed for a loan (% of the loan amount)	10,419	167	124	58	100	133	200	300
Proportion of loans requiring collateral (%)	21,547	76	43	0	100	100	100	100
Proportion of working capital financed by external sources (%)	48,131	22	31	0	0	0	40	75
Proportion of permanent full-time workers that are female	58,744	36	31	0	11	29	60	86
Proportion of working capital financed by banks (%)	48,131	10	21	0	0	0	10	40
Number of workers	61,959	75	176	6	10	21	65	180
Number of permanent full-time workers	61,959	74	176	5	9	20	60	180
Proportion of temporary workers (out of all workers)	58,412	3	10	0	0	0	0	9
Proportion of permanent workers (out of all workers)	58,412	97	10	91	100	100	100	100
Age (years)	61,728	18	14	5	9	15	22	33
Proportion of government/state ownership in a firm (%)	62,081	1	8	0	0	0	0	0
Proportion of private domestic ownership in a firm (%)	62,081	91	26	65	100	100	100	100
Proportion of private foreign ownership in a firm (%)	62,081	6	22	0	0	0	0	0
Legal status of the firm	62,588	3	1	2	2	2	3	4
Biggest Obstacle	56,886	9	5	1	5	11	13	14
Size Of Locality	59,081	3	1	2	2	3	5	5
Establishment Is Part of a Large Firm	61,638	2	0	1	2	2	2	2
Legal Status of The Firm	62,870	3	1	2	2	2	3	4
How Many Competitors Did This Establishment Main Product/Product Line Face?	3,962	3	3	1	3	4	4	4
Competitors For the Main Product/Service in The Main Market	48,278	4	75	-4	-4	-4	5	10
How Much of An Obstacle: Practices of Competitors in Informal Sector	62,869	1	3	0	0	1	2	3
Proportion Of Working Capital Financed from Private Commercial Banks	1,975	13	24	0	0	0	20	50
Establishment Has a Line of Credit or Loan From A Financial Institution?	62,867	1	1	1	1	2	2	2
How Much of An Obstacle: Access to Finance	62,867	1	2	0	0	1	2	3

Table 3: Summary Statistics, Firm Characteristics, Matched Sample – Private Banks

	N. Obs.	Mean	St. Dev.	p10	p25	Median	p75	p90	No. countries
Ownership type (foreign vs. domestic)	9,744	7.9	26.9	0	0	0	0	0	41
Exporter (exporters vs. non exporters)	9,720	26.1	43.9	0	0	0	100	100	41
size	9,860	1.8	0.8	1	1	2	2	3	41
Access to finance	9,129	14.1	34.8	0	0	0	0	100	41
Number of years firms operated without formal registration	9,785	0.4	4.1	0	0	0	0	0	41
Value of collateral needed for a loan (% of the loan amount)	4,187	188.3	137.0	89.2	100.0	150.0	211.3	333.3	41
Proportion of loans requiring collateral (%)	9,623	74.8	43.4	0	0	100	100	100	41
Proportion of working capital financed by external sources (%)	9,402	39.2	32.3	0	10	30	60	90	41
Proportion of permanent full-time workers that are female	9,229	37.7	29.6	5	13.5	30	60	85	41
Proportion of working capital financed by banks (%)	9,402	25.5	26.7	0	0	20	40	60	41
Number of workers	9,713	80.6	154.4	6.8	11.7	27.0	85.0	200.0	41
Number of permanent full-time workers	9,713	78.6	153.2	6	10	25	80	198	41
Proportion of temporary workers (out of all workers)	9,203	3.8	10.9	0	0	0	0.7	11.1	41
Proportion of permanent workers (out of all workers)	9,203	96.2	10.9	88.9	99.3	100	100	100	41
Age (years)	9,717	19.6	14.5	6	11	17	24	34	41
Proportion of government/state ownership in a firm (%)	9,761	0.4	5.3	0	0	0	0	0	41
Proportion of private domestic ownership in a firm (%)	9,761	93.0	23.2	97	100	100	100	100	41
Proportion of private foreign ownership in a firm (%)	9,761	5.5	20.8	0	0	0	0	0	41
Legal status of the firm	9,766	2.5	1.0	2	2	2	3	4	41
Biggest Obstacle	9,129	9.1	4.6	1	6	11	13	14	41
Size Of Locality	9,023	3.8	1.2	2	3	4	5	5	41
Establishment Is Part of a Large Firm	9,828	1.8	0.4	1	2	2	2	2	41
Legal Status of The Firm	9,860	2.4	1.5	2	2	2	3	4	41
Competitors For the Main Product/Service in The Main Market	9,281	8.2	99.8	-4	-4	2	6	15	41
How Much of An Obstacle: Practices of Competitors in Informal Sector	9,860	0.7	2.6	0	0	1	2	3	41
Proportion Of Working Capital Financed from Private Commercial Banks	555	30.4	29.8	0	0	25	50	70	4
Establishment Has a Line of Credit or Loan from A Financial Institution?	9,860	1.0	0.0	1	1	1	1	1	41
How Much of An Obstacle: Access to Finance	9,860	1.3	1.6	0	0	1	2	3	41

Table 4: Summary Statistics, Firm Characteristics, Matched Sample – State-Owned Banks

	N. Obs.	Mean	St. Dev.	p10	p25	Median	p75	p90	No. countries
Ownership type (foreign vs. domestic)	2,960	5.6	22.9	0	0	0	0	0	37
Exporter (exporters vs. non exporters)	2,962	21.6	41.1	0	0	0	0	100	37
size	2,992	1.9	0.8	1	1	2	3	3	37
Access to finance	2,695	17.4	37.9	0	0	0	0	100	35
Number of years firms operated without formal registration	2,963	0.6	5.6	0	0	0	0	0	37
Value of collateral needed for a loan (% of the loan amount)	1,269	183.0	129.7	88.9	100.0	150.0	200.0	327.3	33
Proportion of loans requiring collateral (%)	2,904	74.1	43.8	0	0	100	100	100	36
Proportion of working capital financed by external sources (%)	2,869	39.1	31.1	0	10	35	60	90	37
Proportion of permanent full-time workers that are female	2,755	36.6	29.7	2.5	12.5	29.5	57	85.5	37
Proportion of working capital financed by banks (%)	2,869	25.7	26.0	0	0	20	40	60	37
Number of workers	2,933	108.3	224.3	7	12.3	31	104	267	37
Number of permanent full-time workers	2,933	107.1	224.0	6	12	30	103	265	37
Proportion of temporary workers (out of all workers)	2,747	2.6	8.2	0	0	0	0	7.1	37
Proportion of permanent workers (out of all workers)	2,747	97.4	8.2	92.9	100	100	100	100	37
Age (years)	2,952	20.4	16.3	6	10	17	25	40	37
Proportion of government/state ownership in a firm (%)	2,957	3.1	15.3	0	0	0	0	0	37
Proportion of private domestic ownership in a firm (%)	2,957	92.3	23.8	75	100	100	100	100	37
Proportion of private foreign ownership in a firm (%)	2,957	3.4	15.7	0	0	0	0	0	37
Legal status of the firm	2,987	2.4	1.0	1	2	2	3	4	37
Biggest Obstacle	2,695	9.0	4.9	1	4	11	14	14	35
Size Of Locality	2,880	3.6	1.2	2	3	4	5	5	36
Establishment Is Part of a Large Firm	2,954	1.8	0.4	1	2	2	2	2	37
Legal Status of The Firm	2,992	2.3	1.1	1	2	2	3	4	37
Competitors For the Main Product/Service in The Main Market	2,857	5.2	46.7	-4	-4	1	6	12	35
How Much of An Obstacle: Practices of Competitors in Informal Sector	2,992	0.4	2.8	0	0	0	2	3	37
Proportion Of Working Capital Financed from Private Commercial Banks	5	29.0	27.9	0	20	20	30	75	3
Establishment Has a Line of Credit or Loan from A Financial Institution?	2,992	1.0	0.0	1	1	1	1	1	37
How Much of An Obstacle: Access to Finance	2,992	1.4	1.6	0	0	1	2	3	37

Table 5: Summary Statistics, Bank Characteristics, Matched Sample

	N. Obs.	Mean	St. Dev.	p10	p25	Median	p75	p90	No. countries
Ownership	12,852	17	34	0	0	0	5	97	539
Return on Assets	12,852	1	2	0	1	1	2	3	539
Total Assets (USD Millions)	12,852	54,136	152,276	705	2,766	10,835	50,583	97,149	539
Customer Deposits over Assets (%)	106	44	18	25	42	43	44	63	17
Loan to Assets Ratio (%)	12,844	62	16	38	54	64	71	77	534
Interest Expenditure over Assets (%)	12,837	2	2	0	1	2	4	5	534
Interest Income over Assets (%)	12,839	6	3	2	3	5	8	10	536
Net Interest Margin (%)	12,832	4	2	2	3	4	5	6	534
Non-Interest Income over Assets (%)	108	2	3	1	1	1	2	2	19
NPL over Loans (%)	12,212	9	11	2	3	5	10	22	492
Provisions over Total Assets (%)	12,349	1	2	0	0	0	1	2	505
Government Bonds over Assets (%)	11,435	13	9	2	6	11	19	26	429
Tier 1 Capital Ratio	5,052	16	6	10	13	16	19	22	152

Table 6: Summary Statistics, Banks, Matched Sample – Private Banks

	N. Obs.	Mean	St. Dev.	p10	p25	Median	p75	p90	No. countries
Ownership	9,860	0	2	0	0	0	0	0	459
Return on Assets	9,860	1.1	2	0	1	1	2	2	459
Total Assets (USD Millions)	9,860	40,996	157,501	601	2,206	7,639	27,779	64,599	459
Customer Deposits over Assets (%)	0	0	0	0	0	0	0	0	0
Loan to Assets Ratio (%)	9,853	61	16	40	54	63	71	77	455
Interest Expenditure over Assets (%)	9,846	2	2	0	1	2	3	5	455
Interest Income over Assets (%)	9,847	5	3	2	3	5	8	10	456
Net Interest Margin (%)	9,845	4	2	2	3	4	5	7	455
Non-Interest Income over Assets (%)	0	0	0	0	0	0	0	0	0
NPL over Loans (%)	9,382	9	10	2	3	5	10	22	420
Provisions over Total Assets (%)	9,702	1	1	0	0	0	1	2	429
Government Bonds over Assets (%)	9,026	12	8	3	6	11	18	24	360
Tier 1 Capital Ratio	4,061	17	6	10	13	16	20	23	133

Table 7: Summary Statistics, Banks, Matched Sample – State-owned Banks

	N. Obs.	Mean	St. Dev.	p10	p25	Median	p75	p90	No. countries
Ownership	2,992	73	29	29	52	83	100	100	85
Return on Assets	2,992	.5	3	0	1	1	2	3	85
Total Assets (USD Millions)	2,992	97,437	124,158	2,493	5,130	52,209	109,387	326,500	85
Customer Deposits over Assets (%)	106	44	18	25	42	43	44	63	17
Loan to Assets Ratio (%)	2,991	64	17	38	54	66	77	86	84
Interest Expenditure over Assets (%)	2,991	3	2	1	1	3	5	6	84
Interest Income over Assets (%)	2,992	6	3	2	4	7	8	9	85
Net Interest Margin (%)	2,987	4	2	2	3	4	5	6	84
Non-Interest Income over Assets (%)	108	2	3	1	1	1	2	2	19
NPL over Loans (%)	2,830	10	12	2	3	5	10	30	76
Provisions over Total Assets (%)	2,647	1	2	0	0	0	1	2	81
Government Bonds over Assets (%)	2,409	16	11	1	4	15	22	30	74
Tier 1 Capital Ratio	991	16	5	9	13	15	17	20	22

Table 8: Summary statistics - credit constraint index and its components before and after imputation

	N. Obs	Mean	Std. dev.	Min	Max
Before imputation					
Is access to finance an obstacle?	15,694	0.47	0.50	0	1
Is access to finance the main obstacle faced by the firm?	14,509	0.15	0.36	0	1
-100*Proportion of investments financed by banks	7,364	-26.71	34.92	-100	0
Is the firm credit constrained	12,820	-3.30	0.76	-4	-1
The firm is partially credit constrained	13,873	-0.16	0.37	-1	0
Post imputation					
Is access to finance an obstacle?	16,000	0.47	0.50	-0.93	1.83
Is access to finance the main obstacle faced by the firm?	16,000	0.15	0.36	-1.05	1.34
-100*Proportion of investments financed by banks	16,000	-25.61	35.15	-163.23	96.55
Is the firm credit constrained	16,000	-3.31	0.74	-5.61	-0.93
The firm is partially credit constrained	16,000	-0.16	0.37	-1.40	1.07
Latent measure of Credit Constraint	**16,000**	**0.00**	**0.89**	**-3.10**	**2.90**

Table 9: Summary Statistics - innovation index and its components before and after imputation

	N. Obs	Mean	Std. dev.	Min	Max
Before imputation					
Has the firm introduced new products/services?	15,845	0.328	0.469	0.000	1.000
Has the firm introduced new methods of production	1,496	0.309	0.462	0.000	1.000
Has the firm introduced new inputs	1,493	0.192	0.394	0.000	1.000
Has the firms Introduced new processes	15,701	0.261	0.439	0.000	1.000
Did the firms spend on formal R&D	1,489	0.203	0.403	0.000	1.000
After Imputation					
Has the firm introduced new products/services?	10,808	0.005	0.073	-1.149	1.725
Has the firm introduced new methods of production	16,000	0.209	0.407	0.000	1.000
Has the firm introduced new inputs	16,000	0.123	0.328	0.000	1.000
Has the firms Introduced new processes	16,000	0.261	0.439	-0.758	1.276
Did the firms spend on formal R&D	16,000	0.172	0.377	0.000	1.000
Latent measure of innovation	**10,808**	**0.00**	**0.875**	**-1.254**	**4.078**

Table 10: Summary Statistics - green activities index and its components before and after imputation

	N. Obs.	Mean	Std. dev.	Min	Max
Before imputation					
Monitor Energy Consumption	8,445	0.62	0.49	0.00	1.00
Strategic Objectives Mention Env. or Climate Change	7,289	0.22	0.41	0.00	1.00
Manager Responsible for Env. or Climate Issues	7,298	0.15	0.36	0.00	1.00
Monitor Water Usage	4,683	0.48	0.50	0.00	1.00
Targets on Energy Consumption	8,363	0.32	0.47	0.00	1.00
Targets for CO2 Emissions	8,330	0.07	0.26	0.00	1.00
After Imputation					
Monitor Energy Consumption	8,445	0.62	0.49	0.00	1.00
Strategic Objectives Mention Env. or Climate Change	16,000	0.22	0.41	-1.07	1.71
Manager Responsible for Env. or Climate Issues	16,000	0.15	0.36	-1.50	1.39
Monitor Water Usage	16,000	0.46	0.50	-1.21	2.55
Targets on Energy Consumption	16,000	0.33	0.47	-1.51	2.00
Targets for CO2 Emissions	16,000	0.08	0.26	-0.84	1.08
Latent measure of green activities	**8,445**	**0.00**	**0.85**	**-1.94**	**2.78**

Table 11: Dependent variable – The firm is credit constrained

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOB	0.1699	0.2069*	0.605**	0.579**	0.610**	0.578**	0.533**	0.512*
	(0.1133)	(0.1144)	(0.287)	(0.286)	(0.290)	(0.288)	(0.271)	(0.268)
GOBx(1-IQ)			-1.029*	-0.897	-1.061*	-0.912	-0.974*	-0.824
			(0.544)	(0.547)	(0.576)	(0.574)	(0.518)	(0.508)
ROA		0.0201		0.006		0.008		0.010
		(0.0290)		(0.028)		(0.028)		(0.029)
LTA		-0.0750*		-0.055		-0.059		-0.068*
		(0.0395)		(0.039)		(0.039)		(0.039)
ln(SIZE)	-0.0190	-0.0236	-0.024	-0.026	-0.023	-0.026	-0.021	-0.025
	(0.0345)	(0.0335)	(0.034)	(0.033)	(0.034)	(0.033)	(0.034)	(0.033)
ln(AGE)	0.1476***	0.1512***	0.152***	0.154***	0.152***	0.154***	0.150***	0.153***
	(0.0569)	(0.0554)	(0.057)	(0.056)	(0.057)	(0.056)	(0.057)	(0.055)
SOE	-0.1295	-0.1036	-0.038	-0.036	-0.001	-0.003	-0.043	-0.038
	(0.1644)	(0.1610)	(0.164)	(0.164)	(0.176)	(0.175)	(0.172)	(0.168)
FEM	0.0946	0.1007	0.111	0.113	0.108	0.111	0.100	0.104
	(0.1091)	(0.1086)	(0.110)	(0.109)	(0.109)	(0.109)	(0.109)	(0.109)
Const	-0.3456*	0.2480	-0.341*	0.101	-0.342*	0.124	-0.343*	0.201
	(0.1874)	(0.3527)	(0.187)	(0.346)	(0.187)	(0.345)	(0.187)	(0.350)
N. Obs	14,656	14,656	14,656	14,656	14,656	14,656	14,656	14,656
R2	0.0821	0.0871	0.091	0.093	0.089	0.092	0.085	0.089
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IQ is			Control of Corruption		Rule of Law		Government Effectiveness	

*** p<0.01; ** p<0.05; * p<0.1

Table 12: Dependent variable – The firm invests

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SOB	0.1571**	0.1719**	0.188	0.152	0.166	0.128	0.281*	0.248
	(0.0700)	(0.0723)	(0.176)	(0.176)	(0.177)	(0.176)	(0.170)	(0.168)
SOBx(1-IQ)			-0.073	0.048	-0.021	0.108	-0.332	-0.206
			(0.323)	(0.333)	(0.342)	(0.349)	(0.322)	(0.320)
ROA		0.0270		0.028		0.028		0.025
		(0.0189)		(0.019)		(0.019)		(0.019)
LTA		-0.0362		-0.037		-0.038		-0.035
		(0.0285)		(0.030)		(0.029)		(0.029)
ln(SIZE)	-0.1225***	-0.1252***	-0.123***	-0.125***	-0.123***	-0.125***	-0.123***	-0.125***
	(0.0230)	(0.0228)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
ln(AGE)	0.0348	0.0368	0.035	0.037	0.035	0.037	0.036	0.037
	(0.0402)	(0.0402)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
SOE	-0.0197	0.0030	-0.013	-0.001	-0.017	-0.009	0.010	0.020
	(0.1032)	(0.1034)	(0.100)	(0.101)	(0.102)	(0.102)	(0.101)	(0.102)
FEM	-0.1173*	-0.1134	-0.116*	-0.114	-0.117*	-0.115	-0.115*	-0.112
	(0.0693)	(0.0692)	(0.070)	(0.070)	(0.070)	(0.070)	(0.069)	(0.069)
Const	1.9873***	2.2671***	1.988***	2.275***	1.987***	2.282***	1.988***	2.255***
	(0.1199)	(0.2538)	(0.120)	(0.265)	(0.120)	(0.263)	(0.120)	(0.256)
N. Obs	14,656	14,656	14,656	14,656	14,656	14,656	14,656	14,656
R2	0.0642	0.0666	0.064	0.067	0.064	0.067	0.065	0.067
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IQ is			Control of Corruption		Rule of Law		Government Effectiveness	

*** p<0.01; ** p<0.05; * p<0.1

Table 13: Dependent variable – The firm innovates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOB	-0.1327	-0.1044	0.077	0.090	0.153	0.168	0.057	0.096
	(0.0813)	(0.0703)	(0.213)	(0.220)	(0.226)	(0.233)	(0.215)	(0.212)
GOBx(1-IQ)			-0.483	-0.460	-0.675	-0.657	-0.504	-0.534
			(0.430)	(0.470)	(0.481)	(0.519)	(0.468)	(0.488)
ROA		-0.0263		-0.035		-0.037		-0.034
		(0.0244)		(0.024)		(0.024)		(0.023)
LTA		-0.0436		-0.033		-0.031		-0.039
		(0.0314)		(0.036)		(0.035)		(0.033)
ln(SIZE)	0.0461	0.0443	0.044	0.043	0.044	0.043	0.045	0.044
	(0.0342)	(0.0338)	(0.035)	(0.034)	(0.035)	(0.034)	(0.035)	(0.034)
ln(AGE)	0.0634**	0.0640**	0.064**	0.064**	0.064**	0.064**	0.064**	0.064**
	(0.0281)	(0.0277)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.027)
SOE	-0.2431	-0.2557*	-0.205	-0.229	-0.159	-0.185	-0.193	-0.210
	(0.1506)	(0.1553)	(0.157)	(0.160)	(0.163)	(0.166)	(0.159)	(0.162)
FEM	0.0421	0.0457	0.050	0.051	0.051	0.052	0.044	0.047
	(0.0837)	(0.0836)	(0.083)	(0.083)	(0.083)	(0.083)	(0.083)	(0.084)
Const	-0.5738***	-0.2077	-0.567***	-0.288	-0.567***	-0.303	-0.571***	-0.238
	(0.1259)	(0.2491)	(0.128)	(0.271)	(0.127)	(0.267)	(0.127)	(0.254)
N. Obs	11,127	11,127	11,127	11,127	11,127	11,127	11,127	11,127
R2	0.0889	0.0925	0.092	0.095	0.094	0.097	0.090	0.094
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IQ is			Control of Corruption		Rule of Law		Government Effectiveness	

*** p<0.01; ** p<0.05; * p<0.1

Table 14: Dependent variable – The firm is green

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GOB	0.0610	0.0403	-0.028	-0.070	-0.058	-0.106	-0.028	-0.097
	(0.1203)	(0.1207)	(0.269)	(0.282)	(0.285)	(0.300)	(0.342)	(0.357)
GOBx(1-IQ)			0.217	0.275	0.290	0.367	0.247	0.382
			(0.414)	(0.458)	(0.461)	(0.511)	(0.661)	(0.711)
ROA		0.0558		0.062		0.063*		0.061
		(0.0367)		(0.038)		(0.038)		(0.038)
LTA		0.0097		0.001		-0.001		0.005
		(0.0389)		(0.043)		(0.042)		(0.040)
ln(SIZE)	0.2724***	0.2713***	0.274***	0.272***	0.274***	0.272***	0.273***	0.272***
	(0.0502)	(0.0501)	(0.050)	(0.050)	(0.050)	(0.050)	(0.050)	(0.050)
ln(AGE)	0.0732	0.0731	0.072	0.072	0.072	0.072	0.073	0.073
	(0.0506)	(0.0506)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)
SOE	-0.0418	0.0116	-0.068	-0.012	-0.089	-0.036	-0.066	-0.019
	(0.2735)	(0.2817)	(0.273)	(0.282)	(0.273)	(0.279)	(0.267)	(0.273)
FEM	0.0597	0.0616	0.056	0.058	0.056	0.058	0.058	0.060
	(0.1049)	(0.1048)	(0.106)	(0.106)	(0.106)	(0.106)	(0.105)	(0.105)
Const	-0.8822***	-1.0625***	-0.897***	-1.025***	-0.926***	-1.052***	-0.912***	-1.085***
	(0.2274)	(0.3754)	(0.221)	(0.396)	(0.218)	(0.378)	(0.215)	(0.365)
N. Obs	9,802	9,802	9,802	9,802	9,802	9,802	9,802	9,802
R2	0.1480	0.1499	0.148	0.151	0.149	0.151	0.148	0.150
CY FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IQ is			Control of Corruption		Rule of Law		Government Effectiveness	

*** p<0.01; ** p<0.05; * p<0.1

Table 15: Dependent variable – Employment Growth

	(1)	(2)	(3)	(4)	(5)	(6)
GOB	-0.664	-0.185	4.251	-0.179	3.678	-0.647
	(1.256)	(1.281)	(2.801)	(1.226)	(2.695)	(1.757)
GOBxM		-1.143*	-6.284**	-0.414	-2.997	0.712
		(0.603)	(3.200)	(0.521)	(2.902)	(0.581)
GOBxMxCC				-1.935*	-6.336*	-1.451*
				(1.158)	(3.616)	(0.775)
GOBxCC				1.590**	2.737**	
				(0.810)	(1.305)	
MxCC				0.537	1.689	0.374
				(0.589)	(2.465)	(0.435)
ln(SIZE)	80.391***	80.354***	80.370***	80.267***	80.229***	79.624***
	(2.856)	(2.832)	(2.785)	(2.838)	(2.786)	(2.982)
ln(AGE)	0.555	0.483	0.384	0.379	0.161	
	(0.863)	(0.850)	(0.838)	(0.835)	(0.829)	
SOE	-0.279	-0.349	-0.187	-0.357	-0.591	
	(1.798)	(1.821)	(1.825)	(1.835)	(1.832)	
$Ln(empl_{t-1})$	-80.369***	-80.308***	-80.278***	-80.179***	-80.043***	-80.657***
	(2.823)	(2.810)	(2.782)	(2.824)	(2.788)	(3.290)
FEM	1.855**	1.771**	1.686**	1.740**	1.630**	
	(0.883)	(0.865)	(0.849)	(0.835)	(0.808)	
Constant	-0.847	-0.734	-0.656	0.318	0.372	0.786
	(2.902)	(2.910)	(2.923)	(2.923)	(2.949)	(5.029)
Observations	13,753	13,492	13,492	13,492	13,492	1,736
R-squared	0.780	0.781	0.782	0.783	0.785	0.913
CY FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	No	No	No	Yes
M is		GDP Growth	Good Times Dummy	GDP Growth	Good Times Dummy	GDP Growth

*** p<0.01; ** p<0.05; * p<0.1

Table 16: Dependent variable – Employment Growth

	(1)	(2)	(3)	(4)	(5)
GOB	-0.204	-0.193	-0.185	-0.191	-0.228
	(1.276)	(1.263)	(1.281)	(1.266)	(1.241)
GOBxM	-1.130*	-1.138*	-1.143*	-1.139*	-1.117*

	(0.598)	(0.587)	(0.603)	(0.597)	(0.573)
ln(SIZE)xM	0.242				0.264
	(0.182)				(0.205)
ln(AGE)xM		-0.064			-0.163
		(0.422)			(0.459)
SOExM			-0.391		-0.676
			(1.273)		(1.206)
FEMxM				-0.077	-0.023
				(0.449)	(0.461)
ln(SIZE)	80.351***	80.352***	80.354***	80.356***	80.349***
	(2.824)	(2.835)	(2.832)	(2.829)	(2.822)
ln(AGE)	0.465	0.510	0.483	0.485	0.532
	(0.844)	(0.898)	(0.850)	(0.852)	(0.903)
SOE	-0.351	-0.358	-0.200	-0.347	-0.114
	(1.802)	(1.830)	(1.757)	(1.822)	(1.759)
$Ln(empl_{t-1})$	-80.343***	-80.307***	-80.308***	-80.309***	-80.346***
	(2.792)	(2.811)	(2.810)	(2.809)	(2.785)
FEM	1.765**	1.773**	1.771**	1.799**	1.781**
	(0.862)	(0.866)	(0.865)	(0.833)	(0.826)
Constant	-0.121	-0.913	-0.732	-0.748	-0.526
	(2.855)	(3.068)	(2.911)	(2.898)	(2.992)
Observations	13,492	13,492	13,492	13,492	13,492
R-squared	0.781	0.781	0.781	0.781	0.781
CY FE	Yes	Yes	Yes	Yes	Yes
M is	GDP Growth	GDP Growth	GDP Growth	GDP Growth	GDP Growth

*** p<0.01; ** p<0.05; * p<0.1

ANNEX – Regional Evidence

MENA

Credit constrained firms and government-owned banks

When we do not control for bank-specific characteristics, we find a positive but not statistically significant correlation between credit constrained firms and government-owned banks. The correlation between the presence of credit constraints and the relationship with a government-owned bank changes from positive to negative when we augment the model with bank-level characteristics (size and profitability) and country institutional quality but remains not statistically significant. As expected, we also find that bank size (as proxied by log total assets) is negatively correlated with the probability of having a banking relationship with a credit constrained firm. When we augment the model with the interaction between the presence of a relationship with government-owned bank and country-level institutional quality, we find that in countries with low levels of institutional quality credit constrained firms are more likely to bank with government-owned institutions, but these results too are not statistically significant.

Firms that invest and government-owned banks

We find that firms that have a relationship with a government-owned bank are less likely to invest, but this correlation is not statistically significant. Furthermore, this correlation does not depend on institutional quality. We find that state-owned enterprises and firms with higher profitability are less likely to invest, with the effect of state-ownership particularly strong and consistent across all model specifications.

Firms that innovate and invest in green activities and government-owned banks

We also find no evidence that government-owned banks target firms that innovate and firms that invest in green activities, but we find that firms that have a higher share of female employees (or female managers, to check) are less likely to innovate.

Employment growth and government-owned banks

We also find that firms that have a relationship with a government-owned bank have an average level of employment growth which is significantly lower than the average level of employment growth of firms that do not bank with government-owned institutions. When interacting state ownership with GDP growth, we find that this interaction is negative but not statistically significant. This indicates that employment growth in firms that have a relationship with a government-owned bank does not react less to the business cycle with respect to firms that do not borrow from government owned banks. This result is consistent to using a dummy substitute for GDP growth that takes the value one when GDP growth is above the country-specific average. Also, we don't find any statistically significant correlation between credit constrained firms who bank with state-owned banks and employment growth.

Table A- 1: Credit constrained firms and government-owned banks

VARIABLES	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO
SOB	0.1115	0.1205	0.027	-0.017	-0.231	-0.271	-0.143	-0.215
	(0.1936)	(0.2178)	(1.221)	(1.390)	(0.858)	(0.883)	(0.671)	(0.751)
INTER			0.124	0.195	0.564	0.637	0.357	0.452
			(1.952)	(2.122)	(1.423)	(1.422)	(0.978)	(1.025)
ROA		0.0010		-0.001		-0.002		-0.006
		(0.0412)		(0.047)		(0.042)		(0.044)
LTA		-0.0122		-0.013		-0.014		-0.014
		(0.0315)		(0.031)		(0.031)		(0.032)
lsize	-0.0821*	-0.0824*	-0.082*	-0.082*	-0.082*	-0.082*	-0.082*	-0.082*
	(0.0426)	(0.0430)	(0.042)	(0.043)	(0.043)	(0.043)	(0.042)	(0.043)
lage	0.0100	0.0105	0.010	0.010	0.008	0.009	0.008	0.008
	(0.0820)	(0.0823)	(0.083)	(0.084)	(0.082)	(0.082)	(0.082)	(0.083)
SOE	0.2156	0.2004	0.214	0.198	0.212	0.195	0.210	0.192
	(0.2147)	(0.2245)	(0.214)	(0.224)	(0.214)	(0.224)	(0.213)	(0.224)
FEM	0.0916	0.0862	0.092	0.087	0.098	0.093	0.096	0.091
	(0.1509)	(0.1529)	(0.151)	(0.153)	(0.150)	(0.152)	(0.151)	(0.153)
Constant	0.1894	0.3063	0.185	0.314	0.153	0.288	0.152	0.299
	(0.2524)	(0.4482)	(0.263)	(0.437)	(0.231)	(0.443)	(0.237)	(0.446)
Observations	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596
R-squared	0.0435	0.0437	0.043	0.044	0.044	0.044	0.044	0.044

Table A- 2: Firms that invest and government-owned banks

VARIABLES	INV	INV	INV	INV	INV	INV	INV	INV
SOB	-0.1208	-0.2144	0.537	0.229	-0.176	-0.424	-0.180	-0.567
	(0.1214)	(0.1471)	(0.607)	(0.706)	(0.982)	(1.001)	(0.634)	(0.679)
INTER			-0.964	-0.628	0.091	0.341	0.083	0.476
			(0.935)	(1.025)	(1.681)	(1.688)	(0.971)	(1.001)
ROA		-0.0438*		-0.036		-0.045*		-0.051**
		(0.0240)		(0.027)		(0.024)		(0.024)
LTA		0.0005		0.003		-0.000		-0.002
		(0.0243)		(0.024)		(0.024)		(0.024)
lsize	-0.0279	-0.0264	-0.028	-0.027	-0.028	-0.026	-0.028	-0.026
	(0.0315)	(0.0316)	(0.031)	(0.031)	(0.031)	(0.032)	(0.031)	(0.031)
lage	0.0247	0.0222	0.028	0.024	0.024	0.021	0.024	0.020
	(0.0559)	(0.0558)	(0.055)	(0.056)	(0.055)	(0.055)	(0.055)	(0.054)
SOE	-0.3959***	-0.3866***	-0.386***	-0.379**	-0.396***	-0.389***	-0.397***	-0.396***
	(0.1415)	(0.1484)	(0.143)	(0.149)	(0.140)	(0.147)	(0.140)	(0.146)
FEM	0.0231	0.0242	0.020	0.023	0.024	0.028	0.024	0.030
	(0.1030)	(0.1025)	(0.103)	(0.102)	(0.103)	(0.103)	(0.102)	(0.102)
Constant	1.5373***	1.6456***	1.570***	1.622***	1.531***	1.636***	1.529***	1.638***
	(0.2240)	(0.3260)	(0.219)	(0.327)	(0.237)	(0.334)	(0.234)	(0.329)
Observations	2,596	2,596	2,596	2,596	2,596	2,596	2,596	2,596
R-squared	0.0202	0.0225	0.022	0.023	0.020	0.023	0.020	0.023

Table A- 3: Firms that innovate and government-owned banks

VARIABLES	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV
SOB	-0.2327	-0.1937	0.148	0.294	1.570	1.702	1.015	1.364
	(0.2077)	(0.2397)	(0.728)	(0.975)	(1.629)	(1.711)	(1.327)	(1.657)
INTER			-0.548	-0.679	-2.969	-3.079	-1.736	-2.084
			(1.191)	(1.461)	(2.950)	(3.053)	(2.051)	(2.399)
ROA		0.0129		0.022		0.029		0.047
		(0.0366)		(0.044)		(0.038)		(0.054)
LTA		-0.0199		-0.016		-0.010		-0.006
		(0.0871)		(0.089)		(0.088)		(0.090)
lsize	-0.0217	-0.0232	-0.022	-0.024	-0.024	-0.027	-0.026	-0.030
	(0.0482)	(0.0489)	(0.049)	(0.050)	(0.048)	(0.049)	(0.050)	(0.052)
lage	-0.0146	-0.0135	-0.013	-0.012	-0.007	-0.006	-0.008	-0.005
	(0.0721)	(0.0717)	(0.071)	(0.071)	(0.068)	(0.068)	(0.068)	(0.068)
SOE	0.5357	0.5394	0.550	0.551	0.573	0.565	0.606	0.601
	(0.6922)	(0.6999)	(0.695)	(0.701)	(0.695)	(0.701)	(0.700)	(0.704)
FEM	-0.3773**	-0.3903**	-0.379**	-0.390**	-0.422**	-0.430**	-0.413**	-0.422**
	(0.1578)	(0.1758)	(0.159)	(0.175)	(0.183)	(0.193)	(0.181)	(0.189)
Constant	0.5492	0.7164	0.565	0.678	0.742	0.780	0.730	0.714
	(0.6066)	(1.1525)	(0.624)	(1.150)	(0.735)	(1.148)	(0.751)	(1.123)
Observations	2,117	2,117	2,117	2,117	2,117	2,117	2,117	2,117
R-squared	0.1194	0.1203	0.120	0.121	0.126	0.127	0.125	0.127

Table A- 4: firms that invest in green activities and government-owned banks

VARIABLES	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
SOB	0.1500	-0.2136	-0.277	-0.256	-0.312	-0.259	-0.604	-0.288
	(0.1305)	(0.1864)	(0.790)	(0.811)	(0.856)	(0.879)	(1.395)	(1.437)
INTER			0.581	0.059	0.816	0.082	1.056	0.106
			(1.081)	(1.128)	(1.519)	(1.585)	(1.968)	(2.053)
ROA		-0.3615**		-0.361**		-0.361**		-0.361**
		(0.1547)		(0.155)		(0.155)		(0.155)
LTA		-0.0900		-0.090		-0.090		-0.090
		(0.1017)		(0.102)		(0.102)		(0.102)
lsize	0.1145*	0.1261**	0.115*	0.126**	0.115*	0.126**	0.115*	0.126**
	(0.0611)	(0.0621)	(0.061)	(0.062)	(0.061)	(0.062)	(0.061)	(0.062)
lage	0.0204	0.0260	0.020	0.026	0.020	0.026	0.020	0.026
	(0.0952)	(0.0946)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)
SOE	-0.6658	-0.8934	-0.662	-0.893	-0.662	-0.893	-0.662	-0.893
	(0.7170)	(0.7310)	(0.723)	(0.731)	(0.723)	(0.731)	(0.723)	(0.731)
FEM	0.0713	0.1013	0.076	0.102	0.076	0.102	0.076	0.102
	(0.2343)	(0.1964)	(0.235)	(0.197)	(0.235)	(0.197)	(0.235)	(0.197)
Constant	-0.3893	0.7490	-0.389	0.750	-0.389	0.750	-0.389	0.750
	(0.3628)	(1.0581)	(0.363)	(1.059)	(0.363)	(1.059)	(0.363)	(1.059)
Observations	1,491	1,491	1,491	1,491	1,491	1,491	1,491	1,491

R-squared	0.2109	0.2378	0.211	0.238	0.211	0.238	0.211	0.238

Table A- 5: Employment growth and government-owned banks

VARIABLES	emp_gr	emp_gr	emp_gr	emp_gr	emp_gr	emp_gr
SOB	-6.464*	-6.005**	-7.077	-6.152**	-8.281*	3.046
	(3.490)	(3.055)	(4.794)	(3.013)	(4.537)	(4.917)
INTER		-0.591	1.022	-0.888	6.145	0.260
		(0.953)	(6.540)	(1.467)	(7.716)	(0.664)
INTCC				0.822	-12.361	-1.143
				(1.549)	(10.834)	(0.910)
INT1				1.791	5.054	
				(2.585)	(3.892)	
INT2				0.162	-1.876	0.561
				(0.640)	(4.124)	(0.678)
lsize	79.407***	79.217***	79.185***	79.155***	79.426***	65.481***
	(5.419)	(5.498)	(5.509)	(5.483)	(5.428)	(8.414)
lage	-1.051	-1.085	-1.035	-1.092	-1.192	
	(1.781)	(1.768)	(1.780)	(1.708)	(1.831)	
SOE	5.940*	5.725*	5.977**	5.018*	5.268*	
	(3.047)	(3.004)	(2.976)	(2.998)	(3.046)	
lagempl	-78.810***	-78.587***	-78.560***	-78.370***	-78.741***	-66.160***
	(5.451)	(5.546)	(5.550)	(5.543)	(5.407)	(8.626)
FEM	1.911	1.843	1.871	1.806	1.697	
	(2.550)	(2.554)	(2.522)	(2.509)	(2.504)	
Constant	-1.858	-2.210	-1.557	-3.151	-2.277	-0.306
	(5.741)	(5.761)	(5.116)	(6.027)	(5.345)	(17.877)
Observations	2,505	2,438	2,438	2,438	2,438	326
R-squared	0.804	0.802	0.802	0.803	0.806	0.842

Table A- 6: Credit constrained firms and government owned banks

VARIABLES	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO
SOB	0.1725	0.2083*	0.621**	0.592**	0.620**	0.594**	0.621**	0.592**
	(0.1161)	(0.1173)	(0.293)	(0.292)	(0.294)	(0.293)	(0.299)	(0.294)
SOB_MNA	-0.1003	-0.0507	-0.508	-0.550	-0.677	-0.787	-0.672	-0.697
	(0.2023)	(0.2112)	(1.091)	(1.120)	(0.804)	(0.808)	(0.661)	(0.694)
INTER			-1.076*	-0.940	-1.093*	-0.954	-1.231*	-1.060*
			(0.572)	(0.573)	(0.597)	(0.595)	(0.629)	(0.613)
INTER_MNA			1.017	1.056	1.307	1.447	1.404	1.399
			(1.769)	(1.788)	(1.375)	(1.377)	(1.060)	(1.075)
ROA		0.0192		0.008				0.012
		(0.0300)		(0.029)				(0.030)
LTA		-0.0749*		-0.055		-0.058		-0.068*
		(0.0395)		(0.039)		(0.039)		(0.039)
lsize	-0.0190	-0.0236	-0.024	-0.026	-0.023	-0.026	-0.021	-0.025
	(0.0345)	(0.0335)	(0.034)	(0.033)	(0.034)	(0.033)	(0.034)	(0.033)
lage	0.1478***	0.1513***	0.152***	0.154***	0.151***	0.153***	0.150***	0.153***
	(0.0569)	(0.0554)	(0.057)	(0.056)	(0.057)	(0.056)	(0.057)	(0.056)
SOE	-0.1306	-0.1047	-0.033	-0.030	0.004	-0.003	-0.017	-0.013
	(0.1647)	(0.1617)	(0.166)	(0.166)	(0.178)	(0.176)	(0.178)	(0.175)
FEM	0.0946	0.1007	0.112	0.114	0.109	0.111	0.102	0.106
	(0.1091)	(0.1087)	(0.110)	(0.109)	(0.109)	(0.109)	(0.109)	(0.109)
Constant	-0.3460*	0.2474	-0.339*	0.099	-0.341*	0.120	-0.341*	0.196
	(0.1875)	(0.3530)	(0.188)	(0.345)	(0.188)	(0.344)	(0.188)	(0.349)
Observations	14,656	14,656	14,656	14,656	14,656	14,656	14,656	14,656
R-squared	0.0822	0.0871	0.091	0.093	0.089	0.092	0.086	0.090

Table A- 7: Firms that invest and government-owned banks

VARIABLES	INV	INV	INV	INV	INV	INV	INV	INV
SOB	0.1645**	0.1784**	0.166	0.134	0.149	0.133	0.236	0.207
	(0.0717)	(0.0739)	(0.179)	(0.178)	(0.179)	(0.179)	(0.184)	(0.181)
SOB_MNA	-0.2911**	-0.2355*	0.402	0.555	-0.293	-0.362	-0.359	-0.238
	(0.1374)	(0.1430)	(0.579)	(0.601)	(0.933)	(0.934)	(0.628)	(0.649)
INTER			-0.004	0.109	0.037	0.125	-0.197	-0.079
			(0.337)	(0.346)	(0.352)	(0.359)	(0.376)	(0.372)
INTER_MNA			-1.012	-1.192	-0.009	0.079	0.191	0.040
			(0.933)	(0.943)	(1.627)	(1.627)	(1.010)	(1.024)
ROA		0.0225		0.025				0.022
		(0.0195)		(0.019)				(0.019)
LTA		-0.0358		-0.038		-0.036		-0.035
		(0.0285)		(0.030)		(0.029)		(0.029)
lsize	-0.1227***	-0.1252***	-0.123***	-0.125***	-0.123***	-0.124***	-0.123***	-0.125***
	(0.0230)	(0.0228)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
lage	0.0354	0.0372	0.036	0.037	0.035	0.037	0.036	0.037
	(0.0402)	(0.0402)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
SOE	-0.0229	-0.0023	-0.022	-0.010	-0.027	-0.032	-0.005	0.005
	(0.1033)	(0.1037)	(0.100)	(0.101)	(0.102)	(0.102)	(0.102)	(0.103)
FEM	-0.1172*	-0.1136	-0.117*	-0.115	-0.118*	-0.116*	-0.116*	-0.113

	(0.0693)	(0.0692)	(0.070)	(0.070)	(0.070)	(0.070)	(0.070)	(0.069)
Constant	1.9861***	2.2644***	1.986***	2.278***	1.986***	2.275***	1.987***	2.260***
	(0.1198)	(0.2538)	(0.119)	(0.266)	(0.120)	(0.261)	(0.119)	(0.256)
Observations	14,656	14,656	14,656	14,656	14,656	14,656	14,656	14,656
R-squared	0.0650	0.0671	0.065	0.067	0.065	0.067	0.065	0.067

Table A- 8: Firms that innovate and government-owned banks

VARIABLES	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV
SOB	-0.1301	-0.0997	0.079	0.090	0.149	0.133	0.071	0.096
	(0.0835)	(0.0722)	(0.219)	(0.225)	(0.230)	(0.238)	(0.241)	(0.240)
SOB_MNA	-0.0915	-0.1514	0.037	-0.368	1.206	1.124	0.755	0.377
	(0.2209)	(0.2243)	(0.690)	(0.724)	(1.622)	(1.625)	(1.314)	(1.348)
INTER			-0.492	-0.456	-0.668	-0.586	-0.550	-0.537
			(0.456)	(0.494)	(0.498)	(0.534)	(0.565)	(0.586)
INTER_MNA			0.006	0.464	-1.920	-1.803	-0.903	-0.480
			(1.188)	(1.217)	(2.962)	(2.972)	(2.085)	(2.124)
ROA		-0.0298		-0.037				-0.033
		(0.0246)		(0.024)				(0.024)
LTA		-0.0432		-0.033		-0.033		-0.039
		(0.0315)		(0.036)		(0.036)		(0.033)
lsize	0.0459	0.0442	0.044	0.043	0.044	0.042	0.045	0.044
	(0.0342)	(0.0338)	(0.035)	(0.034)	(0.035)	(0.034)	(0.034)	(0.034)
lage	0.0636**	0.0642**	0.064**	0.064**	0.064**	0.065**	0.064**	0.064**
	(0.0280)	(0.0276)	(0.028)	(0.027)	(0.028)	(0.028)	(0.028)	(0.027)
SOE	-0.2443	-0.2607*	-0.204	-0.231	-0.159	-0.162	-0.186	-0.208
	(0.1505)	(0.1553)	(0.157)	(0.161)	(0.164)	(0.165)	(0.162)	(0.165)
FEM	0.0419	0.0452	0.050	0.051	0.050	0.053	0.045	0.047
	(0.0837)	(0.0837)	(0.083)	(0.083)	(0.084)	(0.084)	(0.083)	(0.084)
Constant	-0.5740***	-0.2099	-0.567***	-0.286	-0.568***	-0.296	-0.571***	-0.240
	(0.1257)	(0.2491)	(0.128)	(0.272)	(0.127)	(0.267)	(0.127)	(0.255)
Observations	11,127	11,127	11,127	11,127	11,127	11,127	11,127	11,127
R-squared	0.0890	0.0928	0.092	0.095	0.094	0.096	0.091	0.094

Table A- 9: Firms that invest in green activities and government-owned banks

VARIABLES	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
SOB	0.0598	0.0378	-0.026	-0.065	-0.056	-0.051	-0.021	-0.082
	(0.1216)	(0.1222)	(0.270)	(0.282)	(0.285)	(0.292)	(0.365)	(0.380)
SOB_MNA	0.1132	0.1968	-0.313	-0.311	-0.326	-0.312	-0.711	-0.748
	(0.1784)	(0.1909)	(0.805)	(0.808)	(0.870)	(0.867)	(1.393)	(1.407)
INTER			0.209	0.260	0.283	0.260	0.226	0.338
			(0.421)	(0.463)	(0.462)	(0.498)	(0.739)	(0.788)
INTER_MNA			0.488	0.589	0.697	0.676	1.042	1.164
			(1.129)	(1.140)	(1.543)	(1.539)	(2.045)	(2.066)
ROA		0.0576		0.063				0.061
		(0.0372)		(0.038)				(0.038)
LTA		0.0094		0.001		0.008		0.006
		(0.0389)		(0.043)		(0.044)		(0.041)
lsize	0.2725***	0.2714***	0.274***	0.272***	0.274***	0.274***	0.273***	0.272***

	(0.0502)	(0.0501)	(0.050)	(0.050)	(0.050)	(0.050)	(0.050)	(0.050)
lage	0.0731	0.0729	0.072	0.072	0.072	0.072	0.073	0.073
	(0.0507)	(0.0506)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)
SOE	-0.0414	0.0143	-0.067	-0.009	-0.087	-0.087	-0.064	-0.014
	(0.2736)	(0.2824)	(0.273)	(0.282)	(0.273)	(0.274)	(0.268)	(0.274)
FEM	0.0596	0.0616	0.056	0.059	0.056	0.055	0.058	0.060
	(0.1049)	(0.1048)	(0.106)	(0.106)	(0.106)	(0.106)	(0.105)	(0.105)
Constant	-0.8817***	-1.0626***	-0.897***	-1.026***	-0.925***	-0.985**	-0.909***	-1.082***
	(0.2276)	(0.3753)	(0.221)	(0.396)	(0.218)	(0.391)	(0.217)	(0.365)
Observations	9,802	9,802	9,802	9,802	9,802	9,802	9,802	9,802
R-squared	0.1481	0.1500	0.148	0.151	0.149	0.149	0.148	0.150

Table A- 10: Employment growth and government-owned banks

VARIABLES	emp_gr	emp_gr	emp_gr
SOB	-0.471	0.021	4.914*
	(1.294)	(1.324)	(2.941)
SOB_MNA	-6.542**	-6.583**	-12.703**
	(3.286)	(3.013)	(5.422)
INTER		-1.202*	-6.840**
		(0.690)	(3.339)
INTER_MNA		0.627	8.189
		(1.105)	(6.904)
lagempl	-80.439***	-80.368***	-80.353***
	(2.818)	(2.809)	(2.768)
lsize	80.452***	80.406***	80.438***
	(2.849)	(2.828)	(2.769)
lage	0.602	0.526	0.434
	(0.868)	(0.855)	(0.843)
SOE	-0.370	-0.428	-0.273
	(1.795)	(1.819)	(1.824)
FEM	1.846**		
	(0.884)		
Constant	-0.954	-0.832	-0.787
	(2.896)	(2.905)	(2.916)
Observations	13,753	13,492	13,492
R-squared	0.781	0.781	0.782

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Table A- 11: Credit constrained firms and government-owned banks

VARIABLES	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO	CRCO
SOB	0.1726	0.2121*	0.621**	0.588**	0.619**	0.582**	0.632**	0.597**
	(0.1143)	(0.1158)	(0.288)	(0.287)	(0.289)	(0.286)	(0.297)	(0.293)
INTER			-1.078*	-0.927	-1.093*	-0.924	-1.265**	-1.067*
			(0.565)	(0.568)	(0.589)	(0.586)	(0.636)	(0.619)
ROA		0.0217		0.009		0.011		0.014
		(0.0320)		(0.031)		(0.031)		(0.032)
LTA		-0.0828*		-0.060		-0.064		-0.074*

		(0.0433)		(0.043)		(0.043)		(0.043)
lsize	-0.0111	-0.0166	-0.017	-0.020	-0.016	-0.019	-0.013	-0.018
	(0.0377)	(0.0364)	(0.037)	(0.036)	(0.037)	(0.036)	(0.037)	(0.036)
lage	0.1548***	0.1585***	0.159***	0.161***	0.158***	0.161***	0.157***	0.160***
	(0.0585)	(0.0568)	(0.058)	(0.057)	(0.058)	(0.057)	(0.058)	(0.057)
SOE	-0.1702	-0.1337	-0.066	-0.058	-0.028	-0.025	-0.047	-0.037
	(0.1724)	(0.1702)	(0.174)	(0.175)	(0.187)	(0.187)	(0.188)	(0.185)
FEM	0.0983	0.1055	0.116	0.119	0.113	0.116	0.106	0.111
	(0.1080)	(0.1075)	(0.108)	(0.108)	(0.108)	(0.108)	(0.108)	(0.108)
Constant	-0.3848**	0.2719	-0.377*	0.104	-0.379**	0.132	-0.379**	0.210
	(0.1931)	(0.3815)	(0.193)	(0.376)	(0.193)	(0.375)	(0.193)	(0.377)
Observations	11,594	11,594	11,594	11,594	11,594	11,594	11,594	11,594
R-squared	0.0862	0.0919	0.095	0.098	0.094	0.097	0.090	0.095

Table A- 12: Firms that invest and government-owned banks

VARIABLES	INV	INV	INV	INV	INV	INV	INV	INV
SOB	0.1652**	0.1808**	0.167	0.127	0.150	0.109	0.234	0.195
	(0.0707)	(0.0733)	(0.176)	(0.176)	(0.176)	(0.175)	(0.183)	(0.181)
INTER			-0.004	0.133	0.036	0.179	-0.190	-0.039
			(0.333)	(0.345)	(0.346)	(0.355)	(0.380)	(0.377)
ROA		0.0296		0.031		0.032		0.029
		(0.0209)		(0.021)		(0.021)		(0.021)
LTA		-0.0419		-0.045		-0.045		-0.042
		(0.0314)		(0.033)		(0.032)		(0.032)
lsize	-0.1336***	-0.1368***	-0.134***	-0.136***	-0.133***	-0.136***	-0.134***	-0.137***
	(0.0248)	(0.0246)	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)	(0.025)
lage	0.0371	0.0392	0.037	0.039	0.037	0.039	0.037	0.039
	(0.0416)	(0.0416)	(0.042)	(0.042)	(0.042)	(0.042)	(0.042)	(0.042)
SOE	0.0120	0.0428	0.012	0.032	0.007	0.022	0.030	0.046
	(0.1094)	(0.1102)	(0.106)	(0.107)	(0.108)	(0.109)	(0.108)	(0.109)
FEM	-0.1228*	-0.1183*	-0.123*	-0.120*	-0.123*	-0.120*	-0.122*	-0.118*
	(0.0688)	(0.0687)	(0.070)	(0.070)	(0.069)	(0.069)	(0.069)	(0.069)
Constant	2.0132***	2.3387***	2.013***	2.363***	2.013***	2.366***	2.014***	2.336***
	(0.1228)	(0.2761)	(0.122)	(0.291)	(0.122)	(0.288)	(0.122)	(0.279)
Observations	11,594	11,594	11,594	11,594	11,594	11,594	11,594	11,594
R-squared	0.0704	0.0733	0.070	0.073	0.070	0.074	0.071	0.073

Table A- 13: Firms that innovate and government-owned banks

VARIABLES	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV	INNOV
SOB	-0.1309	-0.0976	0.080	0.094	0.150	0.165	0.084	0.113
	(0.0817)	(0.0696)	(0.214)	(0.223)	(0.225)	(0.233)	(0.239)	(0.240)
INTER			-0.497	-0.462	-0.673	-0.642	-0.587	-0.580
			(0.448)	(0.491)	(0.488)	(0.529)	(0.568)	(0.594)
ROA		-0.0335		-0.041*		-0.043*		-0.039
		(0.0259)		(0.025)		(0.025)		(0.025)
LTA		-0.0468		-0.035		-0.033		-0.042
		(0.0332)		(0.039)		(0.038)		(0.035)
lsize	0.0554	0.0532	0.053	0.052	0.053	0.052	0.055	0.053

	(0.0373)	(0.0367)	(0.038)	(0.037)	(0.038)	(0.037)	(0.038)	(0.037)
lage	0.0666**	0.0672**	0.067**	0.067**	0.067**	0.067**	0.067**	0.067**
	(0.0285)	(0.0282)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
SOE	-0.2701*	-0.2895*	-0.228	-0.260	-0.183	-0.217	-0.208	-0.235
	(0.1504)	(0.1556)	(0.158)	(0.161)	(0.165)	(0.168)	(0.163)	(0.167)
FEM	0.0513	0.0552	0.060	0.061	0.061	0.062	0.055	0.058
	(0.0825)	(0.0826)	(0.082)	(0.082)	(0.082)	(0.082)	(0.082)	(0.082)
Constant	-0.6082***	-0.2123	-0.601***	-0.301	-0.601***	-0.316	-0.605***	-0.245
	(0.1333)	(0.2622)	(0.135)	(0.289)	(0.135)	(0.284)	(0.134)	(0.269)
Observations	8,668	8,668	8,668	8,668	8,668	8,668	8,668	8,668
R-squared	0.0827	0.0873	0.086	0.090	0.088	0.092	0.084	0.089

Table A- 14: Firms that invest in green activities and government-owned banks

VARIABLES	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
SOB	0.0600	0.0350	-0.030	-0.070	-0.060	-0.108	-0.033	-0.095
	(0.1227)	(0.1233)	(0.272)	(0.285)	(0.287)	(0.303)	(0.370)	(0.386)
INTER			0.221	0.265	0.294	0.360	0.260	0.366
			(0.426)	(0.471)	(0.466)	(0.518)	(0.753)	(0.806)
ROA		0.0609		0.066*		0.068*		0.065
		(0.0383)		(0.040)		(0.040)		(0.040)
LTA		0.0131		0.004		0.003		0.009
		(0.0413)		(0.045)		(0.045)		(0.043)
lsize	0.2824***	0.2815***	0.284***	0.282***	0.284***	0.283***	0.283***	0.282***
	(0.0540)	(0.0539)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)
lage	0.0737	0.0735	0.073	0.073	0.073	0.073	0.073	0.073
	(0.0521)	(0.0521)	(0.052)	(0.052)	(0.052)	(0.052)	(0.052)	(0.052)
SOE	-0.0656	-0.0081	-0.093	-0.032	-0.114	-0.055	-0.092	-0.040
	(0.2905)	(0.3007)	(0.290)	(0.300)	(0.290)	(0.297)	(0.285)	(0.293)
FEM	0.0625	0.0643	0.059	0.061	0.058	0.061	0.061	0.063
	(0.1060)	(0.1059)	(0.107)	(0.107)	(0.107)	(0.107)	(0.106)	(0.106)
Constant	-0.9156***	-1.1315***	-0.932***	-1.092***	-0.961***	-1.118***	-0.947***	-1.152***
	(0.2386)	(0.3973)	(0.232)	(0.420)	(0.230)	(0.401)	(0.228)	(0.386)
Observations	7,986	7,986	7,986	7,986	7,986	7,986	7,986	7,986
R-squared	0.1476	0.1499	0.148	0.151	0.148	0.151	0.148	0.150

Table A- 15: Employment growth and government-owned banks

VARIABLES	emp_gr	emp_gr	emp_gr	emp_gr	emp_gr	emp_gr
SOB	-0.453	0.058	4.949*	0.147	4.323	-0.769
	(1.271)	(1.296)	(2.883)	(1.228)	(2.765)	(1.637)
INTER		-1.238*	-6.848**	-0.353	-3.584	1.226
		(0.689)	(3.296)	(0.557)	(2.981)	(1.145)
INTCC				-2.420*	-6.071	-1.858
				(1.340)	(3.691)	(1.492)
INT1				1.556*	2.654**	
				(0.829)	(1.340)	
INT2				0.570	2.009	-0.341

				(0.718)	(2.639)	(0.385)
lsize	80.896***	80.889***	80.935***	80.782***	80.739***	84.812***
	(3.247)	(3.209)	(3.137)	(3.214)	(3.146)	(2.624)
lage	0.774	0.689	0.587	0.586	0.376	
	(0.919)	(0.904)	(0.891)	(0.887)	(0.884)	
SOE	-0.849	-0.895	-0.735	-0.979	-1.170	
	(1.841)	(1.868)	(1.875)	(1.876)	(1.890)	
lagempl	-80.947***	-80.911***	-80.903***	-80.737***	-80.609***	-86.378***
	(3.192)	(3.169)	(3.119)	(3.188)	(3.139)	(3.022)
FEM	1.791**	1.698*	1.596*	1.655**	1.549*	
	(0.889)	(0.868)	(0.852)	(0.837)	(0.811)	
Constant	-1.295	-1.167	-1.111	-0.118	0.079	2.831
	(2.972)	(2.980)	(2.991)	(3.004)	(3.040)	(4.011)
Observations	10,796	10,602	10,602	10,602	10,602	1,314
R-squared	0.779	0.780	0.782	0.783	0.785	0.940