Does Business Regulation Matter for Banks in the European Union?

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14 November 2014

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April 2014

Abstract

This paper provides a comprehensive analysis of the impact of business and financial specific regulations on banks in the EU-27 over the 2004-2010 periods. We employ for the first time in the banking literature a unique dataset of a wide range of regulation indices from the "*Doing Business*" project of the World Bank. Results for the credit regulation indices show that the strength of creditor rights is negatively related to bank performance as measured by cost efficiency, although this effect becomes less resilient during the recent crisis period (2008-2010). On the other hand, credit information sharing improves performance, a result that is further magnified during the crisis. Tax-compliance costs and entry regulation constrain bank performance. More stringent regulation of labour, in terms of minimum wage and dismissal costs, and insolvency regulation are positively associated with performance. Furthermore, regulation that protects investors from management expropriation, such as the extent of director liability, exerts a positive impact on bank performance and more so in the crisis years. Finally, we use interaction terms between the business regulation variables and institutional quality as measured by the rule of law and corruption. Results show that there are cases that institutional quality influences positively or negatively the individual effects of specific types of business regulation on bank performance.

Keywords: regulation of business; bank performance; European Union.

JEL Classification: G21, G28

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1. Introduction

Business regulations are central to policy making as setting them right would foster competitiveness and boost economic growth, whereas excess regulation could prove harmful to the economy. Another important focal point of policy makers is the performance of the banking sector, as this is of major significance to the well-functioning of financial markets in particular and the economy in general. Moreover, the recent financial crisis demonstrated that poor bank performance asserts a negative effect on the overall economy due to the systemic financial stability implications and credit constraints. Given the prominence of both regulation and bank performance is not surprising that there has been an extensive literature (Demirgüç-Kunt and Detragiache 1998, Barth et al., 2004; Beck et al., 2006; Pasiouras, 2008; Pasiouras et al., 2009; Barth et al. 2010; Delis et al., 2011, Delis and Staikouras, 2011)[2], in particular regarding bank specific regulation. However, to the best of our knowledge the impact of wider regulations that could affect the day-to-day bank operations has not been examined. To this end, we fill a gap by studying the impact that wider business regulations, targeting to improve competitiveness, could have on bank performance, whilst we also focus on bank specific regulations.

In early empirical studies variables that reflect the quality of institutions such as bureaucratic quality or law observance serve as proxies for regulation and supervision that is specific to the banking sectors. Demirgüç-Kunt and Detragiache (1998, 2002) provide evidence that improved institutional quality is negatively related with the probability of banking crisis and

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[2] Barth (2004) finds that private monitoring regulation has a positive and significant effect on bank performance. In the same study official supervisory power and regulation for capital requirements are found not be significantly related with the performance of financial institutions. Beck et al. (2006) confirm the importance of private monitoring regulation for the banking sector. In a study of 2,500 banks across 37 countries they find that enhancing private monitoring of banks by obliging them to reveal truthful information to the private sector has as a result to decrease the level to which corruption of bank staff posits a hurdle for companies to access finance. In another study, Pasiouras et al. (2009) investigate the impact of the three pillars of Basel II and restrictions on bank activities on efficiency. They find that market discipline regulation and the supervisory authority is positively related with bank efficiency. On the other hand, restrictions on bank activities increase profit efficiency but reduce cost efficiency, while stricter capital requirements have the reverse impact. Other studies that examine the impact of financial regulation on bank performance include Pasiouras (2008), Barth et al. (2010), Delis et al. (2011), Delis and Staikouras, (2011).

reduces the effect of moral hazard due to deposit insurance regulation. The availability of data for regulation specific to the banking sector steered research that use these data as main regulatory variables while general country-level institutional quality measures serve as control variables. A proliferation of research that examines the impact of bank supervision and regulation on bank performance has not reached yet an agreement on how specific types of bank regulation affect bank performance or what in general is a good regulation for the financial sector.

Furthermore, extant research of the impact of non-financial regulation on bank performance is limited although banks operate within the wide spectrum of regulations of the country they are located. This is so despite that some studies have demonstrated the importance of non-financial institutional and regulatory framework in explaining cross-country differences in bank performance (Demirgüç-Kunt et al. 2004, 2008; Lensink et al. 2008; Hasan et al. 2009).

Overall, the literature that links regulation to bank performance is dominated by bank-specific regulation, while institutional quality measures serve as control variables. Furthermore, the limited literature that focuses specifically on how non-financial regulation and institutional quality could affect bank performance uses wide measures, as for example law observance, making it harder to derive specific policy implications in order to prioritise efforts to improve the regulatory framework.

In the light of the above, this paper provides a missing link by examining a wide range of bank but also country-specific regulation on performance. Firstly, we examine in both fixed effects and dynamic panel models how several types of business regulation derived from the *"Doing Business"* project of the World Bank affect bank performance (as measured by efficiency) in the EU-27 economies over the 2004-2010 period. In particular we employ models that account for business regulation in the following categories: *starting a business; getting credit; protecting investors; enforcing contracts; paying taxes; resolving insolvency* and *employing workers.* Secondly, we investigate the extent to which the impact of each type of regulation is conditional on institutional quality measures such as the rule of law and control of corruption. Finally, as sensitivity analysis, we examine for the existence of any potential heterogeneity in the impact of credit regulation and protecting investors regulation on bank performance during the crisis.

Although we examine several (seven) types of business regulation we place emphasis on credit regulation as is directly linked with the banking sector and of some importance for

financial stability. Also, for the first time in the banking literature we investigate the impact of entry and tax regulation on performance, both making the top of the agenda of EU's policy makers as they perceived to improve competitiveness and hence expedite the recovery from the recent financial and sovereign debt crisis. A first glimpse at the results reveal that there is not one size fits all effect of regulation on performance. The observed variability is of interest for policy making as it highlights where one could focus to boost bank performance and thus financial stability. The rest of the paper is structured as follows. Section 2 presents the data and the underlying methodology, Section 3 reports and discusses the results, whilst the final section offers some concluding comments related to policy making.

2. Data and Variables

2.1 Measuring Bank Performance with Cost Efficiency

We use data from IBCA-Bankscope for the 2004-2010 period. The sample includes 2046 commercial and savings banks and, after removing errors and inconsistencies, 11,421 bank/year observations remain in an unbalanced panel. The sample includes the majority of such banks in the EU-27 economies.

In this study we measure bank performance in terms of cost efficiency. To this end we opt for the stochastic frontier analysis (SFA) and follow the Battese and Coelli (1995) methodology in order to estimate bank cost efficiency.[3] The Battese and Coelli (1995) model is suitable for panel data and allows controlling for country-level environmental differences in a single stage estimation. The Battese and Coelli (1995) cost SFA model takes the form:

$$TC_{i,t} = f(P_{i,t}, Y_{i,t}, N_{i,t}, Z_{k,t}) + v_{i,t} + u_{i,t}$$

$$(1)$$

, where $TC_{i,t}$ the total cost for firm (bank) i at year t, P_{it} is a vector of input prices $Y_{i,t}$ is a vector of outputs of the firm, $N_{i,t}$ a vector of fixed netputs while $Z_{k,t}$ is a vector of country-specific environmental variables. $v_{i,t}$ represents random errors that are assumed to be i.i.d.

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[3] An advantage of the SFA methodology is that both random error and inefficiency are incorporated in a composite error term.

and have $N(0,\sigma_v^2)$ while $u_{i,t}$ represents non-negative inefficiency effects that are assumed to be independently but not identically distributed.

Moreover, we employ a flexible translog cost specification:

$$lnTC_{i,t} = \alpha_0 + \sum_i \alpha_i lnP_{i,t} + \sum_i \beta_i lnY_{i,t} + \frac{1}{2}\sum_i\sum_j \alpha_{ij} lnP_{i,t} lnP_{j,t} + \frac{1}{2}\sum_i\sum_j \beta_{ij} lnY_{i,t} lnY_{j,t} +$$

$$+ \sum_i\sum_j \delta_{ij} lnP_{i,t} lnY_{j,t} + \sum_i \zeta_i lnN_{i,t} + \frac{1}{2}\sum_i\sum_j \zeta_{ij} lnN_{i,t} lnN_{j,t} + \frac{1}{2}\sum_i\sum_j \theta_{ij} lnP_{i,t} lnN_{j,t} +$$

$$+ \sum_i\sum_j \kappa_{ij} lnY_{i,t} lnN_{j,t} + \mu_1 t + \frac{1}{2}\mu_2 t^2 + \sum_i v_i t lnP_{i,t} + \sum_i \xi_i t lnY_{i,t} + \sum_i \rho_i t lnN_{i,t} +$$

$$+ \sum_t \varphi_i Z_{k,t} + u_{i,t} \pm v_{i,t} \qquad (2)$$

In the quadratic terms of the stochastic frontier model (2) we impose standard linear homogeneity and symmetry restrictions. We estimate (2) using maximum likelihood method parameterized in terms of the variance parameters $\sigma_{\varepsilon t}^2 = \sigma_{ut}^2 + \sigma_{vt}^2$ and $\gamma = \sigma_{ut}^2 / \sigma_{\varepsilon t}^2$.

In order to define bank inputs and outputs we follow Sealey and Lindley (1977) and opt for the intermediation approach. This approach assumes that the main function of banks is to use labour and capital in order to collect funds with the scope of transforming them into loans and other income generating assets. More specifically, two inputs and two outputs are specified. Inputs include labour, as measured by personnel expenses, and financial capital, while loans, net of provisions and other earning assets, government securities, bonds, equity investments, CDs and T-bills, are the outputs.

In terms of the input prices, we calculate the price of the financial capital as the ratio of total interest expenses to total interest bearing borrowed funds while the price of labour is represented with the ratio of personnel expenses to total assets. The sum of overheads, such as personnel and administrative expenses, interest, fee and commission expenses, represents the total cost of each bank in the sample.

Furthermore, we include equity as a quasi-fixed netput. The reason for this is twofold: firstly, equity represents an alternative source of funding for a bank. In this way, the level of equity of each bank has the potential to affect directly its cost structure (Berger and Mester, 1997). In addition to this, ignoring financial capital may lead to a biased estimation of efficiency as banks with higher equity capital, which denotes that the shareholders have more capital at stake, may behave in a more risk averse manner than banks with lower level of equity but still

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optimally given the risk preferences of their shareholders. Additionally, we include each bank's level of fixed assets, as a proxy for physical capital, which is also a standard in the literature related to efficiency estimation (Berger and Mester, 1997).

Finally, for environmental variables ($Z_{k,t}$) we take account of GDP growth and inflation as proxies for the dynamism and the macroeconomic stability of each country. To control for the level of concentration in the banking industry, we use the assets of the five largest banks as a share of assets of all commercial banks (the C5 ratio), while to capture heterogeneity in bank competition we employ the Lerner index at the country level.[4]

2.2 Business Regulations

Once we obtain the efficiency scores for each bank i for each year t we provide second stage regressions analysis with a wide range of World Bank business regulation indexes along with several control variables.[5] We opt for seven categories of business regulation available by the "*Doing Business*" project of the World Bank. Each of these broad categories is composed of different indices that measure a specific aspect of regulation rigidity faced by firms operating in a specific country. Namely we include in our models regulation related to the following categories.

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[4] The Lerner index is a measure of market power in the banking market. It is defined as the difference between output prices and marginal costs. In this study the Lerner index at the country level is used. This is calculated with the following formula: $Lerner_{i,t} = (PTA_{i,t} - MCTA_{i,t}) / PTA_{i,t}$, where $PTA_{i,t}$ is the price of total assets of the banks in a country proxied by the ratio of total bank revenues to total bank assets for country i at time t, and $MCTA_{i,t}$ is the marginal cost of the total assets of the banking system for country i at time t. Higher values of the Lerner index indicate less bank competition. The source is the Global Financial Development Database of the World Bank (Cihak et al., 2012).

[5] A number of control variables are used to account for individual bank characteristics: total assets (TA) represent the size of each bank. Bank size might have a positive impact on bank performance as it may indicate higher diversification (Mester, 1993). On the other hand bank size can affect negatively performance if economies of scale and scope are not realised. The extant empirical evidence on the impact of size on bank efficiency is mixed (see for example Altunbas et al., 2001; Carbo et al., 2002; Bikker, 2002; Maudos and De Guevara, 2007). We also include the ratio of loans to assets (LA), which represents well-functioning intermediation by the bank. Similarly, the equity to assets ratio (EA) and the return on equity (ROE) are employed as control variables as they represent increased motivation from the part of shareholders to monitor management and increased capacity to generate value for the shareholder. Furthermore, we include the loan loss provisions to total loans (LLPL) as a measure the quality of the credit portfolio and a proxy for risk. The relationship between risk and performance could be either negative, according to the "*bad management*" and the "*bad luck*" hypothesis, or positive, according to the "*skimping hypothesis*" (Berger and DeYoung, 1997). In terms of the country-level control variables, we opt for the domestic credit to the private sector as a share of GDP (DCP) in order to account for the level of financial development. Moreover, to control for the general level of economic development we use real GDP per capita (GDPcap) in purchasing power parity (PPP) terms.

- *Starting a business*: This category includes both bureaucratic and cost related indices that pose hurdles to entrepreneurship in each country.

- *Getting credit*: Two kinds of credit regulation are included here. The strength of creditor rights such as the collateral efficacy and the availability as well as the quality (depth) of the credit information registries.

- *Paying taxes*: Regulation related to procedural related tax regulation as well as the level of corporate profit taxation is included in this category.

- *Enforcing contracts*: This topic measures bureaucracy as well as cost related regulation regarding the efficiency of contract enforcement at the country level.

- *Resolving insolvency*: Procedural and cost related measures are also included in this type of business regulation, which accounts for country-level bankruptcy legislation.

- *Protecting investors*: This category of business regulation includes measures related to firm transparency as measured by disclosure regulation as well as measures that rate how well the interests of shareholders are protected against management exploitation of firms for personal benefit.

- *Employing workers*: Labour regulation measures are included in this index. They are related with the cost of labour (minimum wage) and dismissal costs regulation.

A major advantage of the "*Doing Business*" indices in comparison with other indices that try to rate country-level business environment, as for example the widely used economic freedom indices, is that each category of regulation is highly decomposed enabling to spot specific areas of business regulation that could affect bank performance. This could support the prioritisation of reform efforts in a more focused manner.

Note that the credit regulation index is composed of the level of creditor rights protection, the depth of credit information and the existence and coverage of private and public credit information registries. Creditor rights can influence the behaviour of corporate borrowers as they could reduce risk-taking activities (Acharya et al., 2011) which, in turn, could improve bank's credit risk. Qian and Strahan (2007) find that protection of creditor rights is associated with greater concentration of loan ownership, longer-term lending, and lower interest rates[6]. Thus, strong creditor rights could be positively associated with bank performance through lower operational costs and lower credit risk exposure. On the other hand, stronger creditor

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[6] It could be argued then that strong creditor rights could reduce banks' operational costs through economies of scale in lending, lower loan screening costs, as the monitoring of loans becomes less frequent and lower loan default probabilities because of lower loan rates.

rights may reduce the incentive of bank managers to carefully screen loans (Manove et al. 2001; Zazzaro, 2005).[7] Credit information sharing, through the existence and the coverage of credit registries, as well as the depth of credit information available, can be a factor of improved bank performance via the reduction of adverse selection and moral hazard in loan origination (Pagano and Jappelli, 1993; Kalberg and Udell, 2003)[8].

A type of regulation that EU pays particular attention is the starting a business regulation. EU economies seem to lag behind in terms of total factor productivity (TFP) in comparison with the US. Tackling this issue appears at the top of political agenda of the EU Commission (see for example the Lisbon Agenda). Recent research has provided evidence that entry regulation could explain TFP differences between EU and the US (see Poschke, 2010). Business regulations and bureaucratic procedures that restrain business entry and reduce competition may impede bank performance because of a negative impact on the performance of the firms located in a country and the fulfilment of their obligations (loans) to the banking sector. In particular regulatory entry barriers can lead to decreased competition through a reduction in new firms entering an industry (Klapper et al. 2006; Ciccone and Papaioannou, 2007). This decreased competitive pressure can lead to lower investment (Alesina et al. 2005), reduced growth (Loyaza et al. 2006) and less productivity (Nicoletti and Scarpetta, 2003; Bastos and Nasir, 2004; Bourlès et al., 2010). In addition, the financial crisis of 2008 and thereafter the sovereign debt crisis has further highlighted the importance of enhancing competitiveness through structural reforms that also encompass facilitating entry, as certain euro-area countries, i.e. Greece, Ireland, Portugal, Spain, struggle. The examination of the link between entry regulation and bank performance in the EU economies is a timely and relevant issue.

Another important regulation that has not been investigated in detail in terms of its link to bank performance refers to tax regulation, also in light of the recent austerity throughout the EU. The literature that relates explicit and implicit taxation on the banking sector finds a pass-through effect from the banking sector to bank's customers (Demirgüç-Kunt and

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[7] Manove et al. (2001) show that the use of collateral in the process of loan origination could lead to significant decrease in screening efforts and as a consequence make banks to provide credit to a high number of worthless projects. Zazzaro (2005) finds a more careful screening by managers of banking operations such as loan origination when high costs are associated with such contractual agreements.

[8] Padilla and Pagano (1997) show that credit information sharing enhances the discipline of borrowers and reduces moral hazard as in Vercammen (1995) and Padilla and Pagano (2000). Furthermore, Klein (1992) shows that increased credit information sharing at the presence of weak creditor rights can enforce loan repayment by borrowers. This is because borrowers would try to avoid being black listed and as a result excluded from future bank financing.

Huizinga, 1999; Demirgüç-Kunt and Huizinga, 2001; Albertazzi and Gambacorta ,2010; Chiorazzo and Milani, 2011). This pass-through effect might have a direct effect on bank credit risk and thus performance, as increased loan interest rates might lead to an increase of non-performing loans. Through another channel, raising taxation does little to boost growth as it acts as disincentive to investment growth (Arnold, 2008; Schwellnus and Arnold, 2008; Vartia, 2008; Arnold et al., 2011). In turn, lower firm growth would also have adverse implications on the banking industry.

2.3 The Interaction of Regulations and Institutional Quality

An interesting question that arises is whether the effects of different types of business regulation on bank performance differ according to the level of institutional quality of each country. To explore this issue we interact business regulations with the rule of law (RL-WB) variable that serves as a proxy of the country-level legislation implementation capacity, but also the degree of compliance.[9] It might be the case that in the presence of low level of law observance a specific regulation maybe in place but at the same time it might not be followed by the economic agents. Interacting the rule of law (RL-WB) variable with the different types of business regulation enables us to identify if the individual effect of each type of business regulation on bank performance is more subdued when the law might exist on paper but less implemented in practice.

Moreover, we also take into account corruption by interacting the control of corruption (COR-WB) variable with the regulation variables so as to investigate the "*grease the wheel*" or the "*sand the wheels*'' hypotheses. The "*grease the wheel*" hypothesis denotes that higher levels of corruption may speed up bureaucratic processes (see, for example Lui, 1985) and could thus increase firm operational efficiency while the "*sand the wheels*'' hypothesis contends that higher levels of corruption represent an additional cost when dealing with public sector bureaucracy (Murphy et al., 1993) and so further impede operational efficiency. Negative (positive) and significant coefficients for the interaction terms would suggest that the negative (positive) individual impact of a specific business regulation on bank performance would be less (more) pronounced in the presence of higher institutional quality.

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[9] The use of interaction terms between institutional development indices, such as measures of rule of law, and regulation is common in the banking and finance literature. For example Cull et al. (2002) find that in weak regulatory environments, explicit deposit insurance schemes are related to declines in financial depth. In another study Beck et al. (2004) find that the negative relationship between bank concentration and financing obstacles is diminished in countries with higher institutional quality.

Both of the institutional quality measures, rule of law (RL-WB) and control of corruption (COR-WB) are sourced from the *World Governance Indicators* of the World Bank.

3. Results and Discussion

3.1 Bank Performance Estimates (Cost Efficiencies)

(Insert Table 1 about here)

Cost efficiency scores are reported in Table 1, showing the average score over the period 2004-2010[10]. The average bank cost efficiency for the sample is 0.834, a figure that conforms with previous studies for the EU (Koutsomanoli-Filippaki and Mamatzakis, 2009; Weill 2009; Casu and Girardone, 2010). It is worth noting that despite increased levels of financial integration between the old member states (EU-15) and the new member states (EU-10) significant differences in terms of bank efficiency still persist. For example the efficiency scores for Hungary, Romania and Bulgaria are significantly behind the average efficiency score for the EU-27. In terms of the time series, there is a significant drop of efficiency in 2008. This is not coincidental as 2008 represents the peak of the financial crisis. Bank performance in the EU-27 economies seems to bounce back during 2009 and 2010.

3.2 The Impact of the Control Variables

Before proceeding in the analysing the impact of different types of business regulation on bank performance we provide an overview of the results of bank-specific, macroeconomic and financial structure variables (see Tables 2-24). The intermediation ratio (LA), bank size (lnTA), the equity to assets ratio (EA) and the profitability ratio (ROE) exert a positive impact on bank performance in line with previous studies (Miller and Noulas, 1996; Isik and Hasan, 2003; Casu and Girardone, 2004; Rao, 2005). On the other hand, the net interest

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[10] Regarding the translog cost function using the Battese and Coelli (1995) model refer to table A1 in the appendix. The results for the environmental (Z) variables show that the inflation rate (INFL) has a positive impact on inefficiency while GDP growth (GDPgr) exerts a negative effect on inefficiency in line with Yildirim and Philippatos (2007). The concentration ratio (C5) has a negative effect on inefficiency in line with Lensink et al. (2008). Furthermore, the Lerner index at the country level has negative effect on inefficiency giving supporting the *"competition-fragility"* hypothesis (Berger et al., 2008) according to which higher competition can lead to a deterioration in the quality of bank loans (Jimenez et al., 2007) and higher risk (Keeley, 1990).

margin (NIM) exerts a negative impact on performance lending support to the view that banks pass inefficiencies to consumers using higher interest rates. Furthermore, the loan loss provision to total loans ratio (LLPL) is positively associated with performance. Such finding resembles the *"skimping"* hypothesis (Berger and DeYoung; 1997), according to which banks that put less effort on loan screening could be more cost efficient in short time periods. Finally, in terms of the macroeconomic and financial structure control variables, we find that the general level of economic development (lnGDPcap) and the level of financial development (DCP) are negatively related with bank performance. The negative impact of the general level of economic development (lnGDPcap) on bank performance could indicate the higher operating and financial costs for supplying a given level of services in richer markets. (Dietsch and Lozano-Vivas, 2000).

3.3 The Impact of Business Regulations

3.3.1 Starting a business

Tables 2 and 3 report the fixed effects and dynamic panel[11] results for the Starting a Business category respectively. The *starting a business* category of business regulations accounts for the following indices: i) entry procedures, ii) entry time, iii) entry cost and iv) entry minimum capital.

(Insert Table 2 and 3 about here)

The fixed effects results reveal that all the four indices that capture the effect of hurdles to start a new business are negatively related with efficiency (see models 1 to 4 of Table 2) while three of them are statistically significant. In particular, the entry time (lnDAYS-SB) is statistically significant at the 5% level, while the entry cost (COST-SB) and entry minimum capital (MINCAP-SB) variables are significant at the 1% level. All indices are negatively related with efficiency. Following a specific to general specification in our empirical estimations we run a regression that includes all the *starting a business* indices (see model 5 of Table 2). In the fixed effects model the entry cost (COST-SB) and entry minimum capital

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[11] In all the dynamic panel models in this study we use the two-step system GMM (Arellano and Bover, 1995) specification with Windmeijer-corrected (robust) standard errors.

(MINCAP-SB) variables retain their statistical significance at the 1% and 5% levels respectively while the entry time variable (lnDAYS-SB) becomes insignificant. The dynamic panel results in Table 3 further confirm the fixed effects results as far concerns the entry cost (COST-SB) and entry minimum capital (MINCAP-SB) variables (see models 3, 4 and 5 of Table 3). It is evident that the financial obstacles in starting a business, rather than the procedural ones, matter negatively for bank performance. A potential channel through which financial obstacles in starting a business can impede bank performance is because of reduced performance of existing firms in a country (Nicoletti and Scarpetta, 2003; Alesina et al. 2005; Klapper, 2006; Bourlès et al., 2010) because of lower levels of competition (Klapper et al. 2006; Ciccone and Papaioannou, 2007). This reduced firm performance could negatively affect the fulfilment of the obligations these firms have to the banking sector (loans). Moreover, adding red tape in terms of starting business is found to induce informality (Loyaza et al. 2006) so making it harder and more costly for banks to evaluate the creditworthiness of a firm (Hoff and Stiglitz, 1993; Besley, 1995). Another channel through which starting a business regulation could have a negative impact on bank performance is because it could reduce the innovation efforts of firms (Amable et al. 2009; Barbosa and Faria, 2011). This decreased innovation effort could affect negatively firm profitability (Leiponen, 2000; Cefis and Ciccarelli, 2005, Cozza et al. 2012) which in turn could impair the performance of the banking sector because of increased loan defaults. Lastly, the interaction terms between *starting a business* regulation and institutional quality are not significant as the results in Table 4 demonstrate.

(Insert Table 4 about here)

3.3.2 Getting credit

Tables 5 and 6 present results of the fixed effects and the dynamic models respectively for business regulation related to *getting credit*. This category of business regulations includes the following indices: i) legal rights of creditors ii) credit information depth, iii) public credit registry coverage and iv)private credit registry coverage.

(Insert Tables 5 and 6 about here)

An interesting result emerges as strengthening the protection of creditor rights (LEG-CG) would reduce performance in both the fixed effects and the dynamic panel specifications (see

model 1 in Table 5 and model 1 in Table 6). This result would imply that strong creditor rights do little to motivate bank managers to actively engage in screening loans in line with the empirical findings of Manove et al. (2001) and Zazzaro (2005). Furthermore, low levels of creditor rights induce banks to originate loans with shorter maturities in order for banks to be able to stop lending when the deterioration in the creditworthiness of a borrower becomes evident (Diamond, 2004). Borrowers of loans with short maturities are screened more often when they apply for refinancing. Although more frequent screening of borrowers represents a cost for banks it could be the case that the benefits in terms of the quality of a bank's credit portfolio because of more frequent monitoring outweigh such costs.

On the other hand, the depth of credit information (DEPTH-LEG) has a positive and statistically significant at the 1% level impact on bank performance in both the fixed effects (see model 2 in Table 5) and dynamic specifications (see models 2 and 5 in Table 6). Moreover, the impact of the private sector credit registry coverage (PR-CG) is positively related to bank performance at the 1% level in the fixed effects specification (see models 4 and 5 in Table 5). The results related to positive impact of the private sector credit registry coverage (PR-CG) on efficiency lends support to the view that credit information sharing can promote bank performance through increased discipline of borrowers (Klein, 1992; Vercammen, 1995; Pagano, 1997; Padilla and Pagano, 2000). Along these lines, Houston et al. (2010) find that increased credit information sharing at the country-level increases bank profitability, lowers bank risk but also decreases the likelihood of financial crisis and increases economic growth. Furthermore, credit information sharing improvements may contribute to the reduction of the significant informational disadvantages foreign and new entrant banks have in a market (Bofondi and Gobbi, 2006; Gianneti and Ongena, 2009), improving in that way their performance.

The positive and significant impact of the credit information depth (DEPTH-LEG) underlines the importance of credit registries and of information regarding the underlying quality. Similarly, the negative impact, at the 10% significance level, of the public registry coverage (PB-CG) on bank performance in the dynamic analysis (see model 5 of Table 6) could reflect that, in general, public credit registries have relatively lower quality compared to private ones.

(Insert Table 7 about here)

The interaction terms between the *getting credit* variables and the institutional quality as measured by the rule of law (RL-WB) and the control of corruption variables (COR-WB) reveal the complexities associated with this category of regulation. In particular, in model 2 of Table 7 the interaction term between the credit information depth (DEPTH-CG) and the rule of law (RL-WB) is negative and statistically significant at the 10% level while the individual effect of the credit information depth (DEPTH-CG) is positive and significant at the 1% level. The positive individual effect of the credit information depth on bank performance seems to become more subdued when higher levels of rule of law (RL-WB) prevail. Similarly, in model 4 of Table 7 the interaction between the private sector credit registry coverage (PV-CG) and the rule of law (RL-WB) is negative and significant at the 10% level while the individual effect of the private sector credit registry coverage (PV-CG) is positive and significant at the 1% level. This can be justified by increased confidence and reliance on hard (purely financial) information in the presence of higher rule of law (RL-WB) while at the same time banks could ignore critical soft (relationship type) information that could improve the lending decision (Petersen and Rajan, 1995; Stein 2002). An alternative explanation could be that the marginal informational benefit for banks derived from credit information depth (DEPTH-CG) and the private sector credit registry coverage (PV-CG) is higher at lower levels of rule of law (RL-WB) where contract obligations such as loans are comparatively less respected (Klein, 1992). Finally, an interesting finding is the positive and significant, at the 10% level, impact on bank performance of the interaction term between control of corruption (COR-WB) and the public credit registry coverage variable (PB-CG) when the individual effect of the public credit registry coverage (PB-CG) is negative and significant at the 10% level (see model 7 of Table 7). This finding suggests that reliance of banks on public credit registries is beneficial in terms of performance in case of low levels of corruption where information of public registries might become more reliable.

3.3.3 Paying taxes

The *paying taxes* category of regulations accounts for the following indices: i) number of tax payments per year, ii) time dedicated at the firm level in order to handle taxation regulation and iii) profit tax.

(Insert Tables 8 and 9 about here)

The results indicate that taxation regulation asserts a negative impact on bank performance. In particular the number of tax payments per year (lnTAX-NUM) negatively affects bank

performance in both the fixed effects and dynamic specifications (see models 1 and 4 of Table 8 and Table 9). In the dynamic analysis (see models 2 and 3 of Table 9) sub-taxation regulation indices such as tax hours (lnTAX-HOURS) and profit taxation (TAX-PRO) are negatively associated with bank performance at the 1% and 5% levels respectively.

The finding that bureaucracy related taxation indices (see lnTAX-NUM and lnTAX-HOURS) have negative effect on bank performance could be explained by increased levels of firm informality due to the stringency of such regulation (La Porta and Shleifer, 2008). This increased informality would make it harder and more costly for banks to assess the credit worthiness of a firm (Hoff and Stiglitz, 1993; Besley, 1995). Furthermore, there is evidence that lower levels of firm formality, as measured by tax compliance, is associated with lower firm profitability and higher risk (Fajnzylber et al., 2006) that could increase loan defaults. Another channel trough which stringent taxation regulation can negatively affect bank performance would be the reduction of investment and entrepreneurial activity in the economy (Djankov et al., 2010, Da Rin et al., 2011).

Additionally, the tentative evidence that profit taxation (TAX-PRO) is negatively associated with bank performance (see model 3 in Table 9) would suggest that increasing the taxation burden induces higher levels of loan defaults because of the pass-through effect from banks to borrowers (Demirgüç-Kunt and Huizinga, 1999; Demirgüç-Kunt and Huizinga, 2001; Albertazzi and Gambacorta , 2010; Chiorazzo and Milani, 2011) and the reduction of the performance of the non-financial firms because of less capital investment (Arnold, 2008; Schwellnus and Arnold, 2008; Vartia, 2008; Arnold et al., 2011).

Turning into the interaction terms between taxation regulation and the rule of law (RL-WB) and the control of corruption (COR-WB) it is revealed that the impact of some types of tax regulation on bank performance depends on institutional quality.

(Insert Table 10 about here)

In model 1 of Table 10 the interaction term between rule of law (RL-WB) and the number of tax payments per year (TAX-NUM) asserts a positive and significant, at the 1% level, impact on bank performance, whilst the individual effect of the TAX-NUM variable is negative and significant at the 1% level. At higher levels of rule of law, one of the channels through which tax regulation can affect negatively bank performance, namely the higher level of firm informality (La Porta and Shleifer, 2008) which could increase the cost of financial intermediation (Hoff and Stiglitz, 1993; Besley, 1995) , may become restrained. This is

because rule of law and judicial efficiency are able to decrease the level of the unofficial economy (Loayaza, 1996; Johnson et al., 1998; Friedman et al., 2000). Finally, the interaction term between the control of corruption variable (COR-WB) and tax hours (lnTAX-HOURS) (see model 5 of Table 10) positively and significantly at the 5% level affects performance, whilst the individual effect of the lnTAX-HOURS variable is negative at the 1% level. This result conforms with the "*sand the wheels*" (Murphy et al., 1993) hypothesis according to which higher levels of corruption impose additional costs to economic agents. In this context, the negative interaction between the control of corruption variable (COR-WB) and the number of tax hours (lnTAX-HOURS) could indicate that the lower level of additional costs that are incurred by firms in form of corruption when they deal with tax payments may be a factor contributing to the free up of capital available for firms to fulfil their obligations (loans) to the banking sector.

3.3.4 Enforcing contracts

Moving to the *enforcing contracts* category of regulations the econometric results are presented in Tables 11 and 12. This category accounts for the following indices: i) contracts time, ii) contracts cost and iii) contract procedures.

(Insert Tables 11 and 12 about here)

None of the enforcing contracts variables has a statistically significant impact on bank performance in the fixed effects specification (see Table 11). On the other hand, the dynamic panel analysis reveals that the cost of contract enforcement (COST-CON) is positively related to performance at the 5% level (see model 2 of Table 12). This finding is in line with the negative association of the strength of creditor rights with bank performance discussed in section 3.3.2 In more detail, when the enforcement of contracts and in effect of loans is costly, bank managers may engage in more careful screening in the loan origination process (Manove et al., 2001; Zazzaro, 2005) improving in that way the quality of the bank's loan portfolio. The contract procedures variable (lnPRO-CON), on the other hand, has a negative and statistically significant impact at the 1% level on performance while this result, unlike the one of the contract costs (COST-CON) variable, remains robust in the fourth model of Table 12 where the rest of the enforcing contracts regulation variables are accounted for.

(Insert Table 13 about here)

Table 13 presents a positive and significant effect of the interaction between contract procedures (lnPRO-CON) and the rule of law (RL-WB) (see model 3 of Table 13). Note that, the individual effect of the contract procedures (lnPRO-CON) on bank performance is negative at the 1% level. The combination of the above results imply that the negative impact of contract procedures on bank performance becomes restrained in the presence of higher levels of law observance that may act as block for further delays (Ashan, 2013). Finally, in model 6 of Table 13 the effect of contract procedures (lnPRO-CON) on bank performance remains negative at the 1% as the coefficient of its interaction with the control of corruption variable (COR-WB), providing evidence in accordance with the "*grease the wheel*" hypothesis (Lui, 1985) of corruption.

3.3.5 Protecting investors

The *protecting investors* category accounts for the following indices: i) extent of disclosure, ii) extent of director liability and iii) ease of shareholder suits. Regulation related to the protection of investors appears to be an important determinant of bank performance (see Table 14 and Table 15).

(Insert Tables 14 and 15 about here)

The fixed effect results show that the extent of director liability (LIA-PI) and ease of shareholder suits (SUI-PI) have a significant, at the 1% level, and positive impact on bank performance (see models 2, 3 and 4 of Table 14). The dynamic panel analysis confirms these results for the extent of director liability (LIA-PI) variable (see models 2 and 4 of Table 15). Legislation that protects the interests of investors from director misconduct has a beneficial effect on the banking sector in terms of efficiency. This result is in line with previous studies that confirm that managers operating in countries with strong investor protection legislation are less likely to use firm resources for their own benefit at the expense of shareholders while they tend to invest in projects with higher potential benefit the shareholders (Wurgler, 2000; Shleifer and Wolfenzon, 2002; Bekaert, Harvey and Lundblad, 2010). A surprising result is that the extent of disclosure variable (DISC-PI) is negatively associated with bank performance in the fixed effects specification (see models 1 and 4 of Table 14). Disclosure regulations can raise the cost structure of a firm not only because of the direct expenses related to such legislation, as for example meeting stricter accounts regulation, but also through magnifying or even creating new agency problems (Hermalin and Weisbach, 2012). Finally, the interactions between protecting investor regulation and the rule of law (RL-WB)

and the control of corruption (COR-WB) in Table 16 show that the impact of protecting investors regulation on bank performance is not dependent on institutional quality.

(Insert Table 16 about here)

3.3.6 Resolving Insolvency

This category accounts for the following indices: i) insolvency time, ii) insolvency cost and iii) insolvency recovery rate.

(Insert Tables 17 and 18 about here)

All the *resolving insolvency* variables appear to have a positive and statistically significant impact on bank performance in the fixed effect models (see models 1, 2 and 4 of Table17). The impact of the recovery rate (REC-INS) variable, though, is significant only in model 4 of Table 17 where we control for the rest of the resolving insolvency variables. The positive impact of insolvency time (lnTIME-INS) and insolvency cost (COST-INS) is further confirmed in the dynamic panel analysis (see models 1 and 2 of Table 18). On the other hand the recovery rate variable (REC-INS) is negatively associated with bank performance at the 1% significance level in model 3 of Table 18. This result of the recovery rate variable (REC-INS) remains significant in model 4 of Table 18 where all the resolving insolvency variables are accounted for. The positive association of time to insolvency (lnTIME-INS) with bank performance could indicate, in accordance with previous evidence, that the recovery rate for creditors is higher for firms that can stay in business during the bankruptcy procedure (Franks et al, 2004). In addition, the positive association between bank performance and insolvency costs (COST-INS) and the negative association between the recovery rate (REC-INS) on bank performance suggests that a careful loan screening exercise during the loan origination process pays off (Manove et al., 2001; Zazzaro, 2005) even in the presence of creditor friendly bankruptcy regulation (Franks and Sussman, 2005).

The interaction terms between resolving insolvency regulation and the rule of law (RL-WB) and the control of corruption (COR-WB) show that the impact of these types of insolvency regulation on bank performance is conditional on institutional quality.

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Model 1 of Table 19 shows that the effect of insolvency time (ln-TIME-INS) on bank performance is negative whilst its interaction with the rule of law (RL-WB) is positive, implying that insolvency time could have a positive impact on bank performance in line with Franks et al. (2004), in presence of high levels of rule of law and judicial efficiency, which ensures that creditors continue to receive payments during the time that a firm remains operational. Similarly, the interaction between the insolvency time (lnTIME-INS) and the control of corruption (COR-WB) is positive (see model 4 of Table 19) in line with the "*sand the wheels*" hypothesis (Murphy et al., 1993), whereas the individual effect of insolvency time on bank performance is negative Finally, in model 3 of Table 19 there is a negative effect stemming from the interaction between recovery rate (REC-INS) and the rule of law (RL-WB), while the individual effect of the recovery rate (REC-INS) on bank performance is positive. This suggests an excessive reliance, at the expense of careful monitoring, of bank managers on the recovery rate in case of insolvency (REC-INS) when the observance of law is high.

3.3.7 Employing workers

Finally the impact of regulation related to *employing workers* on bank performance is depicted in Tables 20 and 21. The components of this category are the following: i) minimum wage, ii) severance payment and iii) notice period for worker dismissal.

Minimum wage (MW-EW) and severance payment (SEV-EW) are positively related to bank performance in both the fixed effects and dynamic specifications. In more detail, the minimum wage (MW-EW) has a positive and statistically significant impact at the 1% level in the fixed effects panel (see models 1 and 4 of Table 20) and it retains its significance level in the dynamic panel (see model 4 of Table 21). Similarly, the positive coefficient of the impact of severance payment (SEV-EW) on bank performance is statistically significant at the 1% in the dynamic panel specifications (see models 2 and 4 of Table 21). On the other hand, the variable related to the notice period of worker dismissal (NOT-EW) is negatively and significantly related with bank performance in both the fixed effects and dynamic models (see models 2 and 4 of Table 20 and model 4 of Table 21). The magnitude of the coefficients

though of the minimum wage (MW-EW) and the severance payment (SEV-EW) variables are larger than the coefficient of the notice dismissal variable implying that, overall, stricter employment legislation has a positive impact on bank performance. Stringent labour regulation can have a positive impact on bank performance as it could increase the length of the relationship between employees and employers, rising in that way the returns on the acquisition of firm and industry specific skills (Wasmer, 2006). Furthermore, more stringent labour regulation can have a negative impact on labour turnover, reducing in that way costs, and lead to job matches of high quality (Auer, 2007).

Moreover, significant employment security provides workers with insurance against wage risk (Agell, 1999) and thereby could stimulate workers to raise their productivity. These results also conform to extant studies in the labour economics literature with regards to the impact of labour regulation on economic performance (Storm and Naastepad, 2009; Deakin and Sarkar, 2008). Finally, the interaction terms of the employment legislation variables and institutional quality reveals that the impact of strict labour regulation on bank performance is conditional on law observance.

(Insert Table 22 about here)

An important finding is that the interaction between rule of law (RL-WB) and the minimum wage (MW-EW) is positive and significant (see model 1 of Table 22), whereas the individual effect of minimum wage (MW-EW) on bank performance is negative. This interaction suggests that minimum wage (MW-EW) could prove beneficial for bank performance when such legislation is actually enforced. The mere existence of the minimum wage regulation without its strict enforcement may induce informality (Ullyssea, 2010; Almedia and Carneiro, 2011) making it harder for banks to evaluate the creditworthiness of individuals which could in turn result to decreased performance of the banking sector.

3.4 Sensitivity Analysis: Is the impact of *Getting Credit* Regulation and Protecting Investors Regulation on Bank Performance Heterogeneous in the Crisis Period (2008-2010)?

As part of sensitivity analysis we examine if the getting credit and protecting investors regulation variables have a heterogeneous impact on bank performance over the financial crisis. For this reason we follow Anginer et al. (2012) and use a crisis dummy variable for the years from 2008 to 2010. Then we interact the crisis dummy with the different indices of the *getting credit* and *protecting investors* regulation variables. Results are depicted in Tables 23 and 24.

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The interaction between the creditor rights (LEG-CG) and the crisis dummy (CRISIS DUM) (see model 1 of Table 23) is positive and significant at the 5% level. On the other hand, the individual effect of creditor rights (LEG-CG) asserts a negative and significant impact on performance, which is in line with the previous findings of this study. The positive sign of the interaction between creditor rights (LEG-CG) and the crisis dummy (CRISIS DUM) implies that although the individual effect of creditor rights on bank performance is negative, it becomes restrained during the crisis. Agency problems that restrict a firm's access to credit are particularly important during periods of economic contraction (Bernanke and Gertler; 1989) and increased creditor rights may moderate them as they warrant a higher level of recovery of impaired loans. Furthermore, the interaction between the depth of credit information (DEPTH-CG) and the crisis dummy (CRISIS DUM) (see model 2 of Table 23) has a positive and significant effect on performance, whilst the individual effect of the depth of credit information (DEPTH-CG) is positive. It appears that the positive impact of the depth of credit information (DEPTH-CG) on bank performance strengthens during the crisis, acting as an assistance mechanism for banks to make more informed decisions with regards to the supply of credit. Similarly, the positive and significant interaction between the private sector credit registry coverage (PV-CG) and the crisis dummy (CRISIS DUM) in model 4 of Table 23 suggest that during the crisis, higher credit registry coverage supports performance.

Next we examine if the different types of regulation of the Protecting Investors category had a heterogeneous impact on the performance of banks located in the EU-27 economies during the crisis period.

We find that the interaction between the director liability index (LIA-PI) with the crisis dummy (CRISIS-DUM) is positive and significant at the 1% level (see model 2 of Table 24) while the individual effect of the director liability index (LIA-PI) is positive and significant at the 1% level. The results for the individual effects confirm the fixed effects and dynamic analysis results in Table 14 and Table 15. The result of the interaction term denotes that in times of crisis the positive effect of the director liability index (LIA-PI) on bank performance is further enhanced. This is consistent with the findings of Peni and Vähämaa (2012) who

argue that banks with stronger corporate governance mechanisms performed better during the financial crisis. Furthermore, improved corporate governance regulation can positively affect firm performance in the non-financial sector (Ammann et al., 2011; Brown and Caylor, 2006, Brown and Caylor 2009; Gompers et al. 2003), especially at times of crisis when the deterioration of economic conditions can lead to increased expropriation by managers (Johnson et al, 2000; Mitton, 2002; Baek et al. 2004). This positive impact of corporate governance regulation on the performance of non-financial firms could be channelled to the banking sector via spill-over effects such as lower loan defaults.

4. Conclusion

Our results, from both fixed effects models as well as dynamic panel specifications, confirm that several types of business regulation have a heterogeneous in terms of sign and magnitude impact on bank performance, as measured by cost efficiency, in the EU-27 over 2004-2010. In some detail, the strength of creditor rights is negatively related with bank performance, whereas credit information sharing improves bank efficiency. Regulation related to business entry is reported to have a negative effect on bank performance. The same applies for taxation regulation. On the other hand, labour regulation, in terms of minimum wage and dismissal costs, as well as regulation related to investor protection, with the exception of mandatory corporate disclosure, exert a positive impact on bank performance.

This study also finds, in many cases, a statistically significant impact of the interaction terms between the business regulation variables and country-specific institutional quality as measured by the rule of law (RL-WB) and corruption (COR-WB) variables. The impact of these interaction terms on bank performance is heterogeneous in terms of sign. For example, the positive impact of information sharing on bank performance, as measured by private sector credit registry coverage, becomes more subdued in the presence of higher law observance, as the interaction term between rule of law (RL-WB) and the private sector credit registry coverage (PV-CG) is negative. Similarly, the coefficient of the interaction term between tax hours (TAX-HOURS) and control of corruption (COR-WB) is positive, which implies that the negative individual effect of (TAX-HOURS) on bank performance becomes more restrained in the presence of higher control of corruption (COR-WB).

Regarding policy implications, regulators should take into account that enhancing creditor rights could have an adverse impact on bank performance. On the other hand strengthening regulation related to credit information sharing is warranted as it improves bank performance especially at the crisis period. In addition, less rigid business entry regulations in the EU not only could positively affect competitiveness but also significantly increase bank performance. Taxation regulation exerts a negative effect on bank performance. For many EU economies the taxation level is a mean of increased government revenue in order to wither the sovereign debt crisis. However, governments should simplify at least the bureaucracy related tax compliance costs in order to offset this negative taxation impact. EU regulators should also take into account that less rigid labour market regulation, a policy measure that many EU economies are adapting to improve their competitiveness, may adversely affect bank performance. Furthermore, the enhancement of corporate governance regulation is desirable as the extent of director liability is found to exert a positive effect on bank performance especially during the crisis. Finally, the quality of institutions such as the rule of law and control of corruption does matter in terms of the impact of business regulation on bank performance and policy makers should take note of this.

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Table 1. Bank Efficiencies EU-27 (2004-2010) based on SFA.

Country	EFF	s.d.	Country	EFF	s.d.
Country Bank Efficiency in the EU-27					
AUSTRIA	0.861	0.150	LATVIA	0.793	0.084
BELGIUM	0.767	0.147	LITHUANIA	0.739	0.112
BULGARIA	0.683	0.116	LUXEMBOURG	0.675	0.171
CYPRUS	0.817	0.148	MALTA	0.728	0.209
CZECH REPUBLIC	0.775	0.124	NETHERLANDS	0.737	0.159
DENMARK	0.907	0.064	POLAND	0.752	0.117
ESTONIA	0.783	0.123	PORTUGAL	0.797	0.124
FINLAND	0.825	0.115	ROMANIA	0.606	0.119
FRANCE	0.791	0.148	SLOVAKIA	0.749	0.127
GERMANY	0.883	0.087	SLOVENIA	0.902	0.058
GREECE	0.827	0.075	SPAIN	0.879	0.11
HUNGARY	0.597	0.133	SWEDEN	0.857	0.103
IRELAND	0.818	0.131	UNITED KINGDOM	0.746	0.162
ITALY	0.886	0.103	EU-27	0.834	0.138
Over Time Bank Efficiency in the EU-27 (2004-2010)					
year	EFF	s.d.	year	EFF	s.d.
2004	0.826	0.143	2008	0.808	0.146
2005	0.846	0.129	2009	0.844	0.135
2006	0.845	0.135	2010	0.846	0.129
2007	0.827	0.14			

Note: The table reports the mean cost efficiency scores (EFF) by country and by time over the 2004-2010 periods. The cost efficiencies were estimated using stochastic frontier analysis and assuming a common cross-country frontier.

Table 2. Starting a Business: Fixed Effects Panel Analysis.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF	(5) EFF
lnTA	0.0148**	0.0141*	0.0118	0.0141*	0.0116
	(0.00738)	(0.00727)	(0.00738)	(0.00738)	(0.00746)
EA	0.0135	0.0101	0.00428	0.0115	0.00345
	(0.0662)	(0.0661)	(0.0659)	(0.0662)	(0.0661)
LA	0.0893***	0.0911***	0.0834***	0.0896***	0.0867***
	(0.0214)	(0.0212)	(0.0214)	(0.0211)	(0.0216)
LLPL	0.246***	0.243***	0.235***	0.242***	0.230***
	(0.0788)	(0.0787)	(0.0783)	(0.0784)	(0.0779)
NIM	-0.00625***	-0.00608***	-0.00598***	-0.00625***	-0.00597***
	(0.00191)	(0.00191)	(0.00192)	(0.00191)	(0.00193)
ROE	0.000520***	0.000527***	0.000533***	0.000532***	0.000545***
	(0.000161)	(0.000161)	(0.000165)	(0.000164)	(0.000167)
lnGDPcap	-0.109***	-0.129***	-0.120***	-0.131***	-0.150***
	(0.0275)	(0.0300)	(0.0273)	(0.0289)	(0.0327)
DCP	-0.000386***	-0.000408***	-0.000451***	-0.000374***	-0.000438***
	(9.76e-05)	(9.77e-05)	(9.69e-05)	(9.71e-05)	(9.83e-05)
RL-WB	-0.0308**	-0.0257*	-0.0323**	-0.0259*	-0.0250
	(0.0153)	(0.0153)	(0.0152)	(0.0154)	(0.0158)
lnPRO-SB	-0.00773				0.0172*
	(0.00888)				(0.0101)
lnDAYS-SB		-0.00629**			-0.00418
		(0.00275)			(0.00296)
COST-SB			-0.00260***		-0.00246***
			(0.000744)		(0.000787)
MINCAP-SB				-0.000156***	-0.000113**
				(4.62e-05)	(4.79e-05)
Constant	1.811***	2.023***	1.985***	2.031***	2.265***
	(0.245)	(0.282)	(0.253)	(0.272)	(0.307)
Observations	10,883	10,883	10,883	10,883	10,883
F-test	8.73***	8.68***	9.68***	9.54***	7.74***
R-squared	0.036	0.037	0.040	0.037	0.041
Number of banks	2,014	2,014	2,014	2,014	2,014

Note: The table reports the fixed-effects regression results for the *starting a business* category of business regulation. The use of the fixed effects specification is justified after a Hausman test for each model. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA stands for the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. PR-SB: the total number of procedures required to register a firm, DAYS-SB: the total number of days required to register a firm, COST-SB: cost required to complete each procedure, MINCAP-SB: the amount that the entrepreneur needs to deposit in a bank or with a notary before registration and up to 3 months following incorporation and is recorded as a percentage of the economy's income per capita. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 3. Starting a Business: Dynamic Panel Analysis.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF	(5) EFF
L.EFF	0.531***	0.519***	0.487***	0.511***	0.477***
	(0.0492)	(0.0517)	(0.0522)	(0.0495)	(0.0533)
lnTA	0.0188**	0.0165*	0.0166*	0.0170*	0.0136
	(0.00941)	(0.00936)	(0.00919)	(0.00916)	(0.00911)
EA	0.435***	0.423***	0.410***	0.410***	0.385***
	(0.114)	(0.118)	(0.118)	(0.115)	(0.118)
LA	-0.0542	-0.0553	-0.0577	-0.0529	-0.0588*
	(0.0358)	(0.0356)	(0.0358)	(0.0354)	(0.0356)
LLPL	0.0639	0.0853	0.0355	0.00940	-0.0141
	(0.123)	(0.123)	(0.115)	(0.110)	(0.109)
NIM	-0.00848***	-0.00828***	-0.00838***	-0.00883***	-0.00867***
	(0.00184)	(0.00186)	(0.00182)	(0.00180)	(0.00178)
ROE	0.000795***	0.000839***	0.000866***	0.000870***	0.000943***
	(0.000234)	(0.000243)	(0.000248)	(0.000253)	(0.000266)
lnGDPcap	-0.412***	-0.432***	-0.420***	-0.432***	-0.453***
	(0.0348)	(0.0368)	(0.0341)	(0.0342)	(0.0388)
DCP	0.000128	0.000118	3.52e-06	0.000137	3.40e-05
	(0.000164)	(0.000169)	(0.000168)	(0.000160)	(0.000170)
RL-WB	0.0324	0.0328	0.0191	0.0422**	0.0327
	(0.0204)	(0.0203)	(0.0204)	(0.0205)	(0.0207)
lnPRO-SB	-0.0109				0.0222
	(0.0126)				(0.0136)
lnDAYS-SB		-0.00679			-0.00494
		(0.00419)			(0.00469)
COST-SB			-0.00357***		-0.00272**
			(0.00106)		(0.00131)
MINCAP-SB				-0.000221***	-0.000196***
				(6.99e-05)	(7.34e-05)
Constant	4.345***	4.603***	4.544***	4.577***	4.890***
	(0.301)	(0.359)	(0.308)	(0.312)	(0.377)
Observations	8,871	8,871	8,871	8,871	8,871
Number of banks	1,897	1,897	1,897	1,897	1,897
N of instruments	31	31	31	31	31
Wald	346.78***	343.01***	351.17***	355.48***	360.88***
AR2 p-value	0.1518	0.1319	0.1428	0.1120	0.1876
Hansen-J p-value	0.250	0.443	0.278	0.246	0.446

Note: The table reports the dynamic panel results for the *starting a business* category of business regulation. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA stands for the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. PR-SB: the total number of procedures required to register a firm, DAYS-SB: the total number of days required to register a firm, COST-SB: cost required completing each procedure, MINCAP-SB: the amount that the entrepreneur needs to deposit in a bank or with a notary before registration and up to 3 months following incorporation and is recorded as a percentage of the economy's income per capita. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of

correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF	(5) EFF	(6) EFF	(7) EFF	(8) EFF
L.eff	0.531***	0.509***	0.475***	0.514***	0.549***	0.521***	0.483***	0.533***
	(0.0494)	(0.0517)	(0.0575)	(0.0497)	(0.0519)	(0.0519)	(0.0561)	(0.0508)
lnTA	0.0189**	0.0175*	0.0160*	0.0177*	0.0213**	0.0185*	0.0192**	0.0197**
	(0.00929)	(0.00947)	(0.00916)	(0.00914)	(0.00944)	(0.00946)	(0.00917)	(0.00908)
EA	0.432***	0.436***	0.401***	0.411***	0.432***	0.429***	0.408***	0.420***
	(0.115)	(0.119)	(0.120)	(0.112)	(0.111)	(0.119)	(0.115)	(0.108)
LA	-0.0542	-0.0592*	-0.0588	-0.0552	-0.0539	-0.0600*	-0.0564	-0.0541
	(0.0358)	(0.0358)	(0.0359)	(0.0356)	(0.0349)	(0.0353)	(0.0352)	(0.0349)
LLPL	0.0679	0.0802	0.0366	0.0115	0.0175	0.0636	0.0217	-0.0182
	(0.123)	(0.125)	(0.115)	(0.110)	(0.127)	(0.135)	(0.119)	(0.116)

Table 4. Starting a Business: Interactions with Institutional Quality.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NIM	-0.00850***	-0.00829***	-0.00837***	-0.00878***	-0.00880***	-0.00848***	-0.00854***	-0.00919***
	(0.00184)	(0.00186)	(0.00181)	(0.00180)	(0.00199)	(0.00202)	(0.00196)	(0.00198)
ROE	0.000824***	0.000896***	0.000868***	0.000858***	0.000784***	0.000847***	0.000819***	0.000779***
	(0.000239)	(0.000251)	(0.000249)	(0.000252)	(0.000237)	(0.000249)	(0.000247)	(0.000251)
lnGDPcap	-0.411***	-0.435***	-0.422***	-0.431***	-0.378***	-0.430***	-0.403***	-0.398***
	(0.0345)	(0.0385)	(0.0343)	(0.0342)	(0.0341)	(0.0388)	(0.0324)	(0.0324)
DCP	0.000140	0.000111	2.05e-05	0.000120	0.000159	9.88e-05	-1.95e-05	0.000131
	(0.000169)	(0.000174)	(0.000166)	(0.000161)	(0.000166)	(0.000169)	(0.000169)	(0.000161)
RL-WB	0.0363	0.0532	0.0331	0.0326				
	(0.0408)	(0.0333)	(0.0230)	(0.0230)				
lnPRO-SB	-0.00982				-0.0239			
	(0.0162)				(0.0154)			
RL-WB*lnPRO-SB	-0.00156							
	(0.0179)							
lnDAYS-SB		0.00278				-0.00667		
		(0.0137)				(0.0108)		
RL-WB*lnDAYS-SB		-0.00790						
		(0.00914)						
COST-SB			-0.00185				-0.00255*	
			(0.00185)				(0.00150)	
RL-WB*COST-SB			-0.00150					
			(0.00140)					
MINCAP-SB				-0.000393*				-0.000422**
				(0.000205)				(0.000178)
RL-WB*MINCAP-SB				0.000133				
				(0.000131)				
COR-WB					0.0162	0.0602***	0.0413***	0.0215*
					(0.0242)	(0.0204)	(0.0140)	(0.0112)
COR-WB*lnPRO-SB					0.00762			
					(0.0133)			
COR-WB*lnDAYS-SB						-0.00568		
						(0.00627)		
COR-WB*COST-SB							-0.00145	
							(0.00114)	
COR-WB*MINCAP-SB								0.000169
								(0.000112)
Constant	4.336***	4.599***	4.563***	4.570***	3.976***	4.533***	4.301***	4.191***
	(0.300)	(0.368)	(0.310)	(0.313)	(0.315)	(0.377)	(0.306)	(0.304)
Observations	8,871	8,871	8,871	8,871	8,871	8,871	8,871	8,871
Number of banks	1,897	1,897	1,897	1,897	1,897	1,897	1,897	1,897
N of instruments	32	32	32	32	32	32	32	32
Wald	345.81***	326.18***	359.38***	354.00***	360.62***	349.64***	370.26***	373.60***
AR2 p-value	0.1494	0.1052	0.1756	0.1239	0.1647	0.1359	0.1113	0.1624
Hansen-J p-value	0.179	0.378	0.443	0.452	0.585	0.625	0.575	0.735

Note: The table reports the dynamic panel results for the *starting a business* category of business regulation and their interaction with institutional quality. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law, COR-WB stands for control of corruption. PR-SB: the total number of procedures required to register a firm, DAYS-SB: the total number of days required to register a firm, COST-SB: cost required completing each procedure, MINCAP-SB: the amount that the entrepreneur needs to deposit in a bank or with a notary before registration and up to 3 months following incorporation and is recorded as a percentage of the economy's income per capita. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 5. Getting Credit: Fixed Effects Panel Analysis.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF	(5) EFF
lnTA	0.0136*	0.0119	0.0137*	0.00893	0.00779
	(0.00759)	(0.00761)	(0.00803)	(0.00817)	(0.00851)
EA	0.0146	0.00829	0.0204	0.0119	0.00626
	(0.0784)	(0.0785)	(0.0823)	(0.0851)	(0.0870)

LA	0.0739***	0.0709***	0.0716***	0.0676***	0.0683***
	(0.0225)	(0.0226)	(0.0226)	(0.0225)	(0.0224)
LLPL	0.278***	0.277***	0.279***	0.250***	0.249***
	(0.0893)	(0.0891)	(0.0894)	(0.0912)	(0.0901)
NIM	-0.00415**	-0.00391**	-0.00493***	-0.00416**	-0.00411**
	(0.00176)	(0.00178)	(0.00171)	(0.00178)	(0.00178)
ROE	0.000658***	0.000680***	0.000654***	0.000687***	0.000682***
	(0.000159)	(0.000163)	(0.000165)	(0.000173)	(0.000174)
lnGDPcap	-0.249***	-0.266***	-0.222***	-0.273***	-0.303***
	(0.0307)	(0.0318)	(0.0295)	(0.0332)	(0.0349)
DCP	-0.000571***	-0.000603***	-0.000592***	-0.000699***	-0.000676***
	(0.000111)	(0.000111)	(0.000111)	(0.000109)	(0.000106)
RL-WB	0.0293*	0.00665	0.00318	0.00880	0.00475
	(0.0164)	(0.0154)	(0.0155)	(0.0160)	(0.0165)
LEG-CG	-0.00572***				-0.00108
	(0.00160)				(0.00223)
DEPTH-CG		0.00938***			0.0129***
		(0.00361)			(0.00382)
PB-CG			-0.000247		-0.000277
			(0.000279)		(0.000337)
PV-CG				0.000772***	0.000844***
				(0.000209)	(0.000240)
Constant	3.236***	3.389***	2.965***	3.521***	3.790***
	(0.290)	(0.302)	(0.275)	(0.323)	(0.341)
Observations	9,274	9,274	9,062	9,027	8,905
F-test	14.80***	14.54***	13.90***	15.41***	13.42***
R-squared	0.053	0.053	0.051	0.054	0.057
Number of banks	1,943	1,943	1,933	1,926	1,926

Note: The table reports the fixed-effects regression results for the *getting credit* category of business regulation. The use of the fixed effects specification is justified after a Hausman test for each model. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and a assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. LEG-CG: this index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending, PB-CG: this indicator reports the number of individuals and firms listed in a public credit registry with information on their borrowing history from the past 5 years, PR-CG: This indicator reports the number of individuals and firms listed by a private credit bureau with information on their borrowing history from the past 5 years, DEPTH-CG: this index measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 6. Getting Credit: Dynamic Panel Analysis.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF	(5) EFF
L.EFF	0.533***	0.481***	0.543***	0.537***	0.526***
	(0.0493)	(0.0511)	(0.0541)	(0.0526)	(0.0549)
lnTA	0.0158*	0.0262***	0.0248**	0.0171*	0.0204*
	(0.00935)	(0.00897)	(0.00983)	(0.00960)	(0.0105)
EA	0.418***	0.465***	0.499***	0.487***	0.495***
	(0.121)	(0.112)	(0.110)	(0.113)	(0.112)
LA	-0.0401	-0.0513	-0.0531	-0.0495	-0.0523
	(0.0343)	(0.0344)	(0.0357)	(0.0362)	(0.0347)
LLPL	0.0761	0.0691	0.0470	0.0642	0.0732
	(0.121)	(0.117)	(0.126)	(0.131)	(0.137)

	(1)	(2)	(3)	(4)	(5)
NIM	-0.00842***	-0.00856***	-0.00926***	-0.00762***	-0.00776***
	(0.00193)	(0.00182)	(0.00185)	(0.00178)	(0.00173)
ROE	0.000753***	0.000812***	0.000711***	0.000762***	0.000710***
	(0.000231)	(0.000233)	(0.000240)	(0.000261)	(0.000258)
lnGDPcap	-0.387***	-0.424***	-0.415***	-0.434***	-0.397***
	(0.0354)	(0.0335)	(0.0374)	(0.0474)	(0.0517)
DCP	0.000169	3.82e-05	0.000229	0.000121	0.000169
	(0.000159)	(0.000165)	(0.000160)	(0.000176)	(0.000180)
RL-WB	0.0484**	0.0418**	0.0331	0.0376*	0.0610***
	(0.0207)	(0.0194)	(0.0211)	(0.0204)	(0.0214)
LEG-CG	-0.00825***				-0.00871**
	(0.00232)				(0.00339)
DEPTH-CG		0.0185***			0.0113*
		(0.00433)			(0.00591)
PB-CG			-0.000983		-0.00112*
			(0.000691)		(0.000640)
PV-CG				0.000255	8.39e-05
				(0.000261)	(0.000258)
Constant	4.136***	4.292***	4.252***	4.547***	4.103***
	(0.303)	(0.296)	(0.317)	(0.416)	(0.421)
Observations	8,871	8,871	8,675	8,648	8,535
Number of banks	1,897	1,897	1,886	1,881	1,879
N of instruments	31	31	31	31	34
Wald	394.78***	366.15***	298.66***	286.74***	361.79***
AR2 p-value	0.1652	0.1180	0.2604	0.1885	0.2620
Hansen-J p-value	0.436	0.345	0.621	0.418	0.158

Note: The table reports the dynamic panel regression results for the *getting credit* category of business regulation .The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL: the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. LEG-CG: this index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending, PB-CG: this indicator reports the number of individuals and firms listed in a public credit registry with information on their borrowing history from the past 5 years, PR-CG: this indicator reports the number of individuals and firms listed by a private credit bureau with information on their borrowing history from the past 5 years, DEPTH-CG: this index measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 7. Getting Credit: Interaction with Institutional Quality

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF	(5) EFF	(6) EFF	(7) EFF	(8) EFF
L.EFF	0.532***	0.512***	0.537***	0.533***	0.559***	0.509***	0.545***	0.539***
	(0.0529)	(0.0565)	(0.0543)	(0.0522)	(0.0515)	(0.0540)	(0.0556)	(0.0523)
lnTA	0.0175*	0.0213**	0.0249**	0.0157	0.0204**	0.0228**	0.0224**	0.0188*
	(0.00984)	(0.00925)	(0.00976)	(0.00956)	(0.00983)	(0.00962)	(0.0101)	(0.00984)
EA	0.420***	0.432***	0.496***	0.502***	0.419***	0.427***	0.469***	0.494***
	(0.121)	(0.115)	(0.108)	(0.110)	(0.116)	(0.115)	(0.106)	(0.105)
LA	-0.0373	-0.0495	-0.0491	-0.0513	-0.0381	-0.0502	-0.0422	-0.0570
	(0.0349)	(0.0344)	(0.0355)	(0.0359)	(0.0338)	(0.0343)	(0.0349)	(0.0353)
LLPL	0.0720	0.0900	0.0529	0.0638	-0.00959	0.0106	-0.0181	0.0432
	(0.119)	(0.113)	(0.128)	(0.126)	(0.119)	(0.114)	(0.131)	(0.129)
NIM	-0.00851***	-0.00825***	-0.00915***	-0.00773***	-0.00946***	-0.00891***	-0.00959***	-0.00778***

	(1)			(2)		(3)		(4)
	(0.00189)	(0.00176)	(0.00188)	(0.00175)	(0.00220)	(0.00184)	(0.00205)	(0.00184)
ROE	0.000747***	0.000810***	0.000716***	0.000735***	0.000645***	0.000751***	0.000706***	0.000668***
	(0.000228)	(0.000220)	(0.000240)	(0.000257)	(0.000227)	(0.000226)	(0.000252)	(0.000251)
lnGDPcap	-0.394***	-0.437***	-0.417***	-0.412***	-0.370***	-0.410***	-0.395***	-0.415***
	(0.0360)	(0.0329)	(0.0380)	(0.0499)	(0.0391)	(0.0338)	(0.0366)	(0.0471)
DCP	0.000142	8.83e-05	0.000220	5.40e-05	0.000226	0.000104	0.000251	3.44e-05
	(0.000165)	(0.000160)	(0.000159)	(0.000170)	(0.000158)	(0.000162)	(0.000160)	(0.000175)
RL-WB	0.0443	0.159**	0.0325	0.0768***				
	(0.0480)	(0.0664)	(0.0209)	(0.0276)				
LEG-CG	-0.00904				0.00315			
	(0.0118)				(0.00883)			
RL-WB*LEG-CG	0.000560							
	(0.00710)							
DEPTH-CG		0.0279***				0.0243***		
		(0.00673)				(0.00615)		
RL-WB*DEPTH-CG		-0.0206*						
		(0.0112)						
PB-CG			-0.00120				-0.00137*	
			(0.000998)				(0.000729)	
RL-WB*PB-CG			0.000207					
			(0.000880)					
PV-CG				0.00126***				0.000938***
				(0.000465)				(0.000357)
RL-WB*PV-CG				-0.000817**				
				(0.000372)				
COR-WB					0.0800**	0.0958*	0.0136	0.0615***
					(0.0344)	(0.0544)	(0.0121)	(0.0196)
COR-WB*LEG-CG					-0.00666			
					(0.00479)			
COR-WB*DEPTH-CG						-0.0137		
						(0.0106)		
COR-WB*PB-CG							0.00162*	
							(0.000896)	
COR-WB*PV-GC								-0.000358
								(0.000291)
Constant	4.186***	4.400***	4.275***	4.305***	3.817***	4.161***	4.093***	4.292***
	(0.315)	(0.293)	(0.324)	(0.449)	(0.321)	(0.317)	(0.320)	(0.411)
Observations	8,871	8,871	8,675	8,648	8,871	8,871	8,675	8,648
Number of banks	1,897	1,897	1,886	1,881	1,897	1,897	1,886	1,881
N of instruments	32	32	32	32	32	32	32	32
Wald	395.04***	390.24***	298.80***	319.54***	399.47***	383.28***	314.69***	328.29***
AR2 p-value	0.1645	0.1926	0.2478	0.1833	0.2106	0.1944	0.3145	0.2011
Hansen-J p-value	0.397	0.451	0.517	0.490	0.313	0.516	0.648	0.696

Note: The table reports the dynamic panel regression results for the *getting credit* category of business regulation and their interaction with institutional quality .The dependent variable (EFF) is the cost efficiency scores calculated using SFA and a assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, L/A stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law, COR-WB stands for control of corruption. LEG-CG: this index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending, PB-CG: this indicator reports the number of individuals and firms listed in a public credit registry with information on their borrowing history from the past 5 years, PR-CG: this indicator reports the number of individuals and firms listed by a private credit bureau with information on their borrowing history from the past 5 years, DEPTH-CG: this index measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 8. Paying Taxes: Fixed Effects Panel Analysis

VARIABLES	EFF	EFF	EFF	EFF
lnTA	0.0133	0.0157*	0.0147*	0.0124
	(0.00892)	(0.00865)	(0.00891)	(0.00916)
EA	0.00317	0.0175	0.0138	-3.69e-05
	(0.102)	(0.101)	(0.102)	(0.103)
LA	0.0601**	0.0642***	0.0628***	0.0589**
	(0.0240)	(0.0239)	(0.0239)	(0.0241)
LLPL	0.303***	0.300***	0.295***	0.298***
	(0.114)	(0.113)	(0.113)	(0.114)
NIM	-0.00153	-0.00159	-0.00153	-0.00148
	(0.00211)	(0.00211)	(0.00213)	(0.00213)
ROE	0.000633***	0.000614***	0.000615***	0.000634***
	(0.000179)	(0.000175)	(0.000175)	(0.000179)
lnGDPcap	-0.341***	-0.346***	-0.352***	-0.346***
	(0.0409)	(0.0413)	(0.0410)	(0.0415)
DCP	-0.000761***	-0.000757***	-0.000785***	-0.000783***
	(0.000151)	(0.000161)	(0.000150)	(0.000158)
RL-WB	-0.000768	0.00419	0.00743	0.00220
	(0.0173)	(0.0178)	(0.0180)	(0.0185)
lnTAX-NUM	-0.0149**			-0.0149**
	(0.00581)			(0.00579)
lnTAX-HOURS		-0.00721		0.00718
		(0.0261)		(0.0269)
TAX-PRO			-0.000486	-0.000430
			(0.000469)	(0.000483)
Constant	4.257***	4.266***	4.324***	4.305***
	(0.420)	(0.431)	(0.430)	(0.435)
Observations	7,660	7,660	7,660	7,660
F-test	11.62***	10.90***	11.38***	10.33***
R-squared	0.052	0.050	0.051	0.052
Number of banks	1,865	1,865	1,865	1,865

Note: The table reports the fixed-effects regression results for the *paying taxes* category of business regulation.. The use of the fixed effects specification is justified after a Hausman test for each model. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. TAX-NUM: the total number of tax payments per year, TAX-HOURS: the time it takes to prepare, file and pay (or withhold) the corporate income tax, the value added tax and social security contributions (in hours per year), TAX-PROFIT: the amount of taxes on profits paid by the business as a percentage of commercial profits. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 9. Paying Taxes: Dynamic Panel Analysis

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF
L.EFF	0.441***	0.500***	0.433***	0.487***
	(0.0622)	(0.0638)	(0.0663)	(0.0664)
lnTA	0.00890	0.00543	0.0100	0.00377
	(0.00896)	(0.00864)	(0.00949)	(0.00877)
EA	0.522***	0.498***	0.528***	0.452***
	(0.159)	(0.158)	(0.162)	(0.162)
LA	-0.0781**	-0.0357	-0.0647*	-0.0439
	(0.0349)	(0.0333)	(0.0353)	(0.0340)
LLPL	0.231	0.125	0.215	0.126
	(0.160)	(0.156)	(0.158)	(0.157)
NIM	-0.00662***	-0.00736***	-0.00659***	-0.00718***
	(0.00186)	(0.00187)	(0.00188)	(0.00186)
ROE	0.00101***	0.000993***	0.000961***	0.00105***
	(0.000295)	(0.000285)	(0.000288)	(0.000295)
lnGDPcap	-0.436***	-0.482***	-0.469***	-0.465***
	(0.0370)	(0.0350)	(0.0408)	(0.0375)
DCP	0.000215	4.23e-06	0.000195	-6.37e-05
	(0.000195)	(0.000180)	(0.000201)	(0.000177)
RL-WB	0.00431	-0.0318	0.0137	-0.0407*
	(0.0236)	(0.0244)	(0.0248)	(0.0244)
lnTAX-NUM	-0.0280***			-0.0221**
	(0.00935)			(0.00947)
lnTAX-HOURS		-0.200***		-0.193***
		(0.0386)		(0.0430)
TAX-PRO			-0.000924**	1.10e-05
			(0.000443)	(0.000482)
Constant	4.890***	6.405***	5.183***	6.310***
	(0.382)	(0.425)	(0.452)	(0.435)
Observations	7,351	7,351	7,351	7,351
Number of banks	1,822	1,822	1,822	1,822
N of instruments	30	30	30	32
Wald	356.11***	420.11***	336.28***	426.17***
AR2 p-value	0.2245	0.4399	0.1479	0.4774
Hansen-J p-value	0.404	0.431	0.390	0.617

Note: The table reports the dynamic panel regression results for the *paying taxes* category of business regulation. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. TAX-NUM: the total number of tax payments per year, TAX-HOURS: the time it takes to prepare, file and pay (or withhold) the corporate income tax, the value added tax and social security contributions (in hours per year), TAX-PROFIT: the amount of taxes on profits paid by the business as a percentage of commercial profits. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 10. Paying Taxes: Interactions with Institutional Quality

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF	(5) EFF	(6) EFF
L.EFF	0.454***	0.500***	0.453***	0.504***	0.534***	0.489***
	(0.0615)	(0.0635)	(0.0687)	(0.0653)	(0.0656)	(0.0723)
lnTA	0.00786	0.00510	0.00910	0.0196**	0.0195**	0.0193**
	(0.00883)	(0.00857)	(0.00932)	(0.00881)	(0.00914)	(0.00957)
EA	0.503***	0.505***	0.506***	0.603***	0.612***	0.576***
	(0.158)	(0.157)	(0.163)	(0.158)	(0.162)	(0.164)
LA	-0.0705**	-0.0351	-0.0609*	-0.0535	-0.0234	-0.0507
	(0.0339)	(0.0333)	(0.0347)	(0.0325)	(0.0320)	(0.0338)
LLPL	0.227	0.144	0.194	0.207	0.118	0.204
	(0.160)	(0.158)	(0.155)	(0.173)	(0.170)	(0.168)
NIM	-0.00668***	-0.00736***	-0.00671***	-0.00738***	-0.00764***	-0.00714***
	(0.00182)	(0.00187)	(0.00186)	(0.00182)	(0.00183)	(0.00185)
ROE	0.000962***	0.00101***	0.000984***	0.000886***	0.000922***	0.000873***
	(0.000291)	(0.000287)	(0.000292)	(0.000273)	(0.000272)	(0.000265)
lnGDPcap	-0.481***	-0.483***	-0.476***	-0.500***	-0.512***	-0.501***
	(0.0378)	(0.0349)	(0.0402)	(0.0362)	(0.0349)	(0.0396)
DCP	0.000144	1.86e-05	0.000352	0.000264	8.82e-05	0.000299
	(0.000190)	(0.000184)	(0.000238)	(0.000182)	(0.000182)	(0.000213)
RL-WB	-0.178***	0.0210	0.106*			
	(0.0553)	(0.280)	(0.0606)			
lnTAX-NUM	-0.113***			-0.0687***		
	(0.0269)			(0.0166)		
RL-WB*lnTAX-NUM	0.0705***					
	(0.0193)					
lnTAX-HOURS		-0.187***			-0.261***	
		(0.0657)			(0.0631)	
RL-WB*lnTAX-HOURS		-0.00979				
		(0.0533)				
TAX-PRO			0.00135			-0.000796
			(0.00140)			(0.00133)
RL-WB*TAX-PRO			-0.00168*			
			(0.000929)			
COR-WB				-0.0214	-0.400*	0.0840*
				(0.0355)	(0.226)	(0.0434)
COR-WB*lnTAX-NUM				0.0367***		
				(0.0125)		
COR-WB*lnTAX-HOURS					0.0855**	
					(0.0423)	
COR-WB*lnTAX-PRO						-0.000226
						(0.000774)
Constant	5.602***	6.342***	5.104***	5.337***	6.683***	5.218***
	(0.417)	(0.525)	(0.456)	(0.383)	(0.504)	(0.458)
Observations	7,351	7,351	7,351	7,351	7,351	7,351
Number of banks	1,822	1,822	1,822	1,822	1,822	1,822
N of instruments	31	31	31	31	31	31
Wald	382.37***	443.90***	343.15***	421.12***	441.14***	389.76***
AR2 p-value	0.3060	0.4421	0.1604	0.3454	0.3970	0.1744
Hansen-J p-value	0.308	0.381	0.355	0.468	0.385	0.668

Note: The table reports the dynamic panel regression results for the *paying taxes* category of business regulation and their interaction with institutional quality. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law, COR-WB stands for control of corruption. TAX-NUM: the total number of tax payments per year, TAX-HOURS: the time it takes to prepare, file and pay (or withhold) the corporate income tax, the value added tax and social security contributions (in hours per year), TAX-PROFIT: the amount of taxes on profits paid by the business as a percentage of commercial profits. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses

Table 11. Enforcing Contracts: Fixed Effects Panel Analysis

Note: The table reports the fixed-effects regression results for the *enforcing contracts* category of business regulation. The use of the fixed effects specification is justified after a Hausman test for each model. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio,

VARIABLES	(1) EFF	(2) EFF	(3) EFF
lnTA	0.0155**	0.0153**	0.0153**
	(0.00735)	(0.00727)	(0.00728)
EA	0.0163	0.0151	0.0151
	(0.0662)	(0.0661)	(0.0660)
LA	0.0909***	0.0909***	0.0909***
	(0.0212)	(0.0211)	(0.0211)
LLPL	0.246***	0.243***	0.244***
	(0.0788)	(0.0784)	(0.0787)
NIM	-0.00635***	-0.00629***	-0.00638***
	(0.00190)	(0.00190)	(0.00190)
ROE	0.000517***	0.000519***	0.000520***
	(0.000162)	(0.000162)	(0.000162)
lnGDPcap	-0.110***	-0.111***	-0.113***
	(0.0273)	(0.0273)	(0.0272)
DCP	-0.000368***	-0.000371***	-0.000381***
	(9.69e-05)	(9.71e-05)	(9.81e-05)
RL-WB	-0.0305**	-0.0293*	-0.0307**
	(0.0152)	(0.0157)	(0.0152)
lnTIME-CON	0.00349		
	(0.0172)		
COST-CON		0.000761	
		(0.00116)	
lnPRO-CON			-0.0545
			(0.0740)
Constant	1.772***	1.785***	2.016***
	(0.283)	(0.247)	(0.364)
Observations	10,883	10,883	10,883
F-test	8.47***	8.63***	8.57***
R-squared	0.036	0.036	0.036
Number of banks	2,014	2,014	2,014

NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. TIME-CON: the time (in terms of days) to resolve a dispute, counted from the moment the plaintiff files the lawsuit in court until payment. This includes both the days when actions take place and the waiting periods between, COST-CON: the cost in court fees and attorney fees, where the use of attorneys is mandatory or common, expressed as a percentage of the debt value, PRO-CON: the average number of procedures to enforce a contract. The list of procedural steps compiled for each economy traces the chronology of a commercial dispute before the relevant court, To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 12. Enforcing Contracts: Dynamic Panel Analysis

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF
L.EFF	0.528***	0.514***	0.554***	0.544***
	(0.0497)	(0.0484)	(0.0524)	(0.0527)
lnTA	0.0197**	0.0170*	0.0228**	0.0212**
	(0.00952)	(0.00910)	(0.00919)	(0.00916)
EA	0.441***	0.420***	0.454***	0.441***
	(0.117)	(0.116)	(0.108)	(0.109)
LA	-0.0453	-0.0566	-0.00954	-0.0114
	(0.0357)	(0.0359)	(0.0349)	(0.0355)
LLPL	0.113	0.0971	0.0158	0.0314
	(0.128)	(0.121)	(0.114)	(0.115)
NIM	-0.00834***	-0.00818***	-0.00897***	-0.00873***
	(0.00187)	(0.00187)	(0.00180)	(0.00182)
ROE	0.000793***	0.000802***	0.000801***	0.000801***
	(0.000232)	(0.000241)	(0.000223)	(0.000224)
lnGDPcap	-0.418***	-0.402***	-0.471***	-0.463***
	(0.0349)	(0.0341)	(0.0342)	(0.0353)
DCP	0.000155	0.000155	-0.000106	-0.000106
	(0.000163)	(0.000162)	(0.000165)	(0.000165)
RL-WB	0.0346*	0.0455**	0.0301	0.0352*
	(0.0203)	(0.0202)	(0.0190)	(0.0193)
lnTIME-CON	0.00545			0.00775
	(0.0177)			(0.0172)
COST-CON		0.00356**		0.00170
		(0.00152)		(0.00155)
lnPRO-CON			-0.463***	-0.452***
			(0.112)	(0.119)
Constant	4.329***	4.179***	6.463***	6.283***
	(0.352)	(0.303)	(0.555)	(0.634)
Observations	8,871	8,871	8,871	8,871
Number of banks	1,897	1,897	1,897	1,897
N of instruments	31	31	31	33
Wald	344.36***	342.59***	372.77***	373.92***
AR2 p-value	0.1596	0.1577	0.2364	0.2385
Hansen-J p-value	0.475	0.561	0.414	0.775

Note: The table reports the dynamic panel regression results for the *enforcing contracts* category of business regulation. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and a assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. TIME-CON: the time (in terms of days) to resolve a dispute, counted from the moment the plaintiff files the lawsuit in court until payment. This includes both the days when actions take place and the waiting periods between. COST-CON: the cost in court fees and attorney fees, where the use of attorneys is mandatory or common, expressed as a percentage of the debt value, PRO-CON: the average number of procedures to enforce a contract. The list of procedural steps compiled for each economy traces the chronology of a commercial dispute before the relevant court. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 13. Enforcing Contracts: Interactions with Institutional Quality

	(1)	(2)	(3)	(4)	(5)	(6)

VARIABLES	eff	eff	eff	eff	eff	eff
L.eff	0.529***	0.525***	0.564***	0.551***	0.541***	0.569***
	(0.0511)	(0.0501)	(0.0530)	(0.0511)	(0.0481)	(0.0531)
lnTA	0.0217**	0.0168*	0.0250***	0.0229**	0.0186**	0.0244***
	(0.00961)	(0.00933)	(0.00919)	(0.00989)	(0.00917)	(0.00945)
EA	0.440***	0.417***	0.454***	0.456***	0.415***	0.449***
	(0.116)	(0.119)	(0.106)	(0.114)	(0.112)	(0.112)
LA	-0.0415	-0.0544	-0.00778	-0.0390	-0.0569	-0.0204
	(0.0359)	(0.0362)	(0.0345)	(0.0358)	(0.0352)	(0.0350)
LLPL	0.0688	0.103	0.00710	0.0767	0.0739	-0.0102
	(0.126)	(0.128)	(0.114)	(0.136)	(0.132)	(0.116)
NIM	-0.00868***	-0.00785***	-0.00897***	-0.00910***	-0.00844***	-0.00942***
	(0.00185)	(0.00188)	(0.00179)	(0.00203)	(0.00210)	(0.00184)
ROE	0.000798***	0.000747***	0.000808***	0.000767***	0.000694***	0.000767***
	(0.000232)	(0.000218)	(0.000219)	(0.000234)	(0.000230)	(0.000222)
lnGDPcap	-0.424***	-0.410***	-0.458***	-0.419***	-0.363***	-0.459***
	(0.0355)	(0.0345)	(0.0338)	(0.0394)	(0.0338)	(0.0324)
DCP	0.000136	0.000154	-0.000115	0.000143	0.000211	-1.05e-05
	(0.000166)	(0.000162)	(0.000164)	(0.000168)	(0.000158)	(0.000167)
RL-WB	0.0608	0.0623	-0.692**			
	(0.124)	(0.0410)	(0.351)			
lnTIME-CON	0.0130			-0.0564		
	(0.0368)			(0.0486)		
RL-WB*lnTIME-CON	-0.00411					
	(0.0188)					
COST-CON		0.00383			0.00426	
		(0.00331)			(0.00264)	
RL-WB*COST-CON		-0.000751				
		(0.00188)				
lnPRO-CON			-0.693***			-0.653***
			(0.169)			(0.134)
RL-WB*lnPRO-CON			0.206**			
			(0.100)			
COR-WB				-0.161	0.0371	-0.576**
				(0.135)	(0.0281)	(0.227)
COR-WB*lnTIME-CON				0.0296		
				(0.0217)		
COR-WB*COST-CON					0.000158	
					(0.00135)	
COR-WB*lnPRO-CON						0.171***
						(0.0654)
Constant	4.325***	4.248***	7.108***	4.684***	3.719***	6.990***
	(0.422)	(0.308)	(0.673)	(0.589)	(0.340)	(0.638)
Observations	8,871	8,871	8,871	8,871	8,871	8,871
Number of banks	1,897	1,897	1,897	1,897	1,897	1,897
N of instruments	32	32	32	32	32	32
Wald	344.81***	347.28***	392.03***	350.49***	366.23***	384.76***
AR2 p-value	0.1535	0.1850	0.2252	0.1858	0.2328	0.2988
Hansen-J p-value	0.491	0.578	0.372	0.486	0.187	0.327

Note: The table reports the dynamic panel regression results for the *enforcing contracts* category of business regulation and their interaction with institutional quality. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law, COR-WB stands for control of corruption. TIME-CON: the time (in terms of days) to resolve a dispute, counted from the moment the plaintiff files the lawsuit in court until payment. This includes both the days when actions take place and the waiting periods between. COST-CON: the cost in court fees and attorney fees, where the use of attorneys is mandatory or common, expressed as a percentage of the debt value, PRO-CON: the average number of procedures to enforce a contract. The list of procedural steps compiled for each economy traces the chronology of a commercial dispute before the relevant court. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 14. Protecting Investors: Fixed Effects Panel Analysis

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF
lnTA	0.0158*	0.0147*	0.0148*	0.0139
	(0.00865)	(0.00873)	(0.00874)	(0.00882)
EA	0.0166	0.0135	0.0158	0.0115
	(0.101)	(0.101)	(0.101)	(0.101)
LA	0.0632***	0.0632***	0.0621***	0.0606**
	(0.0238)	(0.0239)	(0.0239)	(0.0239)
LLPL	0.300***	0.301***	0.304***	0.306***
	(0.113)	(0.113)	(0.109)	(0.109)
NIM	-0.00167	-0.00160	-0.00146	-0.00153
	(0.00210)	(0.00211)	(0.00211)	(0.00210)
ROE	0.000614***	0.000620***	0.000617***	0.000627***
	(0.000174)	(0.000176)	(0.000173)	(0.000175)
lnGDPcap	-0.342***	-0.341***	-0.372***	-0.360***
	(0.0410)	(0.0410)	(0.0431)	(0.0434)
DCP	-0.000703***	-0.000760***	-0.000786***	-0.000760***
	(0.000153)	(0.000151)	(0.000151)	(0.000153)
RL-WB	0.00946	0.00727	-0.00458	0.00227
	(0.0175)	(0.0175)	(0.0177)	(0.0178)
DISC-PI	-0.00499***			-0.00445***
	(0.00134)			(0.00134)
LIA-PI		0.0262***		0.0254***
		(0.00822)		(0.00823)
SUI-PI			0.0495**	0.0470**
			(0.0199)	(0.0199)
Constant	4.207***	4.071***	4.247***	4.050***
	(0.420)	(0.424)	(0.422)	(0.427)
Observations	7,669	7,669	7,669	7,669
F-test	13.50***	12.39***	12.37***	13.43***
R-squared	0.051	0.051	0.052	0.054
Number of banks	1,867	1,867	1,867	1,867

Note: The table reports the fixed-effects regression results for the *protecting investors* category of business regulation. The use of the fixed effects specification is justified after a Hausman test for each model. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. DISC-PI: an index that measures the extent of disclosure, LIA-PI: an index that measures the extend of director liability, SUI-PI: an index that accounts for the shareholders' ability to sue officers and directors for misconduct. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 15. Protecting Investors: Dynamic Panel Analysis

Note: The table reports the dynamic panel regression results for the *protecting investors* category of business regulation. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF
L.EFF	0.474***	0.489***	0.490***	0.484***
	(0.0655)	(0.0654)	(0.0706)	(0.0675)
lnTA	0.0129	0.0196**	0.00599	0.0195*
	(0.00899)	(0.00963)	(0.00953)	(0.0101)
EA	0.592***	0.468***	0.551***	0.474***
	(0.164)	(0.166)	(0.169)	(0.163)
LA	-0.0734**	-0.0145	-0.0547	-0.0153
	(0.0350)	(0.0347)	(0.0340)	(0.0352)
LLPL	0.220	0.0373	0.448***	0.240
	(0.160)	(0.162)	(0.151)	(0.171)
NIM	-0.00669***	-0.00670***	-0.00462**	-0.00524***
	(0.00188)	(0.00192)	(0.00184)	(0.00196)
ROE	0.000929***	0.000918***	0.000984***	0.000994***
	(0.000284)	(0.000290)	(0.000283)	(0.000296)
lnGDPcap	-0.439***	-0.511***	-0.453***	-0.509***
	(0.0377)	(0.0425)	(0.0373)	(0.0429)
DCP	0.000356*	-1.03e-05	0.000308	-4.26e-05
	(0.000208)	(0.000188)	(0.000196)	(0.000198)
RL-WB	0.0208	-0.0466*	0.0178	-0.0338
	(0.0249)	(0.0239)	(0.0240)	(0.0235)
DISC-PI	-0.00256			-0.000524
	(0.00194)			(0.00192)
LIA-PI		0.0940***		0.0929***
		(0.0181)		(0.0192)
SUI-PI			-0.0397*	0.00129
			(0.0231)	(0.0303)
Constant	4.739***	5.043***	5.172***	5.005***
	(0.388)	(0.394)	(0.406)	(0.389)
Observations	7,359	7,359	7,359	7,359
Number of banks	1,824	1,824	1,824	1,824
N of instruments	30	30	30	32
Wald	355.65***	304.86***	347.37***	328.93***
AR2 p-value	0.1999	0.1939	0.2762	0.2102
Hansen-J p-value	0.417	0.406	0.693	0.516

TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. DISC-PI: an index that measures the extent of disclosure, LIA-PI: an index that measures the extend of director liability, SUI-PI: an index that accounts for the shareholders' ability to sue officers and directors for misconduct. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 16. Protecting Investors: Interactions with Institutional Quality.

VARIABLES	(1) eff	(2) eff	(3) eff	(4) eff	(5) eff	(6) eff
L.eff	0.470***	0.490***	0.495***	0.514***	0.501***	0.512***
	(0.0655)	(0.0651)	(0.0692)	(0.0695)	(0.0678)	(0.0690)
lnTA	0.0126	0.0187*	0.00647	0.0241**	0.0294***	0.0204**
	(0.00904)	(0.00989)	(0.00989)	(0.00963)	(0.00985)	(0.00947)
EA	0.575***	0.471***	0.545***	0.654***	0.583***	0.590***
	(0.167)	(0.168)	(0.163)	(0.165)	(0.163)	(0.158)
LA	-0.0755**	-0.0164	-0.0492	-0.0532	-0.0132	-0.0476
	(0.0350)	(0.0354)	(0.0352)	(0.0335)	(0.0343)	(0.0335)
LLPL	0.201	0.0208	0.429**	0.216	0.132	0.318*
	(0.163)	(0.159)	(0.173)	(0.174)	(0.174)	(0.188)
NIM	-0.00669***	-0.00679***	-0.00471**	-0.00672***	-0.00677***	-0.00596***
	(0.00189)	(0.00193)	(0.00197)	(0.00189)	(0.00185)	(0.00199)
ROE	0.000954***	0.000914***	0.000954***	0.000763***	0.000839***	0.000923***
	(0.000295)	(0.000292)	(0.000286)	(0.000254)	(0.000267)	(0.000263)
lnGDPcap	-0.436***	-0.510***	-0.443***	-0.466***	-0.530***	-0.455***
	(0.0385)	(0.0427)	(0.0364)	(0.0372)	(0.0410)	(0.0357)
DCP	0.000363*	-2.51e-05	0.000308	0.000361*	5.54e-05	0.000377**
	(0.000212)	(0.000186)	(0.000194)	(0.000219)	(0.000189)	(0.000181)
RL-WB	0.0104	-0.00797	-0.0309			
	(0.0746)	(0.0799)	(0.134)			
DISC-PI	-0.00502			0.0239		
	(0.0209)			(0.0161)		
RL-WB*DISC-PI	0.00115					
	(0.0112)					
LIA-PI		0.105***			0.0816***	
		(0.0253)			(0.0165)	
RL-WB*LIA-PI		-0.00827				
		(0.0161)				
SUI-PI			-0.0437			-0.00867
			(0.0371)			(0.0327)
RLWB*SUI-PI			0.00829			
			(0.0222)			
COR-WB				0.147***	0.0989*	0.0332
				(0.0423)	(0.0548)	(0.0978)
COR-WB*DISC-PI				-0.0125*		
				(0.00711)		
COR-WB*LIA-PI					-0.00890	
					(0.0114)	
COR-WB*SUI-PI						0.00699
						(0.0169)
Constant	4.733***	4.997***	5.079***	4.569***	4.980***	4.700***
	(0.388)	(0.407)	(0.452)	(0.374)	(0.385)	(0.408)
Observations	7,359	7,359	7,359	7,359	7,359	7,359
Number of banks	1,824	1,824	1,824	1,824	1,824	1,824
N of instruments	31	31	31	31	31	31
Wald	359.29***	310.11***	359.08***	390.97***	361.20***	371.46***
AR2 p-value	0.1913	0.1973	0.2625	0.1772	0.1682	0.1981
Hansen-J p-value	0.331	0.521	0.690	0.232	0.536	0.355

Note: The table reports the dynamic panel regression results for the *protecting investors* category of business regulation and their interaction with institutional quality. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and a assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. DISC-PI: an index that measures the extent of disclosure, LIA-PI: an index that measures the extend of director liability, SUI-PI: an index that accounts for the shareholders' ability to sue officers and directors for misconduct. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 17. Resolving Insolvency: Fixed Effects Panel Analysis.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF
lnTA	0.0158**	0.0154**	0.0154**	0.0148**
	(0.00729)	(0.00728)	(0.00727)	(0.00728)
EA	0.0121	0.0128	0.0161	0.00771
	(0.0661)	(0.0661)	(0.0662)	(0.0663)
LA	0.0901***	0.0937***	0.0908***	0.0897***
	(0.0211)	(0.0213)	(0.0211)	(0.0212)
LLPL	0.261***	0.240***	0.246***	0.254***
	(0.0804)	(0.0788)	(0.0789)	(0.0799)
NIM	-0.00625***	-0.00621***	-0.00634***	-0.00604***
	(0.00189)	(0.00190)	(0.00190)	(0.00189)
ROE	0.000501***	0.000523***	0.000517***	0.000504***
	(0.000159)	(0.000163)	(0.000162)	(0.000159)
lnGDPcap	-0.111***	-0.130***	-0.111***	-0.148***
	(0.0274)	(0.0308)	(0.0273)	(0.0318)
DCP	-0.000301***	-0.000345***	-0.000370***	-0.000256**
	(0.000101)	(9.86e-05)	(9.88e-05)	(0.000103)
RL-WB	-0.0352**	-0.0334**	-0.0302*	-0.0240
	(0.0154)	(0.0153)	(0.0166)	(0.0166)
lnTIME-INS	0.0216***			0.0373***
	(0.00643)			(0.00783)
COST-INS		0.00104***		0.00144***
		(0.000344)		(0.000368)
REC-INS			1.24e-05	0.000754***
			(0.000223)	(0.000266)
Constant	1.793***	1.992***	1.800***	2.093***
	(0.246)	(0.284)	(0.245)	(0.289)
Observations	10,883	10,883	10,883	10,883
F-test	10.20***	8.50***	8.47***	9.16***
R-squared	0.037	0.036	0.035	0.040
Number of banks	2,014	2,014	2,014	2,014

Note: The table reports the fixed-effects regression results for the *resolving insolvency* category of business regulation. The use of the fixed effects specification is justified after a Hausman test for each model. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLP is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. REC-INS: the recovery rate calculates how many cents on the dollar claimants (creditors, tax authorities, and employees) recover from an insolvent firm, COST-INS: the average cost of bankruptcy proceedings. The cost of the proceedings is recorded as a percentage of the estate's value. TIME-INS: the average time (in terms of years) to close a business. Information is collected on the sequence of procedures and on whether any procedures can be carried out simultaneously. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 18. Resolving Insolvency: Dynamic Panel Analysis.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES		(1) EFF	(2) EFF	(3) EFF		(4) EFF
L.EFF		0.522***	0.513***	0.531***		0.524***
		(0.0489)	(0.0514)	(0.0490)		(0.0537)
lnTA		0.0198**	0.0157*	0.0152		0.0135
		(0.00950)	(0.00938)	(0.00968)		(0.00944)
EA		0.435***	0.419***	0.398***		0.409***
		(0.117)	(0.119)	(0.121)		(0.120)
LA		-0.0489	-0.0581	-0.0472		-0.0409
		(0.0354)	(0.0358)	(0.0354)		(0.0354)
LLPL		0.0955	0.0944	0.0946		0.0734
		(0.124)	(0.126)	(0.120)		(0.123)
NIM		-0.00841***	-0.00833***	-0.00822***		-0.00864***
		(0.00187)	(0.00187)	(0.00184)		(0.00185)
ROE		0.000754***	0.000825***	0.000791***		0.000873***
		(0.000230)	(0.000241)	(0.000229)		(0.000257)
lnGDPcap		-0.409***	-0.433***	-0.399***		-0.399***
		(0.0347)	(0.0370)	(0.0348)		(0.0416)
DCP		0.000246	0.000191	0.000269		0.000241
		(0.000170)	(0.000164)	(0.000170)		(0.000169)
RL-WB		0.0312	0.0293	0.0320		0.0318
		(0.0204)	(0.0216)	(0.0208)		(0.0226)
lnTIME-INS		0.0238***				-0.00841
		(0.00760)				(0.0192)
COST-INS			0.00117***			0.000368
			(0.000386)			(0.000638)
REC-INS				-0.00138***		-0.00176*
				(0.000378)		(0.000961)
Constant		4.268***	4.593***	4.320***		4.382***
		(0.303)	(0.345)	(0.302)		(0.364)
Observations		8,871	8,871	8,871		8,871
Number of banks		1,897	1,897	1,897		1,897
N of instruments		32	32	32		34
Wald		440.42***	412.21***	434.70***		452.74***
AR2 p-value		0.2176	0.2136	0.2459		0.2360
Hansen-J p-value		0.416	0.465	0.446		0.378

Note: The table reports the dynamic panel regression results for the *resolving insolvency* category of business regulation. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. REC-INS: the recovery rate calculates how many cents on the dollar claimants (creditors, tax authorities, and employees) recover from an insolvent firm, COST-INS: the average cost of bankruptcy proceedings. The cost of the proceedings is recorded as a percentage of the estate's value. TIME-INS: the average time (in terms of years) to close a business. Information is collected on the sequence of procedures and on whether any procedures can be carried out simultaneously. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 19. Resolving Insolvency: Interactions with Institutional Quality.

VARIABLES	EFF	EFF	EFF	EFF	EFF	EFF
L.EFF	0.562***	0.500***	0.554***	0.556***	0.517***	0.556***
	(0.0508)	(0.0548)	(0.0504)	(0.0514)	(0.0529)	(0.0519)
lnTA	0.0224**	0.0181*	0.0159*	0.0242***	0.0178*	0.0194**
	(0.00895)	(0.00953)	(0.00921)	(0.00938)	(0.00953)	(0.00953)
EA	0.393***	0.428***	0.366***	0.405***	0.416***	0.389***
	(0.115)	(0.119)	(0.120)	(0.121)	(0.120)	(0.123)
LA	-0.0473	-0.0518	-0.0518	-0.0471	-0.0583	-0.0450
	(0.0334)	(0.0366)	(0.0335)	(0.0335)	(0.0356)	(0.0334)
LLPL	-0.0112	0.0904	0.0688	-0.0269	0.0851	0.0658
	(0.106)	(0.132)	(0.110)	(0.113)	(0.137)	(0.121)
NIM	-0.00823***	-0.00831***	-0.00780***	-0.00891***	-0.00855***	-0.00853***
	(0.00181)	(0.00185)	(0.00180)	(0.00188)	(0.00204)	(0.00190)
ROE	0.000678***	0.000820***	0.000642***	0.000619***	0.000789***	0.000583***
	(0.000224)	(0.000237)	(0.000208)	(0.000226)	(0.000243)	(0.000212)
lnGDPcap	-0.429***	-0.441***	-0.427***	-0.429***	-0.426***	-0.421***
	(0.0335)	(0.0389)	(0.0333)	(0.0332)	(0.0401)	(0.0353)
DCP	0.000154	0.000133	0.000321**	0.000194	0.000249	0.000411**
	(0.000162)	(0.000166)	(0.000162)	(0.000166)	(0.000167)	(0.000167)
RL-WB	-0.0276	0.0593	0.188***			
	(0.0228)	(0.0480)	(0.0379)			
lnTIME-INS	-0.172***			-0.132***		
	(0.0548)			(0.0454)		
RL-WB*lnTIME-INS	0.100***					
	(0.0275)					
COST-INS		0.00497			0.00520	
		(0.00471)			(0.00323)	
RL-WB*COST-INS		-0.00237				
		(0.00297)				
REC-INS			0.00225**			0.000830
			(0.000879)			(0.000913)
RL-WB*REC-INS			-0.00242***			
			(0.000497)			
COR-WB				-0.00293	0.0644***	0.124***
				(0.0127)	(0.0248)	(0.0282)
COR-WB*lnTIME-INS				0.0619***		
				(0.0180)		
COR-WB*COST-INS					-0.00166	
					(0.00170)	
COR-WB*REC-INS						-0.00131***
						(0.000397)
Constant	4.536***	4.599***	4.362***	4.477***	4.410***	4.304***
	(0.298)	(0.381)	(0.287)	(0.316)	(0.396)	(0.301)
Observations	8,871	8,871	8,871	8,871	8,871	8,871
Number of banks	1,897	1,897	1,897	1,897	1,897	1,897
N of instruments	33	33	33	33	33	33
Wald	472.63***	412.74***	480.92***	415.00***	360.79***	409.16***
AR2 p-value	0.2366	0.2075	0.3027	0.1871	0.1703	0.2377
Hansen-J p-value	0.607	0.375	0.644	0.541	0.506	0.522

Note: The table reports the dynamic panel regression results for the *resolving insolvency* category of business regulation and their interaction with institutional quality. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law, COR-WB stands for control of corruption. REC-INS: the recovery rate calculates how many cents on the dollar claimants (creditors, tax authorities, and employees) recover from an insolvent firm, COST-INS: the average cost of bankruptcy proceedings. The cost of the proceedings is recorded as a percentage of the estate's value. TIME-INS: the average time (in terms of years) to close a business. Information is collected on the sequence of procedures and on whether any procedures can be carried out simultaneously. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 20: Employing Workers: Fixed Effects Panel Analysis.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF
lnTA	0.0158	0.00963	0.00747	0.0108
	(0.0138)	(0.00986)	(0.00978)	(0.0178)
EA	0.00437	-0.0498	-0.0547	-0.0668
	(0.107)	(0.118)	(0.119)	(0.132)
LA	0.0312	0.0540**	0.0520*	0.00963
	(0.0296)	(0.0270)	(0.0270)	(0.0364)
LLPL	0.416***	0.254	0.249	0.460***
	(0.103)	(0.156)	(0.157)	(0.115)
NIM	0.00396	-0.00404**	-0.00384**	0.000826
	(0.00274)	(0.00187)	(0.00186)	(0.00239)
ROE	0.000586***	0.000738***	0.000736***	0.000736***
	(0.000181)	(0.000171)	(0.000171)	(0.000183)
lnGDPcap	-0.361***	-0.421***	-0.407***	-0.433***
	(0.0568)	(0.0428)	(0.0385)	(0.0625)
DCP	-0.000820***	-0.000614***	-0.000626***	-0.000609**
	(0.000240)	(0.000156)	(0.000156)	(0.000259)
RL-WB	0.0306	0.0115	0.00461	0.0559**
	(0.0228)	(0.0197)	(0.0196)	(0.0258)
MW-EW	0.543***			0.669***
	(0.122)			(0.130)
NOT-EW		-0.00155**		-0.00202***
		(0.000643)		(0.000726)
SEV-EW			0.00510	0.00482
			(0.00465)	(0.00550)
Constant	4.247***	5.104***	4.858***	4.921***
	(0.650)	(0.450)	(0.423)	(0.788)
Observations	6,105	6,294	6,294	4,730
F-test	10.59***	13.38***	14.73***	11.62***
R-squared	0.063	0.073	0.073	0.082
Number of banks	1,790	1,843	1,848	1,769

Note: The table reports the fixed-effects regression results for the *employing workers* category of business regulation. The use of the fixed effects specification is justified after a Hausman test for each model. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. MW-EW: ratio of minimum wage to average wage, SP-EW: severance pay for redundancy dismissal after 20 years of continuous employment (in salary weeks), NOT-MW: notice period for redundancy dismissal after 20 years of continuous employment (in salary weeks). To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 21. Employing Workers: Dynamic Panel Analysis.

VARIABLES	(1) EFF	(2) EFF	(3) EFF	(4) EFF
L.EFF	0.462***	0.404***	0.379***	0.645***
	(0.0772)	(0.0705)	(0.0688)	(0.136)
lnTA	0.0279**	0.00458	-0.0119	0.0160
	(0.0112)	(0.0109)	(0.0101)	(0.0197)
EA	0.633***	0.311	0.292	0.398
	(0.193)	(0.206)	(0.218)	(0.273)
LA	-0.0704*	-0.0456	-0.0831**	-0.0893**
	(0.0386)	(0.0377)	(0.0402)	(0.0442)
LLPL	0.259***	-0.139	0.184	0.379**
	(0.0750)	(0.250)	(0.304)	(0.161)
NIM	-0.00625**	-0.00768***	-0.00568***	-0.00512*
	(0.00244)	(0.00195)	(0.00207)	(0.00279)
ROE	0.000911***	0.000930***	0.00119***	0.00105***
	(0.000306)	(0.000272)	(0.000271)	(0.000315)
lnGDPcap	-0.450***	-0.581***	-0.514***	-0.702***
	(0.0510)	(0.0417)	(0.0430)	(0.0688)
DCP	0.000316	0.000258	0.000410**	0.000233
	(0.000376)	(0.000191)	(0.000174)	(0.000399)
RL-WB	-0.0507*	0.0169	0.0384	0.0740**
	(0.0291)	(0.0249)	(0.0255)	(0.0324)
MW-EW	0.0309			0.908***
	(0.172)			(0.132)
SEV-EW		0.00886***		0.00589**
		(0.00208)		(0.00248)
NOT-EW			0.000340	-0.00355***
			(0.000922)	(0.000968)
Constant	4.721***	6.187***	5.917***	6.946***
	(0.532)	(0.383)	(0.428)	(0.777)
Observations	5,853	6,009	6,009	4,503
Number of banks	1,743	1,791	1,791	1,705
N of instruments	27	24	24	23
Wald	290.38***	362.35 ***	374.77***	258.58***
AR2 p-value	0.3124	0.0718	0.1284	0.0862
Hansen-J p-value	0.528	0.499	0.360	0.358

Note: The table reports the dynamic panel regression results for the *employing workers* category of business regulation. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international \$, RL-WB stands for rule of law. MW-EW: ratio of minimum wage to average wage, SP-EW: severance pay for redundancy dismissal after 20 years of continuous employment (in salary weeks), NOT-MW: notice period for redundancy dismissal after 20 years of continuous employment (in salary weeks). To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 22. Employing Workers: Interactions with Institutional Quality.

VARIABLES	(1) eff	(2) eff	(3) eff	(4) eff	(5) eff	(6) eff
	(1)		(2)		(3)	(4)
L.eff	0.465***	0.379***	0.389***	0.502***	0.439***	0.452***
	(0.0777)	(0.0682)	(0.0734)	(0.0767)	(0.0735)	(0.0764)
lnTA	0.0199*	0.00897	0.00619	0.0241**	0.00792	0.0126
	(0.0114)	(0.0118)	(0.0114)	(0.0110)	(0.0110)	(0.0114)
EA	0.525***	0.467**	0.324	0.623***	0.482**	0.389*
	(0.195)	(0.214)	(0.211)	(0.191)	(0.238)	(0.218)
LA	-0.0596	-0.0523	-0.0436	-0.0607	-0.0548	-0.0406
	(0.0369)	(0.0379)	(0.0378)	(0.0373)	(0.0369)	(0.0362)
LLPL	0.243***	0.125	-0.139	0.266***	0.255	-0.108
	(0.0789)	(0.292)	(0.253)	(0.0846)	(0.308)	(0.264)
NIM	-0.00593**	-0.00659***	-0.00766***	-0.00660***	-0.00623***	-0.00800***
	(0.00243)	(0.00198)	(0.00197)	(0.00239)	(0.00214)	(0.00205)
ROE	0.000980***	0.00113***	0.000924***	0.000920***	0.00106***	0.000852***
	(0.000317)	(0.000263)	(0.000273)	(0.000305)	(0.000257)	(0.000268)
lnGDPcap	-0.492***	-0.549***	-0.578***	-0.550***	-0.520***	-0.575***
	(0.0503)	(0.0403)	(0.0411)	(0.0514)	(0.0395)	(0.0464)
DCP	0.000113	0.000346**	0.000229	0.000233	0.000334*	0.000371*
	(0.000370)	(0.000172)	(0.000198)	(0.000345)	(0.000202)	(0.000206)
RL-WB	-0.130***	-0.0614*	0.00460			
	(0.0389)	(0.0354)	(0.0305)			
MW-EW	-0.538*			-0.0703		
	(0.282)			(0.166)		
RL-WB*MW-EW	0.526***					
	(0.197)					
NOT-EW		-0.00333***			0.000646	
		(0.00123)			(0.000992)	
RL-WB*NOT-EW		0.00889***				
		(0.00261)				
SEV-EW			0.00734***			0.00800***
			(0.00228)			(0.00259)
RL-WB*SEV-EW			0.00105			
			(0.00116)			
COR-WB				0.00775	0.0206	0.0377*
				(0.0288)	(0.0263)	(0.0202)
COR-WB*MW-EW				0.240**		
				(0.103)		
COR-WB*NOT-EW					0.00259*	
					(0.00150)	
COR-WB*SEV-EW						0.000233
						(0.000823)
Constant	5.395***	5.947***	6.164***	5.664***	5.578***	5.935***
	(0.553)	(0.399)	(0.380)	(0.526)	(0.429)	(0.449)
Observations	5,853	6,009	6,009	5,853	6,009	6,009
Number of banks	1,743	1,791	1,791	1,743	1,791	1,791
N of instruments	28	25	25	28	25	25
Wald	314.61***	424.32***	382.70***	315.93***	448.14***	414.65***
AR2 p-value	0.489	0.0436	0.1637	0.3612	0.0772	0.330
Hansen-J p-value	0.302	0.320	0.256	0.287	0.239	0.316

Note: The table reports the dynamic panel regression results for the *employing workers* category of business regulation and their interaction with institutional quality. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. MW-EW: ratio of minimum wage to average wage, SP-EW: severance pay for redundancy dismissal after 20 years of continuous employment (in salary weeks), NOT-MW: notice period for redundancy dismissal after 20 years of continuous employment (in salary weeks). To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 23. Getting Credit: Interactions with Crisis Dummy.

VARIABLES	EFF	EFF	EFF	EFF
L.EFF	0.519***	0.462***	0.541***	0.540***
	(0.0526)	(0.0545)	(0.0575)	(0.0581)
lnTA	0.0200**	0.0321***	0.0258***	0.0215**
	(0.00981)	(0.00902)	(0.00978)	(0.00954)
EA	0.432***	0.466***	0.504***	0.495***
	(0.120)	(0.106)	(0.111)	(0.114)
LA	-0.0342	-0.0349	-0.0510	-0.0381
	(0.0344)	(0.0349)	(0.0358)	(0.0357)
LLPL	0.0529	0.0242	0.0362	0.0109
	(0.122)	(0.117)	(0.126)	(0.128)
NIM	-0.00869***	-0.00869***	-0.00940***	-0.00787***
	(0.00192)	(0.00175)	(0.00183)	(0.00173)
ROE	0.000653***	0.000658***	0.000694***	0.000667**
	(0.000239)	(0.000242)	(0.000260)	(0.000271)
lnGDPcap	-0.382***	-0.435***	-0.415***	-0.435***
	(0.0377)	(0.0364)	(0.0413)	(0.0475)
DCP	0.000152	1.64e-05	0.000223	0.000178
	(0.000167)	(0.000169)	(0.000169)	(0.000177)
RL-WB	0.0469**	0.0531***	0.0338	0.0484**
	(0.0218)	(0.0205)	(0.0226)	(0.0223)
LEG-CG	-0.00987***			
	(0.00230)			
CRISIS DUM	-0.0247**	-0.0565***	0.000816	-0.0224***
	(0.0103)	(0.0163)	(0.00284)	(0.00707)
LEG-CG*CRISIS DUM	0.00318**			
	(0.00142)			
DEPTH-CG		0.0152***		
		(0.00419)		
DEPTH-CG*CRISIS DUM		0.0103***		
		(0.00292)		
PB-CG			-0.000754	
			(0.000695)	
PB-CG*CRISIS DUM			-0.000263	
			(0.000262)	
PV-CG				0.000107
				(0.000312)
PV-CG*CRISIS DUM				0.000305***
				(7.54e-05)
Constant	4.045***	4.331***	4.238***	4.471***
	(0.321)	(0.319)	(0.350)	(0.416)
Observations	8,871	8,871	8,675	8,648
Number of banks	1,897	1,897	1,886	1,881
N of instruments	33	33	33	33
Wald	398.22***	421.57***	340.49***	382.32***
AR2 p-value	0.1085	0.1683	0.2718	0.3141
Hansen-J p-value	0.317	0.2622	0.553	0.432

Note: The table reports the dynamic panel regression results for the *getting credit* category of business regulation and their interaction with the crisis dummy (CRISIS DUM). The CRISIS DUM variable takes a value of 1 for the years 2008 to 2010 and zero otherwise. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law, COR-WB stands for control of corruption. LEG-CG: this index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending, PB-CG: this indicator reports the number of individuals and firms listed in a public credit registry with information on their borrowing history from the past 5 years, PR-CG: this indicator reports the number of individuals and firms listed by a private credit bureau with information on their borrowing history from the past 5 years, DEPTH-CG: this index measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table 24. Protecting Investors: Interactions with Crisis Dummy.

VARIABLES	(1) EFF	(2) EFF	(3) EFF
L.EFF	0.441***	0.421***	0.482***
	(0.0705)	(0.0717)	(0.0777)
lnTA	0.0167*	0.0280***	0.00825
	(0.00884)	(0.0102)	(0.00944)
EA	0.590***	0.482***	0.515***
	(0.160)	(0.159)	(0.168)
LA	-0.0624*	0.00311	-0.0446
	(0.0351)	(0.0351)	(0.0338)
LLPL	0.187	0.0430	0.432***
	(0.159)	(0.159)	(0.154)
NIM	-0.00710***	-0.00706***	-0.00454**
	(0.00183)	(0.00184)	(0.00181)
ROE	0.000751***	0.000720***	0.000816***
	(0.000276)	(0.000279)	(0.000276)
lnGDPcap	-0.428***	-0.497***	-0.442***
	(0.0386)	(0.0440)	(0.0381)
DCP	0.000398*	-5.73e-05	0.000418**
	(0.000222)	(0.000203)	(0.000209)
RL-WB	0.00911	-0.0437*	0.0176
	(0.0275)	(0.0260)	(0.0266)
CRISIS-DUM	-0.0158*	-0.0396***	0.0106
	(0.00934)	(0.00990)	(0.0174)
DISC-PI	-0.00215		
	(0.00194)		
CRISIS-DUM*DISC-PI	0.00178		
	(0.00159)		
LIA-PI		0.0822***	
		(0.0174)	
CRISIS-DUM*LIA-PI		0.00732***	
		(0.00205)	
SUI-PI			-0.0369
			(0.0231)
CRISIS-DUM*SUI-PI			-0.00266
			(0.00296)
Constant	4.597***	4.883***	5.005***
	(0.387)	(0.401)	(0.413)
Observations	7,359	7,359	7,359
Number of banks	1,824	1,824	1,824
N of instruments	32	32	32
Wald	430.45***	357.37***	402.73***
AR2 p-value	0.2163	0.1404	0.2013
Hansen-J p-value	0.341	0.126	0.448

Note: The table reports the dynamic panel regression results for the *protecting investors* category of business regulation and their interaction with the crisis dummy (CRISIS DUM). The CRISIS DUM variable takes a value of 1 for the years 2008 to 2010 and zero otherwise. The dependent variable (EFF) is the cost efficiency scores calculated using SFA and assuming common frontier across countries. TA stands for total assets, EA is the equity to assets ratio, LLPL is the ratio of loan loss provision to total loans, LA stands for the loan to total assets ratio, NIM stands for net interest margin, ROE stands for return of equity, DCP stands for the ratio of domestic credit to the private sector over GDP, GDPcap is GDP per capita in purchasing power parity (PPP) constant 2005 international $, RL-WB stands for rule of law. DISC-PI: an index that measures the extent of disclosure, LIA-PI: an index that measures the extend of director liability, SUI-PI: an index that accounts for the shareholders' ability to sue officers and directors for misconduct. To avoid collinearity problems with the selected variables, we first analyse correlations of all the selected variables. We observe that there is not a high level of correlation between the variables used in the models. ***, ** and * indicate 1%, 5% and 10% significance levels respectively. Robust Standard errors are in parentheses.

Table A1: Cost Function following Battese and Coelli (1995)

	Coefficient	Standard	Errors	t-ratio
$\ln P_1$	0.448	0.031		14.24
$\ln P_2$	0.308	0.026		11.67
$\ln Y_1$	0.622	0.02		31.24
$\ln Y_2$	0.552	0.017		32.753
$\ln N_1$	0.079	0.014		5.78
$\ln N_2$	-0.218	0.026		-8.252
$(\ln P_1)^2$	0.135	0.005		29.484
$(\ln P_2)^2$	-0.066	0.003		-19.197
$(\ln P_1)(\ln P_2)$	-0.102	0.007		-13.997
$(\ln Y_1)^2$	0.114	0.002		70.281
$(\ln Y_2)^2$	0.121	0.002		70.725
$(\ln Y_1)(\ln Y_2)$	-0.312	0.005		-62.475
$(\ln P_1)(\ln Y_1)$	-0.04	0.003		-15.16
$(\ln P_2)(\ln Y_1)$	0.01	0.002		3.921
$(\ln P_1)(\ln Y_2)$	-0.02	0.003		-6.832
$(\ln P_2)(\ln Y_2)$	0.005	0.003		1.906
$(\ln N_1)^2$	0.009	0.002		4.922
$(\ln N_2)^2$	-0.057	0.006		-10.049
$(\ln N_1)(\ln N_2)$	-0.023	0.004		-5.126
$(\ln N_1)(\ln Y_1)$	0.002	0.002		1.299
$(\ln N_1)(\ln Y_2)$	-0.005	0.001		-3.443
$(\ln N_1)(\ln P_1)$	-0.005	0.002		-2.225
$(\ln N_1)(\ln P_2)$	0.018	0.002		8.323
$(\ln N_2)(\ln Y_1)$	0.036	0.003		10.349
$(\ln N_2)(\ln Y_2)$	0.039	0.003		12.881
$(\ln N_2)(\ln P_1)$	0.077	0.005		15.648
$(\ln N_2)(\ln P_2)$	-0.025	0.005		-5.146
t	0.027	0.009		3.053
$(t)^2$	-0.008	0.001		-6.952
$t(\ln P_1)$	0.005	0.002		2.915
$t(\ln P_2)$	0.008	0.002		4.24
$t(\ln Y_1)$	0.001	0.001		0.639
$t(\ln Y_2)$	-0.007	0.001		-6.194
$t(\ln N_1)$	0.002	0.001		1.713
$t(\ln N_2)$	0.005	0.001		3.695
constant	-3.029	0.093		-32.701
Z variables affecting cost inefficiency				
C5	-0.013	0.002		-7.264
GDPgr	-0.01	0.003		-3.798
INFL	0.025	0.005		4.553
Lerner	-0.702	0.038		-18.482
Country Dummies		yes		
Number of observations		11428		
Log likelihood		4665.24		

Notes: The table depicts the estimations of the cost efficiency frontier and the correlates of bank cost inefficiencies using the Battese and Coelli (1995) model. P_1 and P_2 stand for the input prices of labour and physical capital Y_1 and Y_2 stand for the outputs of loans and other earning assets respectively, N_1 and N_2 are the fixed netputs of fixed assets and equity. As environmental (Z) variables that could affect inefficiency we employ the five banks concentration ratio (C5), GDP growth (GDPgr), the Lerner index at the country level as a measure of bank competition (Lerner) and the inflation rate (INFL). We also impose country dummies.