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The Effect of Banks’ Financial Position on Credit Growth: Evidence from OECD Countries[1]

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Abstract

This paper presents empirical evidence on the effect of banks’ financial position on credit growth using a sample of 29 OECD countries. The failure of the exogeneity assumption of explanatory variables is addressed using dynamic panel type instruments. The empirical results show that among capital, profits and liquidity at the end of the previous year, capital is the most important predictor of credit growth in the current year. The relationship between capital and credit growth is non-linear. Point estimates from the preferred econometric specification imply that at the sample mean a one standard deviation increase (decrease) in capital is associated with an increase (decrease) of 0.8 (0.3) percentage points in credit growth upon impact and 1.6 (0.6) percentage points in the long-run.

JEL classification: G21, E44, G28.

Keywords: Bank lending, banking, bank financial position, credit supply, OECD.

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1 Introduction

Understanding the determinants of credit growth is an important issue, as credit is considered a key transmitter of financial shocks into real activity and it is at the heart of the lending channel of monetary policy. These issues have received renewed attention after the recent Great Recession following the collapse of the subprime housing market in the US.

This paper presents empirical evidence on the effect of banks' financial position (capital, profits and liquidity) on credit growth using a sample of 29 OECD countries. The empirical results show that among capital, profits and liquidity at the end of the previous year, capital is the most important predictor of credit growth in the current year. The relationship between capital and credit growth is non-linear. Point estimates from the preferred econometric specification imply that at the sample mean a one standard deviation increase (decrease) in capital is associated with an increase (decrease) of 0.8 (0.3) percentage points in credit growth upon impact and 1.6 (0.6) percentage points in the long-run. Capital is followed in importance by profits. Liquidity only seems to affect aggregate credit growth significantly in countries where smaller banks are important. These results are robust to the definition used to measure banks' financial positions and economic conditions, and are robust to considering the organization of the bank sector in each country. The failure of the exogeneity assumption of explanatory variables is addressed using the system GMM estimator from the dynamic panel literature. The use of this estimator for a "square" panel, instead of a "short" panel as originally devised, presents technical challenges that are discussed in the paper.

The paper is related to the literature on the determinants of banks' credit growth. This topic received considerable attention after the US recession of the early 90s, which coincided with a decline in banks' credit. Sharpe (1995) provides a very comprehensive survey of this work and discusses the extent to which the slowdown in credit growth was a result of weaknesses in banks' balance sheets, increased capital requirement or more stringent regulatory practices. The author concludes that the evidence shows a robust link between credit growth and both loan performance and bank profitability, although the causality of this relationship is not clear. The studies surveyed by Sharpe mostly analyze cross-sections of banks. In contrast, the results presented here use a panel of countries, adding to this literature in two dimensions. First, it investigates the generality of previous findings analyzing a single country. Second, the use of dynamic panel estimation techniques provides a nice alternative for the identification problem in this literature.

The use of a panel of countries to study bank-related questions is not new, but this is the first work to analyze the effect of banks' financial position on credit growth using this type of dataset. Ferreira (2009) used a panel of 26 EU countries, with quarterly observations between 1991 and 2006, to study the evolution of lending as a fraction of GDP and the lending channel of monetary policy. On the other hand, Levintal (2013) used a panel 28 OECD countries, with yearly observations for 1980-2003, to analyze the real effects of banking shocks. Levintal uses the same data source for bank information as this paper and identifies three types of bank shocks: profitability, capital, and reserves. He finds that profits, measured by ROA, is the bank shock with the most significant real effect. In contrast, the present paper ascribes the biggest explanatory power predicting credit growth to banks' equity capital. Thus, to the extent that the real effect of bank shocks operates through credit the result of the present study is at odds with the evidence presented by Levintal (2013). Furthermore, both studies cited above use "square" panels and so are subject to the methodological issues discussed in here.

The paper is organized as follows. Section 2 considers the specification of the economic model with a discussion about the variables that should be included in the model. Section 3 presents the data used in the econometric analysis. Section 4 discusses the econometric specification of the model with a discussion of how the system GMM estimator is used to address the dynamic panel bias and the failure of the exogeneity assumption of the variables included in the model. It presents the main results of the paper and analyzes in detail the estimated effects of banks' financial position on credit growth. Section 5 presents robustness checks to the main results, and section 6 concludes.

2 Model Specification

This section reviews the determinants of credit growth to inform the selection of the variables to be included in the model. The focus of the paper is on the effect of banks' financial position, which will be measured both from balance sheet and income statements. In particular, the effect of: (*i*) profits; (*ii*) equity capital; and (*iii*) liquidity, will be estimated. Additional variables are included to control for the time series structure of loan growth, economic conditions and the organization of the bank sector. The definition and rationale for all these variables is discussed below.

Time series structure: The dependent variable is the growth rate of outstanding loans, defined as the log change in outstanding loans, $\Delta\ell_t = \log L_t - \log L_{t-1}$. Using loan growth is standard in the literature and has the advantages over using loans in level of being stationary. It is expected that loan growth depends on past values, as outstanding loans do not fully adjust in a year, which is the frequency of the dataset. Thus, $\Delta\ell_{it}$ will depend on its own lags.

In order to specify the other variables that will be included in the model, it is helpful to start with the following simplified version of a bank balance sheet:

Assets	Liabilities
$L_t + L_t^{\text{IB}} + \text{Sec}_t + M_t$	$D_t + D_t^{\text{IB}} + E_t$

where L_t stands for loans, superscript IB for inter-banks, Sec_t for securities, M_t for cash or money holdings, D_t for deposits and E_t for equity. All variables measured at the end of period t. Moreover, let A_t be the size of the bank balance sheet or total assets or liabilities, and δ_t denote the ratio of loans to asset, $\delta_t = \frac{L_t}{A_t}$. Using these definitions we have that,[2]

$$\Delta\ell_t = \log\left(\frac{L_t}{L_{t-1}}\right) = \log\left(\frac{\delta_t A_t}{\delta_{t-1}A_{t-1}}\right) = \Delta\log\delta_t + \Delta a_t \tag{1}$$

This is, the growth rate of loans can be decomposed into changes in bank's portfolio and the growth rate of assets. In practice any given variable can affect theses two margins, but for expositional purposes it will be helpful to consider them separately. The growth rate of assets, *ceteris paribus* and assuming the bank business is profitable, will depend on the availability of funds, which typically come from equity and deposits. The portfolio decision, in turn, will depend on funding costs and expected returns, which will be given by economic conditions.

Banks financial position: *Profits* are one source of new equity. Let Y_t be banks (after tax) profits in year t and assume that these profits are used to increase the banks equity capital keeping the same leverage. Let λ_t be banks' leverage at the end of year t, equal to the ratio of assets to equity, $\frac{A_t}{E_t}$. Thus, the increase in

[2] I use the convention that small caps letter denote the log of capital letters.

assets from these profits, ΔA^*, is given by,[3]

$$\Delta A^* = (E^* - E_t)\frac{A^* - A_t}{E^* - E_t} = Y_t\lambda_t \qquad \text{or} \qquad \Delta a^* = \frac{Y_t}{A_t}\lambda_t$$

This is the increase in log assets is the return on assets (ROA) times leverage, or simply the return on equity (ROE). However, when equity at year-end is negative, $E_t < 0$, leverage is not defined and the previous expression does not hold. In this case the bank sector is insolvent and it will be assumed that profits are used to rebuild banks' equity. In other words, we can think of the bank as a net debtor, who will use new profits to pay these debts first and therefore we expect no effect on the size of the balance sheet.

Banks' *equity capital* may play a key role on balance sheet expansion, as emphasized in the literature. In general, external funds for balance sheet expansion may come from the issuance of equity, debt or deposits. The literature emphasizes the role of banks's equity capital on funding costs by alleviating the moral hazard problem of bank managers (Holmstrong and Tirole, 1997). Thus, it is expected that banks with higher ratios of equity to assets will be able to raise new funds at lower costs. Moreover, minimum capital requirement limit banks' ability to expand their balance sheets. Therefore, we would expect a nonlinear effect of capital ratios due to regulation thresholds (*cf.* Peek and Rosengren 1995; and Thakor, 1996).

Finally, *liquidity* will also play a key role in the growth of credit as selling securities is a cheaper source of funds given adverse selection problems. In fact, Stein (1998) shows that loan sales and uninsured liabilities involve higher funding costs due to adverse selection problems as the bank has private information about their loan portfolio. It follows that banks prefer to fund lending activities by selling securities or issuing insured deposits. Therefore, the growth rate of loans may depend on availability of liquid assets and the costs of insured deposits. Kashyap and Stein (2000) measure the former as balance sheet liquidity, BSL_{it}, defined as the ratio of securities to assets. The evidence suggests that small banks are more sensitive to this adverse selection costs, therefore liquidity measures interacted with the fraction of small to total banks' assets at the country level, are also to be considered.[4] On the other hand, the cost of deposits will depend on economic conditions which are discussed below.

[3] In fact,

$$Y_t\lambda_t = \Delta A^* \equiv A^* - A_t = A_t\left(\frac{A^*}{A_t} - 1\right) \qquad \Rightarrow \qquad \Delta a^* \equiv \log\left(\frac{A^*}{A_t}\right) = \log\left(1 + \frac{Y_t}{A_t}\lambda_t\right) \approx \frac{Y_t}{A_t}\lambda_t$$

[4] See Kashyap and Stein (2000) and Ostergaard (2001).

Economic conditions: will affect the costs of deposits, expected returns on different investments and the demand for credit. The *cost of deposits* could be proxied as the ratio of total interest expenses to total deposits.[5] Alternatively, the costs of deposits could be measured directly as the interest rate on deposits.

Expected returns on loans versus other type of assets will affect the portfolio decision. Bernanke and Blinder (1988) stress the dependence of this margin on interest rates, both on loans and on alternative investments (government bonds in the model). Another alternative is to invest in securities, which expected returns could be proxied by the return on domestic security markets. The expected return on loans depends on the interest rate and on the probability of borrower's default, the latter could be controlled for by the ratio of loans provisions to outstanding loans. This is the mechanism emphasized by the literature on the *credit risk channel*. Finally, Tobin (1982) highlights the dependence of the portfolio choice on the cost of banks' deposits, which were discussed above.

The *business cycle* will affect both the demand for credit and lending standards. Credit demand will be given by private and government consumption and investments decisions which are partially financed with credit. Finally, the bank literature also shows that banks change their lending standards over the business cycle.[6]

Organization of the bank sector: The banking literature identify other variables that may affect the growth of loans at the country level. First, the literature on bank efficiency identify a potential role for bank size and diversification. At the aggregate level bank size could be proxy by the ratio of banks' assets to GDP. On the other hand, we can use the fact that larger banks take more risk to use the ratio of large bank assets to total banks assets as a measure of both diversification and economies of scale in lending activities.This ratio of large banks assets to total banks assets may affect aggregate lending just by a composition effect as the evidence for the US have found that larger banks hold smaller fraction of loans to total assets.[7]

Finally, it is important to bear in mind that several variables affect loan growth through more than one channel something that needs to be considered when interpreting the results.

[5] Loutskina and Strahan (2009) measure cost of deposits from Call Report for commercial banks in the US as the ratio of total interest expenses on deposits to total deposits. The data on banks used here only reports total interest expenses.

[6] Asea and Blomberg, 1998; Lown and Morgan, 2001; Schreft and Owens, 1991; Weinberg, 1995.

[7] See Berger, Demsetz, and Strahan (1999).

3 Data

This section describes the data used in the econometric analysis, consisting of an unbalanced panel of countries with yearly observations. The sample of countries is determined primarily by availability of banks' information, which is obtained from the OECD Bank Statistics database. This data set reports information for bank groups in each country. The most aggregated group is *all banks*, which includes: *commercial banks*, *saving banks*, *cooperative banks*, and *other miscellaneous monetary institutions*. When available information for *large commercial banks* and *foreign commercial banks* is reported separately. The subsequent analysis considers information at the country level, therefore the most comprehensive bank group is chosen for each country. Table 1 presents the list of countries present in the OECD Bank Statistics dataset and the bank group selected for the analysis.[8] Table 1 considers only availability of information on credit growth, when information on all bank variables is considered the total number of observation drops from 726 to 705. Additional information is lost when bank variables are merged with long-term and lending rates leaving a total of 530 country-year observations.[9] Including domestic stock market returns further reduce the number of observations to 500 and 6 more observations are lost when real variables (GDP, consumption and investment) are included. It should be noted that Turkey and Luxembourg are left out of the analysis because of the information requirements. Turkey does not have information on long-term interest rates, whereas the series on stock market returns and lending rates do not overlap in the case of Luxembourg. As mentioned above it will be assumed that the growth rate of credit depends on its own lagged realization, which will make additional observations to be discarded in the econometric analysis. As Table 2 shows, in the benchmark regression, the number of observations is 480. The Table also lists the sample period by country of the data used in the analysis.

The OECD Bank Statistics database contains data for income statements and balance sheets of bank groups in OECD countries. All figures are in local currency at the end of the period and are transformed to real values using individual countries consumer price indices (CPI).[10] Information on outstanding nominal

[8] For four countries (Canada, Greece, Mexico and US) information on the second most comprehensive bank group is used to extend the time series, see notes to Table 1.

[9] One reason why information on interest rates is not complete is because in 1999 the countries in the European Union changed the way statistics on lending rates are reported. This presents challenges in the construction of time series for lending (and deposits) rates as no lending rates with the old methodology are published anymore.

[10] Data in millions of National currency, except for Japan (100 millions) and Slovak Republic (thousands).

loans for country i at the end of year t, is included in the assets breakdown of the balance sheet as item 16. Using domestic CPI loan series are deflated to obtain real outstanding loans, L_{it}. Loan growth is defined as the log-difference of real loans, $\Delta\ell_{it} \equiv \log L_{it} - \log L_{i,t-1}$ expressed in percents. Table 3 presents mean loan growth by country for the sample of 480 observation used in the econometric analysis. The sample mean of credit growth is 5.8% per year. Ireland presents the largest annual growth of real credit with almost 22% for the period 1997-2005, whereas Mexico exhibit the largest decline in real credit with an average decline of 2.2% per year in 1995-2007.

Profit measures are constructed based on income statements reported in the OECD dataset. Return on equity, (ROE) is defined as the ratio of item 11, after-tax profits, to item 19, capital and reserves, expressed in percents. Capital and reserves is the closest measure of banks' capital reported. Table 3 presents averages by country of $\mathrm{ROE}_{i,t-1}$ for the sample used in the estimations below. The sample mean is 8.5%. New Zealand presents the highest average ROE in the sample with almost 17%, whereas Japan presents the lowest with almost -2%. Banks' equity capital, CAP is defined as the ratio of item 19, capital and reserves, to item 25, end-year balance sheet total, expressed in percents. Balance sheet total equals the sum of assets or liabilities at year-end and henceforth it will be referred to as total assets. Table 3 presents means by country of $\mathrm{CAP}_{i,t-1}$. Considering all country-year observations the mean is 6.1%, whereas taking individual countries it ranges from 3.1% in Belgium to 10.1% in Australia. Likewise, balance sheet liquidity, BSL is defined as item 17, securities in the asset side of the balance sheet at year-end, to total assets (item 25) and it is expressed in percents. Averages for this ratio for individual countries go from 7.1% in Australia to 33.4% in Greece. When all counties are considered the average $\mathrm{BSL}_{i,t-1}$ is 18.9% (Table 3).

Measures on deposits costs and loan provisions are also calculated using information from the OECD Bank Statistics dataset. DEPOSIT COSTS is defined as the ratio of item 2, interest expenses, to item 22, non-bank deposits.[11] Non-bank deposits corresponds to deposits held by bank customers as opposed to interbank deposits hold by banks among themselves. Table 4 presents the sample mean for DEPOSIT COSTS considering the sample of 480 observations used in the estimations below: approximately 10%. Since information on loan provisions (item 8.a) is not available for all countries and years, total provisions (item 8)

[11] According to the definitions in the OECD Bank dataset interest expenses "generally includes interest paid on liabilities and fee expenses related to borrowing operations, and it may include in some cases the difference between the issue price on debt instruments and their par value" (OECD, 2004).

is used instead in the benchmark specification. PROVISIONS is defined as the ratio of total provisions to nominal outstanding loans (item 16). The sample average of this variable is 86 basis points, as reported in Table 4. Loan provisions will be used to check the robustness of the results in section 5.

Economic conditions also include variables collected from other sources. Real effective lending rates are calculated as the difference between nominal lending rates from the IFS, line 60P..ZF... and effective CPI inflation obtained from the OECD Main Economic Indicators, Prices: Consumer Prices. Real effective long-term interest rates are calculated as the difference between nominal 10 year government bonds or similar and effective CPI inflation. Nominal long term rates are obtained from the OECD Main Economic Indicators and the IFS.[12] Real domestic stock market returns are calculated as the log difference of real stock market price indices and expressed in percents. Nominal price indices are obtained from the OECD Main Economic Indicators and the IFS and deflated using domestic CPI to compute real stock market price indices. Changes in real aggregate demand are calculated as the log difference of real aggregate demand and expressed in percents. Real aggregate demand is defined as the sum of real private and government consumption and investment. All these series are obtained from the OECD Main Economic Indicators .[13]

Organization of the bank sector is measured as the ratio of banks' total assets to GDP. GDP figures corresponds to real GDP at 2000 prices published by the OECD. Real total assets at 2000 prices were computed from nominal total assets, deflated by domestic CPI.[14] Table 4 reports averages by country and for all observations of all these variables. Appendix A provides additional descriptive statistics for all the variables in Tables 3 and 4.

4 Estimation of the Effect of Banks' Financial Position on Credit Growth

This section discusses the econometric issues that arise when estimating the effect of banks' financial position on credit growth and specifies the benchmark econometric model for this analysis. Subsequently, it presents the main results on the effect of banks' financial position on credit growth. First, the effect of profits, capital and liquidity are estimated independently while controlling for economic conditions and the

[12]For Chile CPI-indexed bonds yields, obtained from the Central Bank of Chile, are used instead.

[13]Real private consumption corresponds to households and non-profit institutions serving households. Real government consumption is final consumption expenditure of general government. Real investment is gross fixed capital formation.

[14]Real GDP figures for Japan are in 100 millions and for Slovak Republic in thousands.

organization of the banking sector. Then, alternative measures for the three dimensions of banks' financial position are considered. Additional robustness checks are provided in section 5.

4.1 Econometric Specification

Credit growth is defined as the log-difference of real loans, $\Delta\ell_{it} \equiv \log L_{it} - \log L_{i,t-1}$. The model to be estimated takes the form:

$$\Delta\ell_{it} = \alpha(L)\Delta\ell_{it} + \beta' X_{it} + \mu_t + \mu_i + \nu_{it} \qquad i = 1, \ldots, N \quad t = 1, \ldots, T \tag{2}$$

where $\alpha(L)$ is a lag polinomial with coeficients to be estimated, β is a vector of coeficients to be estimated, X_{it} is a vector of controls, μ_t are time effects, μ_i are country fixed effects and ν_{it} is an idiosyncratic shock. The variables to be included in the vector of controls, for country i in year t, follows from the discussion in section 2. It comprises two set of variables $X_{it} = \left[X_{it}^{pre}\ X_{it}^{endo}\right]$, with X_{it}^{pre} variables that are predetermined at the beginning of period t and X_{it}^{endo} variables that are endogenous to the idiosyncratic shock ν_{it}, given by,

$$X_{it}^{pre} = \left[\begin{array}{llll} \text{ROE}_{i,t-1} & \text{CAP}_{i,t-1} & \text{CAP}^2_{i,t-1} & \text{BSL}_{i,t-1} \\ \text{DEPOSIT COSTS}_{i,t-1} & \text{PROVISIONS}_{i,t-1} & \text{ASSETS/GDP}_{i,t-1} & \end{array}\right]$$

$$X_{it}^{endo} = \left[\begin{array}{ll} \text{LENDING RATE}_{it} & \text{LONG TERM RATE}_{it} \\ \text{STOCK RETURNS}_{it} & \Delta\text{AGG. DEMAND}_{i,t} \end{array}\right]$$

The first set of predetermined variables measure banks' financial position at the end of the previous year. Return on equity, $\text{ROE}_{i,t-1}$ measures banks' profits. The ratio of equity capital to assets, $\text{CAP}_{i,t-1}$ measures capital and the square of this variable is included to estimate potential nonlinear effects of banks' capital around regulatory thresholds. Finally, balance sheet liquidity, $\text{BSL}_{i,t-1}$ is measured as the ratio of securities to assets. Other variables control for economic conditions and the organization of the bank sector.

The identification strategy relies on two assumptions. First, it is assumed that predetermined variables and the lagged value of credit growth $\Delta\ell_{i,t-1}$ are weakly exogenous; whereas contemporaneous variables are endogenous. This is,

$$\mathbb{E}(v_{it} \big| \Delta\ell_{i,t-1}, X_{it}^{pre}, \Delta\ell_{i,t-2}, X_{i,t-1}, \ldots, \Delta\ell_{i1}, X_{i1}) = 0 \qquad \text{(Assumption 1)}$$

Second, it is assumed that the idiosyncratic shocks are serially uncorrelated:

$$\mathbb{E}[v_{it} v_{i,t-1}] = 0 \qquad \text{(Assumption 2)}$$

Note that Assumption 1 does not rule out that the idiosyncratic disturbance, v_{it} could be correlated with future predetermined and contemporaneous endogenous variables. Nor does it rule out that banks can change their income or balance sheet statements, according to their expectation of future credit growth, as long as their expectations are not correlated with the error term. In other words, Assumption 1 says that when banks form their expectations about future credit growth, they do not know anything about future shocks.

In model (2) the growth rate of loans depends on its own lagged value and the country considered causing a *dynamic panel bias* in the estimation. This renders OLS estimates biased. In fact, if we consider model (2) with a disturbance, $\varepsilon_{it} = \mu_i + v_{it}$ then the coefficient on lagged credit growth will be positively biased, as the estimation will attribute predictive power to this variable that belongs to the country fixed effect in the error term. On the contrary, if we estimate the model using the within group (*i.e.* fixed effects) estimator, the bias will be negative due to the within group transformation. Although biased the fact that both estimates are biased in opposite directions provides a useful benchmark for theoretically superior estimators (Bond, 2002). Table 5 reports estimated coefficient for model (2) with 1 lag of the dependent variable, using OLS and FE. The coefficient on lagged credit growth is statistically significant in both specifications and these estimates imply an interval for its value between 0.19 and 0.32 (columns 1 and 2). Both ROE and BSL have positive signs and only the latter appears statistically significant in the specifications with country effects. The second order polynomial on equity capital, $\text{CAP}_{i,t-1}$ is jointly statistically significant at the 5% level in the FE estimation, with only $\text{CAP}^2_{i,t-1}$ significant at the 10% level. This suggest the presence of nonlinear effect for this variable on credit growth, as expected. Other coefficients have the expected signs. One exception is real LONG TERM RATE which displays a positive sign and it is statistically significant. Another exception is the estimated coefficient on ASSETS/GDP which turns negative when country effects are taken into account and the coefficient is statistically significant. Contemporaneous changes in aggregate demand are statistically significant, but this might be the result of the endogeneity of this variable. Perhaps more surprising is that contemporaneous stock returns and lending rates are not significant when country effects are considered.

The dynamic panel bias is inversely proportional to the panel's length, T. This is, it is larger for shorter panels, *i.e.* when the temporal dimension, T is small. Table 2 shows that the average time length is 16.6 years with a maximum of 28 years, which is not in the "small" range for T. Thus, this bias is not the main econometric concern in the estimation of this model. Nonetheless, the techniques to address this bias will serve to address the endogeneity problem or more generally the failure of the strict exogeneity assumption of the variables included in X_{it}, which is the main econometric challenge here. In general, there are two approaches to address the dynamic panel bias. The methods proposed in the literature to solve the dynamic panel bias rely on constructing suitable sets of instrumental variables under assumptions 1 and 2, using past information of the existing variables for this. The first approach discussed below consists of transforming the model by taking first differences, yielding the *difference GMM* estimator. Next, the *system GMM* estimator is discussed which combines the former with using suitable instruments for the model in levels. The latter approach is best suited in cases where some variables are highly persistent as the case at hand.

Arellano-Bond (1991) propose a *difference GMM* estimator for dynamic panels. The idea is to take first differences of model (2) and then instrument for endogenous variables in the transformed model. Differencing the model gives,

$$\Delta^2 \ell_{it} = \alpha \Delta^2 \ell_{i,t-1} + \beta' \Delta X_{it} + \Delta \mu_t + \Delta v_{it} \tag{3}$$

where $\Delta^2 \ell_{it} = \Delta \ell_{it} - \Delta \ell_{i,t-1}$. This transformation eliminates fixed effects, but makes $\Delta^2 \ell_{i,t-1}$ endogenous, as $\Delta \ell_{i,t-1}$ is correlated with $v_{i,t-1}$ in the new disturbance Δv_{it}. Similarly, any predetermined variable become endogenous. In fact, for predetermined variable x, the term $x_{i,t-1}$ in Δx_{it} will be correlated with $v_{i,t-1}$. But $x_{i,t-1}$ ($\Delta \ell_{i,t-2}$) will be a suitable instrument for Δx_{it} ($\Delta^2 \ell_{i,t-1}$) as it is correlated with it and independent of $v_{i,t-1}$ by Assumption 1. Deeper lags of x ($\Delta \ell$) will also be candidate instruments, as $\Delta x_{i,t-1}$ ($\Delta^2 \ell_{i,t-2}$) and deeper lags of it will be as well. The standard way of using $x_{i,t-1}$ as an instrument is to consider the vector,

$$\begin{bmatrix} \cdot \\ x_{i,1} \\ \vdots \\ x_{i,T-1} \end{bmatrix}$$

where "·" denote a missing value. This procedure is also referred as instrumenting in IV style. One of the shortcommings of this approach is that each additional instruments comes at the burden of reducing the sample size, as each additional lag forces to drop one time period. In contrast, in GMM framework it is possible to use $x_{i,t-1}$ to build a set of instruments with one instrument for each time period and substituting zeros for missing observations, giving rise to meaningful instrument moment conditions. This approach generates a matrix of instruments of the form:

$$\begin{bmatrix} 0 & 0 & \cdots & 0 \\ x_{i,1} & 0 & \cdots & 0 \\ 0 & x_{i,2} & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & x_{i,T-1} \end{bmatrix}$$

Replacing missing with zeros there is no longer a trade-off between number of instruments and number of observations; thus, it is common practice in the literature of dynamic panels to include as many instruments as possible. The number of instruments equals the number of columns of the matrix of instruments. For the lagged dependent variable instrumenting in GMM-style using $\Delta\ell_{i,t-2}$ will generate $T-2$ instruments.[15] Additional lags will generate $T-3,\ T-4,\ldots,1$ additional instruments. Therefore, using all available lags to construct the set of instrumental variables makes the number of instruments quadratic in T. The same is the case for any other variable that is to be instrumented. This will generate too many instruments in the case of "square" panels like the one studied here, which could be problematic. First, a large number of instruments can overfit endogenous variables (Roodman, 2006). In fact, in the extreme case where the

[15] The number of instruments could be T if information for lagged values of variables are available. This is the case for the data being analyzed here.

number of instruments equal the number of observations the instrument set will span the space of the explanatory variables, causing the projection of the endogenous variable in the instrument space to equal itself, violating the instrumental variable assumption. Second, too many instruments cause numerical problems in the estimation affecting the accuracy of the estimates. Third, it weakens the Hansen test of overidentifying restrictions leading to its non-rejection (Bowsher, 2002).

There are two ways around the problem of too many instruments which will be considered below. The first one is to restrict the number of lags to be used as instruments. The second consist of collapsing the set of instruments to get one instrument per instrumental variable. The latter combines elements of the IV and GMM style, as it builds a single instrumental variable using $x_{i,t-1}$ but still replaces missing with zeros. This gives a single instrument using $x_{i,t-1}$ as instrument:

$$\begin{bmatrix} 0 \\ x_{i,1} \\ \vdots \\ x_{i,T-1} \end{bmatrix}$$

As discussed above, when x_{it} is a predetermined variable lags one and up are suitable instruments for the differenced model (3). In contrast, when x_{it} is an endogenous variable suitable instruments are the second and deeper lags of the variable. In fact, in this case the term $x_{i,t-1}$ is correlated with $v_{i,t-1}$ and therefore $x_{i,t-1}$ will not be a suitable instrument for Δx_{it}, but $x_{i,t-2}$ is still independent of $v_{i,t-1}$ and could be used as an instrument. Deeper lags of $x_{i,t-2}$ and $\Delta x_{i,t-2}$ and deeper lags of it will also be valid instruments.

Estimations using difference GMM are reported in Table 5 columns 3 to 6. Column 3 presents estimates that use 2 lags of explanatory variables as instruments in GMM style. The estimated coefficient is in the lower range of the interval [0.19, 0.32], but the number of instruments is almost equal to the number of observations. With 6 lags in GMM style, the number of instruments is greater than the number of observation, but the algorithm limits the number of instruments by the number of observations. Estimated coefficients are very similar to the FE estimates, as was to be expected by the use of as many instruments as observations. Collapsing the set of instruments, using 2 and 6 lags of each explanatory variable yields instrument sets with 52 and 100 elements, respectively (columns 5 and 6). This yields a more reasonable number of instruments, but the coefficient on lagged credit growth falls outside the desired interval and there are other problems that suggests the model is poorly specified. Indeed, the Sargan tests rejects the joint validity of the moment restrictions.[16] Moreover, the Arellano-Bond test for the independence of the idiosyncratic disturbances–Assumption 2–is rejected, suggesting serial correlation of the innovations of model (2). This assumption was key in the construction of the appropriate instrument sets. Arellano and Bond (1991) shows how to construct a test statistics under the null of serial independence, that converges to a normal distribution when the number of panels, N is large. The procedure consist of testing for second order serial correlation in the differenced residuals to test for first order serial correlation on the original disturbances. The p-values for this tests are reported in all the GMM regressions for first and second order serial correlation in the original disturbances, AR(2) and AR(3) for the differenced residuals, respectively. For example, using 6 collapsed lags as instruments this test indicate first order serial correlation at the 5% significance level, but cannot reject that there is no serial correlation of second order for the original disturbances. There are two ways to take this time series pattern into account. One is to construct the instrument set starting with lag $t-2$ and $t-3$, respectively for predetermined and endogenous variables. However, following this approach seems to weaken the instruments significantly.[17] Another is to enrich the time series specification of the variables in the model, so the innovations become serially uncorrelated, as we do below including an additional lag for credit growth to the model.

Table 6 reports the estimates using OLS, FE and difference GMM of model (2) including 2 lags of credit growth as explanatory variables. Now the Arellano-Bond tests cannot reject the null of serially uncorrelated innovations. With 2 lags of the dependent variable we expect the sum of the coefficients in the $\alpha(L)$ polynomial to be upward and downward biased, respectively in the case of OLS and FE. Therefore, all models report the sum of the estimated coefficients on $\Delta\ell_{i,t-1}$ and $\Delta\ell_{i,t-2}$ to facilitate comparison. As it was the case before OLS and FE estimates provide a useful benchmark to asses the performance of theoretically superior estimators, [0.36,0.48] in this case. Now the model seems better specified. The sum of these coefficients is in the desired range and the diagnostics tests do not reject the serial independence of the innovations or

[16] This test is not consistent in the presence of non-spherical disturbances as in here; nonetheless, it is the best statistic for model diagnostics. The alternative Hansen test, which is consistent, has the disadvantage of being weakened by the use of a large number of instruments (Bowsher, 2002). In fact, this test does not reject the null of valid moment restrictions in all the GMM models reported in Table 5.

[17] Carrying out the estimation using system GMM and restricting the set of instruments in this way yields statistical insignificant coefficient for most variables suggesting that instruments are weakened significantly (Appendix C).

the joint validity of the moment restrictions. The coefficients of the FE estimator are similar as before and the joint test on the coefficients of CAP is rejected at the 5% confidence level. Figure 1 panel (a) plots the estimated effect of $\text{CAP}_{i,t-1}$ on credit growth based on the FE estimates. Point estimates of the FE model imply that an increase of one standard deviation in the ratio of bank capital to assets at the sample mean of 6.1% will increase credit growth by 72 basis points upon impact and 1.13 percentage point in the long-run.

Despite the fact, that the difference GMM estimates pass the validations of the diagnostics checks indicated above, there are some signs of problems, as most coefficients are not significant. The problem with the *difference GMM* estimator in this case is originated by the use of persistent individual series. Bond (2002) recommends investigating the time series properties of all the series being used in the estimation and suggests using *system GMM* when they are found to be highly persistent. Appendix B analyze the time series properties of the individual series. BSL and ASSETS/GDP are found to be highly persistent with estimated coefficients for the autoregressive term between 0.81 and 0.93, and 0.98 and 1.04, respectively.

The *system GMM* estimator uses both the differenced and level equations, "doubling" the number of observations used in the estimation. The way right-hand side variables are instrumented for in the difference equations is the same as in *difference GMM*. For the level equations, right-hand side variables are instrumented by their differences, which are assumed independent of the individual effects. For example, for $\Delta\ell_{i,t-1}$ a valid instrument will be $\Delta^2\ell_{i,t-1}$, as it is assumed not correlated with the fixed effect and correlated with $\Delta\ell_{i,t-1}$. Similarly, for a variable x_{it} which is predetermined, Δx_{it} will be a valid instrument as it is assumed not correlated with the fixed effect and correlated with x_{it}. Deeper lags of them will also be valid instruments. For endogenous variables $\Delta x_{i,t-1}$ and deeper lags may be used as instruments.

Column 5, system GMM with 2 collapsed lags seems the best fit for the model. LENDING RATE and ΔAGG. DEMAND are significant, and LONG TERM RATE and ASSETS/GDP have the desired signs. The sum of the coefficient on lagged credit growth is on the upper part of the desired range and the diagnostics tests do not reject neither joint validity of moment restriction nor the serial uncorrelation of the innovations. The estimated effects of banks' financial position yields CAP as the only significant variable. In fact the coefficient on the linear term is significant at the 10% level and the linear and quadratic terms are jointly significant at the 5% level. This nonlinear effect will depend on the initial level of the ratio of equity to assets (Figure 1 panel b). For instance, starting at the sample mean of 6.1% the effect of an increase (decrease) of one standard deviation in CAP is an increase (decrease) of 0.8 (0.3) percentage points in the growth rate of credit.[18] The presence of lagged credit growth in the model imply that the long-run effect will be the previous effect times $\frac{1}{1-\alpha(L)}$, *i.e.* an associated increase (decrease) in credit growth in the long-run of 1.6 (0.6) percentage points. The coefficient on ROE displays the right sign, but it does not seem to have neither a statically or economically significant effect on credit growth. Balance sheet liquidity, BSL, have a negative sign in contrast to what was expected. Deposit costs at the end of the previous year and contemporaneous lending rates, stock returns and aggregate demand growth are all significant with the expected signs. The implied effects on credit growth of this point estimates from a one standard deviation increase are: DEPOSIT COSTS (ratio of interest expenses to deposits) -2.76 percentage points; LENDING RATE 4.72 percentage points; STOCK RETURNS 5.01 percentage points; and the growth rate of aggregate demand, ΔAGG. DEMAND 1.01 percentage points.[19]

4.2 Effect of Banks' Financial Position

Having specified the benchmark specification it is now possible to study in more detail the effect of banks' financial position on credit growth. Three aspects will be considered. First, the individual effect of each variable that measures banks' financial positions will be considered. Then, it will be analyzed the effect of different measures of profits, liquidity and capital, respectively. Finally, the next section presents some robustness checks. Table 7 presents the results when banks' variables are included one at a time to investigate the significance of each one separately and potential non-linear effect of profits and liquidity. The first column presents the benchmark regression results to facilitate comparison. All models use two collapsed lags to construct the instrument set and the system GMM estimator. When only CAP is included in the model, estimates remain qualitatively the same. The joint significance of the linear and quadratic capital terms is affected but they are still significant at the 10% level (column 3). When only ROE is included the estimates are as before. More interesting is the estimation that considers both a linear and a quadratic profit term (column 5). Both of the ROE coefficients are significant at the 10% level, but they are not jointly

[18]The standard deviation of CAP for the whole sample is 2.2% as reported in Appendix A.

[19]Standard deviations are reported in Appendix A and equal: 5.684 for DEPOSIT COSTS; 3.101 for LENDING RATE; 20.635 for STOCK RETURNS; and 2.774 for ΔAGG. DEMAND.

significant in evidence the individual coefficients were only marginally significant.[20] When only balance sheet liquidity, BSL is included the coefficient turns bigger in absolute value, but it is still statistically insignificant. No significant effect is found when both a linear and a quadratic BSL term are included. This analysis reinforce the result that CAP is the only significant predictor of subsequent credit growth in this sample, with an effect that is nonlinear as was expected by the presence of capital regulations.

Table 8 reports estimations for different definitions of banks' profits. As detailed above ROE was set to zero when equity was negative. If ROE is defined as the ratio of after tax profits to equity, even when equity is negative results remain unchanged. This was expected as there is only one country-year observation with negative equity, corresponding to the US in 1983 (see Appendix A). Next, return on assets (ROA) at the end of the previous year is considered instead of ROE. Column 3 in Table 8 reports the results for this specification. The coefficient on ROA is positive, but statistically insignificant. When leverage is included as an additional control the estimated coefficient on ROA do not change significantly. But the coefficient associated with CAP do change, but the joint significance of the linear and quadratic terms is not compromised.

Table 9 presents the estimation results for different definitions of banks' liquidity. Once again, to facilitate comparison, the first column presents the benchmark regression results. The second column presents the results of replacing $\mathrm{BSL}_{i,t-1}$ with the interaction of this variable and SMALL, the fraction of small banks' assets to total assets.[21] Not all countries reports information to compute this ratio so the regression include only 18 countries and 249 observations. The coefficient on liquidity turns statistically insignificant, in line with previous studies that suggests that liquid assets are a more important funding source for smaller banks. The second order polynomial on capital remains significant and now the linear term is significant by itself at the 1% level. More surprising is the fact, that the coefficient on ROE becomes significant and the coefficient on the lending rate becomes negative. The specification tests show that the joint validity of the moment conditions is rejected, whereas the independence of the original disturbances is not. Column 3 present the benchmark regression estimated with the restricted sample of 249 observations used in the

[20] Considering the difference GMM estimator–not reported–individual coefficients loose their significance. Only when 6 collapsed lags are included using the system GMM estimator the coefficients on ROE are jointly significant. All this suggest that ROE might have a nonlinear effect, but it can not be ruled out that this is due to overfitting, as the result only becomes strong when many instruments are included.

[21] The ratio of small bank assets to total assets, SMALL is calculated as the ratio of assets of non-large commercial banks, savings banks and cooperative banks to total banks assets.

previous regression. Again the joint validity of the moment restrictions is rejected, suggesting that the number of instruments is too large relative to the sample size of 249. Column 4 considers the sum of securities and reserves[22] to total assets at the end of the previous year as the measure of liquidity. Comparison with the benchmark regression shows that the coefficient on liquidity turns negative, the point estimates of other coefficients do not change significantly, and the results of the test of the significance of coefficients and diagnostics test are the same. The last column presents the estimation when liquidity is measured by the ratio of (non-bank) deposits to total assets at the end of the previous year. Again the coefficient of this measure of liquidity turns negative and the rest of the coefficient are in line with the baseline regression. An exception is ASSETS/GDPwhich changes sign.

Finally, Table 10 presents the results when alternative definitions of banks' capital are included in the model. To account for the non-linearity of the estimated effect of banks' capital, this variable is interacted with different dummy variables. The first one is whether $\text{CAP}_{i,t-1}$ is larger or equal to the 25^{th} percentile of the distribution of CAP in country i. The second one is whether $\text{CAP}_{i,t-1}$ is larger or equal to 4% and the third one whether is larger or equal to 6%. As could be seen from the results reported in Table 10 (columns 2-4) none of this non-linear transformations capture the nonlinear effect of capital as none of the estimated coefficients is significant. The estimated effect of the other variables is in line with the baseline specifications.

This results correspond to countries and may not be compared in a straight forward way to the results from individual banks, as studying aggregate banks balance sheets it is not possible to identify movements between individual institutions. In fact, estimates pick up the multiplier effect of financial transactions. For example, a bank grants a loan to a client, who deposits part of the funds or spend them and the recipient deposits the proceeds in a domestic bank. Then the latter bank may grant a loan with the cycle continuing.

5 Robustness Tests

This section presents robustness tests to the benchmark regression reported above. First, real deposit rates are included instead of the ratio of interest expenses to deposits to control for the cost of deposits. Second,

[22]Reserves corresponds to item 14 cash and balances with Central Bank of the OECD Bank Statistics dataset. For Japan reserves are included in interbank deposits, which are used instead.

the ratio of large banks' assets to total assets, LARGE, is included to control for the structure of the bank sector. Third, LOAN PROVISIONS, defined as the ratio of provisions on loans to total loans is used instead of PROVISIONS to control for the riskiness of borrowers. Finally, alternative measures to control for real activity are considered. Table 11 presents the first set of robustness checks.

Table 12 reports further robustness checks for the way real economic activity is controlled for in the model. Once again the table starts with the benchmark estimation results (column 1). Column 2 considers changes in real GDP, ΔGDP_{it} instead of changes in aggregate demand.

In sum, these robustness checks lend support to the main finding of the paper that banks' equity capital is a significant determinant of subsequent credit growth and that neither profits or liquidity display a significant role at the country level for OECD countries.

6 Conclusions

This paper presented estimates of the effect of banks' financial position on credit growth for a sample of 29 OECD countries. The identification relied on the assumption that country-year innovations to the growth rate of loans are independent of predetermined variables and past values of endogenous variables, and that these innovations are not serially correlated. The paper discussed how to adapt GMM estimators, designed for "short" panels, to the present context where the data is organized in a "square" panel. The main issue is on building suitable instrument sets without using too many instruments that will render the instruments invalid and generate other estimation problems. It was argued that the system GMM estimator was to be preferred due to the presence of highly persistent series and an instrument set using two lags of independent variables collapsed to economize on the number of instruments was chosen. The empirical results shows that among capital, profits and liquidity at the end of the previous year, capital is the most important predictor of credit growth in the current year. The relationship between capital and credit growth is non-linear. Point estimates from the preferred econometric specification imply that at the sample mean a one standard deviation increase (decrease) is associated with an increase (decrease) of 0.8 (0.3) percentage points in credit growth upon impact and 1.6 (0.6) percentage points in the long-run. These results were found robust to the definition of the variables included in the model as well as changes in the set of controls used in the estimation.

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Appendix

A Descriptive Statistics of Main Variables

The model to be estimated is given in equation (2). Recall $\Delta\ell_{it} = \alpha\Delta\ell_{i,t-1} + \beta' X_{i,t} + \mu_t + \mu_i + \nu_{it}$. Here I present descriptive statistics for the variables Sample according to availability of information model (2).

Table A.1: Descriptive Statistics for Credit Growth by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	5.711	-20.933	32.421	11.584
Austria	5.990	5.329	6.650	0.934
Belgium	3.976	-5.812	14.950	4.482
Canada	3.628	-2.244	12.314	4.010
Chile	7.093	-2.092	14.543	5.215
Czech Republic	2.011	-8.000	13.552	8.701
Denmark	5.244	-11.747	20.829	8.182
Finland	2.369	-16.775	33.663	11.687
France	1.255	-9.579	6.575	4.168
Germany	4.572	-3.734	9.845	2.984
Greece	13.733	-2.059	43.961	12.271
Hungary	13.757	7.276	24.391	5.195
Iceland	13.134	0.091	36.726	11.987
Ireland	21.998	3.607	48.989	15.727
Italy	4.826	-3.094	12.803	4.605
Japan	-1.056	-10.214	3.597	3.497
Korea	12.331	-23.941	42.042	13.408
Mexico	-2.156	-15.492	14.075	9.874
Netherlands	6.768	-10.407	25.206	9.322
New Zealand	8.270	4.884	13.115	2.422
Norway	7.509	-8.376	22.119	7.550
Poland	6.805	0.690	20.959	7.604
Portugal	10.508	-5.987	23.041	9.589
Slovak Republic	4.234	-27.145	22.349	17.626
Spain	5.194	-9.749	11.833	5.292
Sweden	4.110	-23.421	21.980	10.602
Switzerland	3.289	-11.442	14.617	5.513
United Kingdom	9.240	-3.652	42.383	11.132
United States	2.575	-13.480	14.648	5.817
All	5.812	-27.145	48.989	9.092

Source: Own elaboration based on OECD Bank Statistics and OECD Main Economic Indicators.

Table A.2: Descriptive Statistics for ROE[1] by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	9.152	-0.913	35.149	8.414
Austria	8.003	7.603	8.402	0.565
Belgium	9.267	3.555	21.667	4.073
Canada	12.720	4.963	16.834	2.668
Chile	13.011	8.844	15.691	1.974
Czech Republic	9.744	0.755	14.147	5.212
Denmark	6.774	-21.384	25.622	9.676
Finland	0.014	-49.504	24.228	19.523
France	6.150	-1.291	10.283	3.808
Germany	6.114	3.696	8.894	1.084
Greece	14.109	7.045	21.901	3.939
Hungary	15.414	10.529	19.884	3.620
Iceland	8.737	-0.883	14.852	4.750
Ireland	13.356	10.452	15.937	1.526
Italy	7.307	1.208	12.842	3.306
Japan	-1.992	-22.388	15.085	12.182
Korea	-0.023	-79.028	18.174	24.044
Mexico	6.920	-5.008	20.079	7.252
Netherlands	10.864	-11.195	18.023	6.267
New Zealand	16.752	6.839	23.283	4.244
Norway	5.033	-113.774	17.897	25.325
Poland	10.240	4.742	16.572	4.742
Portugal	7.084	5.770	9.528	1.227
Slovak Republic	12.174	-29.391	26.495	18.135
Spain	8.600	1.356	11.697	2.072
Sweden	9.999	2.052	39.752	8.498
Switzerland	8.415	0.308	16.402	3.671
United Kingdom	13.102	1.117	21.013	5.898
United States	9.698	0.000	14.043	4.197
All	8.536	-113.774	39.752	10.692

Source: Own elaboration based on OECD Bank Statistics.

[1] ROE defined as zero when equity is negative.

Table A.3: Descriptive Statistics for Capital (ratio of Equity to Assets) by Country

(in percents)

Country	mean	min	p25	max	st. dev.
Australia	10.096	7.063	9.918	12.344	1.196
Austria	4.621	4.504	4.504	4.737	0.164
Belgium	3.071	2.384	2.545	3.957	0.514
Canada	5.279	4.185	5.099	5.877	0.411
Chile	8.517	7.276	8.316	9.199	0.459
Czech Republic	8.483	6.013	8.202	10.643	1.695
Denmark	7.628	5.512	6.542	9.930	1.352
Finland	6.820	5.044	6.126	10.823	1.622
France	4.260	3.124	3.996	5.064	0.539
Germany	3.793	3.271	3.557	4.242	0.310
Greece	5.732	2.443	4.552	9.886	2.343
Hungary	9.326	8.999	9.088	9.785	0.262
Iceland	7.321	6.410	6.734	7.980	0.600
Ireland	5.911	4.985	5.690	6.681	0.582
Italy	6.435	3.887	6.116	8.035	0.965
Japan	3.951	2.837	3.338	5.260	0.665
Korea	5.775	3.583	4.098	8.867	1.874
Mexico	7.349	5.298	6.389	9.713	1.256
Netherlands	3.878	2.668	3.605	4.601	0.524
New Zealand	5.700	3.676	4.805	7.686	1.218
Norway	5.457	2.904	4.544	7.295	1.245
Poland	9.492	8.348	9.151	10.204	0.694
Portugal	9.863	8.227	9.012	11.584	1.029
Slovak Republic	7.325	3.733	4.808	13.049	2.970
Spain	7.862	6.564	7.222	9.472	0.704
Sweden	5.762	4.268	5.342	7.163	0.796
Switzerland	5.904	4.531	5.622	6.807	0.661
United Kingdom	4.560	3.256	4.051	5.995	0.715
United States	6.730	-11.666	5.543	10.345	4.058
All	6.087	-11.666	4.481	13.049	2.234

Source: Own elaboration based on OECD Bank Statistics.

Note: p25 = 25th percentile.

Table A.4: Descriptive Statistics for Balance Sheet Liquidity (BSL, ratio of securities to assets) by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	7.096	3.457	10.048	1.823
Austria	16.025	15.956	16.094	0.098
Belgium	29.528	23.251	34.169	2.485
Canada	17.304	10.224	26.325	5.343
Chile	16.060	10.811	18.998	2.686
Czech Republic	23.766	20.422	26.887	2.389
Denmark	24.411	18.335	29.137	3.627
Finland	16.673	8.471	23.459	4.572
France	16.710	7.789	22.866	4.940
Germany	17.598	12.352	23.981	3.638
Greece	33.412	28.895	36.661	2.411
Hungary	16.430	14.107	18.731	1.692
Iceland	13.562	9.330	19.061	2.940
Ireland	23.902	19.189	29.521	3.961
Italy	14.829	9.132	22.755	4.208
Japan	19.669	14.343	27.225	4.925
Korea	17.291	12.491	24.983	3.265
Mexico	26.933	15.634	33.526	6.694
Netherlands	21.291	11.601	30.992	5.450
New Zealand	11.114	5.436	20.354	4.288
Norway	15.747	8.100	34.108	7.802
Poland	22.104	20.396	23.218	1.033
Portugal	21.373	15.000	27.348	3.973
Slovak Republic	25.821	14.275	36.199	6.663
Spain	18.756	12.621	24.787	3.224
Sweden	21.514	11.579	29.731	5.432
Switzerland	14.995	9.636	23.524	4.822
United Kingdom	14.950	6.944	20.924	5.029
United States	19.119	13.943	23.386	3.373
All	18.924	3.457	36.661	6.833

Source: Own elaboration based on OECD Bank Statistics.

Table A.5: Descriptive Statistics for Deposit Cost (ratio of interest expenses to deposits) by Country (in percents)

Country	mean	min	max	st. dev.
Australia	8.758	5.860	16.371	3.434
Austria	8.607	8.531	8.683	0.107
Belgium	20.617	9.881	30.662	5.659
Canada	6.998	2.823	11.909	2.705
Chile	11.880	5.509	20.631	5.383
Czech Republic	4.129	2.597	6.514	1.567
Denmark	10.115	5.795	14.292	2.913
Finland	9.517	3.611	16.466	4.041
France	21.712	11.786	31.949	6.392
Germany	9.316	7.219	12.288	1.347
Greece	10.019	4.212	14.074	3.142
Hungary	8.298	6.783	10.822	1.305
Iceland	11.769	6.526	22.087	5.259
Ireland	9.511	7.908	11.460	1.239
Italy	11.190	5.527	17.236	3.199
Japan	2.907	0.339	8.207	2.615
Korea	6.984	3.954	11.871	2.139
Mexico	20.288	9.442	47.965	11.394
Netherlands	9.225	5.599	12.257	1.865
New Zealand	6.863	4.175	11.662	2.255
Norway	9.879	4.655	18.819	3.845
Poland	7.280	4.034	12.997	4.041
Portugal	11.265	8.505	14.163	1.675
Slovak Republic	5.707	2.947	12.361	3.216
Spain	9.180	3.973	12.763	2.462
Sweden	12.141	4.219	21.127	4.475
Switzerland	7.339	3.709	11.212	2.169
United Kingdom	6.881	4.053	11.084	1.883
United States	6.870	2.003	12.947	2.954
All	9.991	0.339	47.965	5.684

Source: Own elaboration based on OECD Bank Statistics.

Table A.6: Descriptive Statistics for Real Lending Rates[1] by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	7.060	4.282	10.869	1.931
Austria	5.284	5.069	5.499	0.304
Belgium	6.924	3.922	10.572	1.727
Canada	4.889	1.929	9.283	2.070
Chile	7.133	3.369	15.059	3.492
Czech Republic	4.066	2.449	5.840	1.341
Denmark	7.663	4.627	11.458	1.901
Finland	5.106	2.565	9.217	1.986
France	5.796	4.465	7.589	1.055
Germany	8.101	6.757	9.192	0.658
Greece	9.644	-2.515	16.568	5.625
Hungary	4.165	1.127	6.081	1.515
Iceland	10.466	9.014	11.664	0.847
Ireland	0.997	-0.806	5.153	2.142
Italy	6.517	3.157	11.253	2.614
Japan	2.450	0.531	4.437	1.088
Korea	4.358	2.234	8.583	1.970
Mexico	5.880	1.514	24.433	6.183
Netherlands	2.511	0.671	5.490	1.660
New Zealand	7.904	6.161	9.578	1.122
Norway	6.335	0.543	11.922	2.821
Poland	7.118	4.178	12.952	3.652
Portugal	8.424	2.854	14.529	3.160
Slovak Republic	3.463	-0.095	7.123	2.199
Spain	4.886	0.560	11.114	3.161
Sweden	6.546	2.861	12.826	2.390
Switzerland	2.759	-0.930	4.710	1.239
United Kingdom	4.345	1.012	8.679	1.896
United States	5.194	1.663	8.730	1.864
All	5.725	-2.515	24.433	3.101

Source: Own elaboration based on OECD Bank Statistics and OECD Main Economic Indicators.

[1] Real effective lending rates calculated as nominal rates minus effective inflation in the year.

Table A.7: Descriptive Statistics for ratio of Total Provisions to Loans by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	0.704	0.141	2.052	0.680
Austria	0.733	0.722	0.744	0.016
Belgium	0.638	-0.079	1.307	0.368
Canada	0.549	0.158	1.331	0.288
Chile	1.111	0.519	2.045	0.438
Czech Republic	-1.628	-2.923	0.574	1.408
Denmark	1.959	0.623	3.611	1.017
Finland	0.172	-0.105	0.813	0.278
France	0.870	0.367	1.780	0.466
Germany	0.618	0.200	0.946	0.195
Greece	1.186	0.651	1.866	0.441
Hungary	0.411	-0.084	0.662	0.227
Iceland	1.490	0.947	3.166	0.731
Ireland	0.196	0.076	0.298	0.062
Italy	1.197	0.260	1.823	0.429
Japan	0.564	0.046	1.602	0.500
Korea	1.524	0.585	3.018	0.795
Mexico	1.962	0.946	3.645	0.977
Netherlands	0.305	0.093	0.810	0.166
New Zealand	0.198	-0.141	1.042	0.317
Norway	0.924	-0.161	4.791	1.135
Poland	1.881	0.585	3.088	0.971
Portugal	2.476	1.070	4.867	1.355
Slovak Republic	-0.395	-4.010	7.255	3.278
Spain	1.406	0.452	3.151	0.585
Sweden	0.076	-6.792	2.027	1.912
Switzerland	1.001	0.372	1.797	0.399
United Kingdom	0.912	0.307	2.655	0.739
United States	0.761	0.305	1.545	0.371
All	0.864	-6.792	7.255	1.047

Source: Own elaboration based on OECD Bank Statistics.

Table A.8: Descriptive Statistics for Real Long Term Rates[1] by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	4.835	1.253	8.211	2.230
Austria	3.950	3.791	4.110	0.226
Belgium	4.449	0.566	7.331	1.838
Canada	4.466	1.233	8.405	1.967
Chile	4.571	2.550	7.330	1.720
Czech Republic	2.465	1.568	4.006	1.045
Denmark	5.749	2.412	10.264	2.109
Finland	5.466	2.440	9.053	2.118
France	4.361	1.964	6.701	1.448
Germany	4.326	2.131	6.288	1.113
Greece	3.662	-7.233	9.825	4.351
Hungary	1.432	-1.215	3.186	1.720
Iceland	5.591	2.763	8.000	1.550
Ireland	1.567	-0.079	4.839	1.632
Italy	4.371	1.332	7.997	2.166
Japan	2.098	0.088	3.673	1.066
Korea	4.711	0.862	8.871	2.694
Mexico	4.845	-1.568	16.744	4.321
Netherlands	2.704	0.796	4.976	1.071
New Zealand	4.535	2.122	7.387	1.468
Norway	4.179	-1.344	7.436	2.115
Poland	4.382	3.034	5.451	1.022
Portugal	3.970	2.033	7.289	1.647
Slovak Republic	-0.349	-3.696	3.808	2.685
Spain	4.523	1.263	7.956	2.143
Sweden	4.684	1.248	7.788	1.942
Switzerland	1.853	-1.057	4.106	1.185
United Kingdom	4.206	0.977	6.707	1.433
United States	3.872	0.897	8.138	1.906
All	4.010	-7.233	16.744	2.303

Source: Own elaboration based on OECD Main Economic Indicators, IFS, and National Sources.

[1] Real effective long term rates calculated as nominal rates minus effective inflation in the year. Nominal long term rates corresponds to 10 year government bonds or similar. For Chile indexed bonds yields are used. Year averages.

Table A.9: Descriptive Statistics for Real Stock Returns by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	3.236	-6.930	13.666	6.803
Austria	0.214	-10.571	10.999	15.252
Belgium	7.258	-21.659	35.240	15.062
Canada	3.965	-24.217	28.142	12.499
Chile	2.663	-32.983	27.590	16.487
Czech Republic	14.235	-33.835	40.992	30.287
Denmark	8.933	-21.735	49.235	18.504
Finland	8.229	-57.899	61.773	36.661
France	2.791	-26.417	29.879	18.528
Germany	4.919	-29.558	31.118	18.865
Greece	4.746	-43.945	67.555	30.773
Hungary	4.473	-33.609	43.942	26.845
Iceland	12.757	-38.385	46.953	23.057
Ireland	7.517	-24.900	31.969	18.579
Italy	1.165	-39.873	69.081	26.233
Japan	-3.807	-35.093	24.585	18.928
Korea	1.083	-54.076	66.551	28.792
Mexico	9.665	-42.743	34.965	22.416
Netherlands	1.642	-36.478	38.252	23.711
New Zealand	1.412	-33.298	20.973	12.657
Norway	8.587	-25.134	42.439	21.201
Poland	11.236	-33.104	36.536	25.433
Portugal	3.381	-27.630	43.256	24.531
Slovak Republic	14.402	-12.408	69.236	26.099
Spain	6.883	-22.058	62.705	22.421
Sweden	10.666	-37.691	57.308	23.887
Switzerland	5.185	-28.461	33.663	16.974
United Kingdom	3.317	-21.184	20.634	12.746
United States	6.194	-15.271	26.400	11.281
All	5.427	-57.899	69.236	20.635

Source: Own elaboration based on OECD Main Economic Indicators and IFS.

Note: Computed as the log changes of real stock market indices for domestic markets in each country. All indices deflated by domestic CPIs.

Table A.10: Descriptive Statistics for Real Aggregate Demand[1] by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	3.832	0.268	6.111	1.947
Austria	2.282	2.024	2.539	0.364
Belgium	2.014	-0.880	4.503	1.353
Canada	3.038	-1.303	5.315	1.680
Chile	4.576	-4.657	10.219	4.180
Czech Republic	3.234	1.792	4.536	1.130
Denmark	1.893	-3.230	7.291	2.492
Finland	1.692	-6.278	6.297	4.275
France	1.865	-0.560	3.818	1.236
Germany	1.722	-1.752	4.469	1.699
Greece	2.999	-1.141	5.869	2.129
Hungary	3.404	-0.915	9.159	3.437
Iceland	4.088	-2.549	12.425	4.364
Ireland	6.659	3.537	9.185	2.401
Italy	1.452	-4.536	4.557	2.096
Japan	0.923	-2.229	2.975	1.215
Korea	4.118	-15.019	10.001	5.758
Mexico	2.929	-13.258	8.283	5.671
Netherlands	2.213	-3.490	5.316	2.184
New Zealand	3.609	-1.107	7.261	2.296
Norway	2.689	-1.609	6.415	2.207
Poland	2.945	-0.387	6.857	2.584
Portugal	3.855	-0.548	6.553	2.117
Slovak Republic	4.507	-0.598	8.413	3.213
Spain	3.146	-2.748	7.471	2.728
Sweden	1.712	-4.057	4.488	2.074
Switzerland	1.602	-1.708	3.429	1.289
United Kingdom	2.844	-1.676	6.905	1.827
United States	3.214	-0.542	6.202	1.606
All	2.695	-15.019	12.425	2.774

Source: Own elaboration based on OECD Main Economic Indicators.

Note: Computed as the log changes of the sum of real private consumption (household and non-profits), real government final consumption and real gross fixed capital formation.

Table A.11: Descriptive Statistics for Assets to GDP by Country

(in percents)

Country	mean	min	max	st. dev.
Australia	105.178	95.213	118.581	7.749
Austria	247.809	241.259	254.359	9.263
Belgium	291.774	219.571	365.779	35.033
Canada	140.348	110.685	180.169	21.132
Chile	100.584	82.520	136.346	15.642
Czech Republic	109.361	97.288	124.122	11.223
Denmark	114.330	77.119	148.415	20.222
Finland	122.673	97.217	146.150	15.154
France	236.109	224.426	254.429	8.765
Germany	168.793	116.938	268.464	49.278
Greece	69.855	50.866	104.403	20.704
Hungary	73.632	59.700	94.819	13.226
Iceland	88.277	54.556	147.149	35.562
Ireland	337.898	147.228	500.307	116.351
Italy	155.749	117.336	222.295	30.046
Japan	166.883	141.734	225.223	24.361
Korea	94.198	56.608	131.700	27.326
Mexico	46.236	33.261	61.285	8.326
Netherlands	384.141	213.657	597.025	129.745
New Zealand	137.906	103.211	186.810	26.750
Norway	80.465	52.668	159.743	24.827
Poland	57.889	56.830	59.240	1.058
Portugal	148.646	103.170	197.532	36.319
Slovak Republic	85.934	77.060	93.154	6.226
Spain	139.707	105.691	176.582	21.246
Sweden	97.837	69.222	144.522	22.638
Switzerland	409.050	258.519	660.909	119.501
United Kingdom	149.411	73.870	392.820	84.457
United States	93.180	79.512	113.440	12.628
All	160.274	33.261	660.909	108.564

Source: Own elaboration based on OECD Bank Statistics and OECD Main Economic Indicators.

B Time Series Properties of Individual Variables

Here I present an analysis of the time series properties of the individual series used in the benchmark model. To facilitate comparison dependent variables are the explanatory variables used in the benchmark regressions with the same timing convention and restricting the sample to the sample of model (2).

Table B.1: Estimation of Time Series Process for Credit Growth ($\Delta\ell_{it}$)

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta\ell_{it}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
$\Delta\ell_{i,t-1}$	0.273***	0.154*	0.350***	0.300***	0.285***	0.369***	0.324***	0.312***
	(0.0811)	(0.0832)	(0.1000)	(0.0970)	(0.0976)	(0.105)	(0.0987)	(0.100)
$\Delta\ell_{i,t-2}$	0.230***	0.132**	0.327***	0.277***	0.259***	0.324***	0.277***	0.266***
	(0.0766)	(0.0534)	(0.0816)	(0.0659)	(0.0666)	(0.0866)	(0.0727)	(0.0735)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\Delta\ell_{i,t-1} + \Delta\ell_{i,t-2}$	0.504	0.285	0.678	0.577	0.544	0.693	0.601	0.578
$\sigma^2_{\mu_i}/\sigma^2_{\nu_{it}}$		0.219						
H_0: joint validity of moment restrictions								
Sargan test			0.429	0.173	0.0699	0.292	0.188	0.110
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.201	0.345	0.435	0.235	0.409	0.465
Arellano-Bond for AR(3)			0.212	0.262	0.285	0.229	0.276	0.287
Number of instruments			30	32	34	32	34	36
R^2	0.315	0.247						
Number observations	464	464	448	448	448	464	464	464
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.2: Estimation of Time Series Process for ROE

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$ROE_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
$ROE_{i,t-2}$	0.518***	0.427***	0.493***	0.519***	0.533***	0.476***	0.496***	0.505***
	(0.145)	(0.0738)	(0.105)	(0.0831)	(0.0825)	(0.109)	(0.0908)	(0.0916)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.0697						
H_0: joint validity of moment restrictions								
Sargan test			0.849	0.858	0.923	0.943	0.956	0.985
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.873	0.894	0.906	0.855	0.872	0.880
Arellano-Bond for AR(3)			0.687	0.681	0.675	0.688	0.683	0.678
Number of instruments			30	32	34	32	34	36
R^2	0.350	0.273						
Number observations	479	479	463	463	463	479	479	479
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.3: Estimation of Time Series Process for CAPITAL

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$CAP_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
$CAP_{i,t-2}$	0.828***	0.535***	0.341	0.347	0.348	0.359*	0.373*	0.371*
	(0.0922)	(0.120)	(0.240)	(0.242)	(0.243)	(0.193)	(0.197)	(0.195)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.551						
H_0: joint validity of moment restrictions								
Sargan test			0.042	0.086	0.208	0.147	0.175	0.318
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.001	0.001	0.001	0.005	0.005	0.005
Arellano-Bond for AR(3)			0.005	0.005	0.005	0.006	0.005	0.006
Number of instruments			30	32	34	32	34	36
R^2	0.696	0.342						
Number observations	480	480	464	464	464	480	480	480
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.4: Estimation of Time Series Process for BSL

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$BSL_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
$BSL_{i,t-2}$	0.943***	0.836***	1.182***	1.054***	1.051***	1.144***	1.052***	1.057***
	(0.0159)	(0.0342)	(0.165)	(0.133)	(0.134)	(0.0743)	(0.0574)	(0.0606)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.269						
H_0: joint validity of moment restrictions								
Sargan test			0.004	0.002	0.00322	0.0216	0.00312	0.00721
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.434	0.383	0.381	0.442	0.409	0.410
Arellano-Bond for AR(3)			0.646	0.604	0.604	0.628	0.594	0.595
Number of instruments			30	32	34	32	34	36
R^2	0.896	0.778						
Number observations	480	480	464	464	464	480	480	480
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.5: Estimation of Time Series Process for DEPOSIT COSTS

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DEPOSIT COSTS$_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
DEPOSIT COSTS$_{i,t-2}$	0.881***	0.657***	1.139***	1.086***	0.992***	0.766***	0.760***	0.753***
	(0.0457)	(0.101)	(0.201)	(0.155)	(0.136)	(0.169)	(0.148)	(0.122)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.470						
H_0: joint validity of moment restrictions								
Sargan test			0.223	0.360	0.004	0.082	0.220	0.003
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.395	0.392	0.386	0.255	0.259	0.273
Arellano-Bond for AR(3)			0.731	0.742	0.762	0.792	0.800	0.806
Number of instruments			30	32	34	32	34	36
R^2	0.855	0.698						
Number observations	477	477	459	459	459	477	477	477
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.6: Estimation of Time Series Process for LENDING RATE

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LENDING RATE$_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
LENDING RATE$_{i,t-2}$	0.745***	0.517***	0.559***	0.557***	0.535***	0.587***	0.593***	0.585***
	(0.0903)	(0.115)	(0.0878)	(0.0957)	(0.0994)	(0.125)	(0.124)	(0.125)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.315						
H$_0$: joint validity of moment restrictions								
Sargan test			0.567	0.915	0.571	0.105	0.338	0.364
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H$_0$: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.721	0.719	0.722	0.743	0.744	0.745
Arellano-Bond for AR(3)			0.254	0.236	0.232	0.255	0.247	0.247
Number of instruments			30	32	34	32	34	36
R^2	0.669	0.509						
Number observations	476	476	473	473	473	476	476	476
Number countries	29	29	28	28	28	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.7: Estimation of Time Series Process for PROVISIONS

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PROVISIONS$_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
PROVISIONS$_{i,t-2}$	0.666***	0.474***	0.589***	0.639***	0.633***	0.607***	0.670***	0.666***
	(0.0948)	(0.0655)	(0.0702)	(0.0564)	(0.0574)	(0.0664)	(0.0571)	(0.0578)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.405						
H_0: joint validity of moment restrictions								
Sargan test			0.923	0.072	0.194	0.981	0.123	0.282
Hansen test			0.999	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.591	0.608	0.607	0.606	0.624	0.624
Arellano-Bond for AR(3)			0.211	0.213	0.212	0.200	0.202	0.201
Number of instruments			30	32	34	32	34	36
R^2	0.509	0.349						
Number observations	479	479	463	463	463	479	479	479
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.8: Estimation of Time Series Process for LONG TERM RATES

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LONG TERM RATE$_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
LONG TERM RATE$_{i,t-2}$	0.609***	0.453***	0.591	0.479	0.366	0.735***	0.685***	0.648***
	(0.104)	(0.142)	(0.573)	(0.375)	(0.301)	(0.216)	(0.182)	(0.184)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.197						
H_0: joint validity of moment restrictions								
Sargan test			0.019	0.052	0.028	0.080	0.135	0.088
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.888	0.891	0.933	0.862	0.849	0.844
Arellano-Bond for AR(3)			0.261	0.291	0.345	0.254	0.260	0.270
Number of instruments			30	32	34	32	34	36
R^2	0.642	0.568						
Number observations	470	470	461	461	461	470	470	470
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.9: Estimation of Time Series Process for STOCK RETURNS

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
STOCK RETURNS$_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
STOCK RETURNS$_{i,t-2}$	0.224***	0.186***	0.402*	0.350	0.351	0.477**	0.442**	0.435*
	(0.0742)	(0.0439)	(0.209)	(0.218)	(0.217)	(0.212)	(0.222)	(0.224)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.0966						
H_0: joint validity of moment restrictions								
Sargan test			0.805	0.709	0.910	0.928	0.936	0.982
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.859	0.953	0.949	0.762	0.820	0.832
Arellano-Bond for AR(3)			0.575	0.590	0.591	0.552	0.554	0.554
Number of instruments			30	32	34	32	34	36
R^2	0.495	0.502						
Number observations	477	477	475	475	475	477	477	477
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.10: Estimation of Time Series Process for ΔAGG. DEMAND

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ΔAGG. DEMAND$_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
ΔAGG. DEMAND$_{i,t-2}$	0.402***	0.304***	0.423**	0.379**	0.375**	0.344*	0.304	0.305
	(0.0949)	(0.0703)	(0.212)	(0.175)	(0.167)	(0.204)	(0.187)	(0.190)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.128						
H$_0$: joint validity of moment restrictions								
Sargan test			0.284	0.453	0.726	0.335	0.324	0.541
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H$_0$: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.987	0.903	0.891	0.822	0.726	0.730
Arellano-Bond for AR(3)			0.655	0.604	0.604	0.584	0.530	0.528
Number of instruments			30	32	34	32	34	36
R^2	0.323	0.273						
Number observations	479	479	478	478	478	479	479	479
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table B.11: Estimation of Time Series Process for ASSETS/GDP

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ASSETS/GDP$_{i,t-1}$	OLS	FE	difference GMM			system GMM		
			2 collapsed	4 collapsed	6 collapsed	2 collapsed	4 collapsed	6 collapsed
ASSETS/GDP$_{i,t-2}$	1.038***	0.986***	0.837***	0.835***	0.833***	1.106***	1.106***	1.104***
	(0.0115)	(0.0182)	(0.110)	(0.111)	(0.110)	(0.0219)	(0.0230)	(0.0229)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma^2_{\mu_i}/\sigma^2_{v_{it}}$		0.574						
H_0: joint validity of moment restrictions								
Sargan test			0.086	0.119	0.308	0.034	0.0401	0.081
Hansen test			1.000	1.000	1.000	1.000	1.000	1.000
H_0: residuals are serially uncorrelated								
Arellano-Bond for AR(2)			0.229	0.229	0.227	0.252	0.252	0.252
Arellano-Bond for AR(3)			0.167	0.166	0.169	0.146	0.146	0.148
Number of instruments			30	32	34	32	34	36
R^2	0.985	0.941						
Number observations	479	479	462	462	462	479	479	479
Number countries	29	29	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and difference GMM regressions eliminate country effects by taking differences. R^2 for FE correspond to the within R^2. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

C Additional Regressions

Table C.1: System GMM Estimates of the Effect of Bank Financial Position on Credit Growth

residuals serially correlated (order 1)

Dependent Variable: $\Delta\ell_{it}$	4 lags (1)	4 collapsed (2)	12 collapsed (3)	all collapsed (4)
$\Delta\ell_{i,t-1}$	0.318***	0.308**	0.222***	0.214***
	(0.054)	(0.126)	(0.072)	(0.071)
$\text{ROE}_{i,t-1}$	0.050	0.117	0.117**	0.054
	(0.066)	(0.101)	(0.058)	(0.061)
$\text{CAP}_{i,t-1}$	-0.074	-1.072	1.722	0.384
	(0.151)	(2.228)	(2.122)	(0.718)
$\text{CAP}^2_{i,t-1}$	0.008	0.032	-0.143	-0.031
	(0.016)	(0.127)	(0.142)	(0.056)
$\text{BSL}_{i,t-1}$	0.076	-0.019	0.006	-0.009
	(0.050)	(0.177)	(0.144)	(0.081)
DEPOSIT $\text{COSTS}_{i,t-1}$	-0.243**	-0.367*	-0.311*	-0.288**
	(0.102)	(0.217)	(0.175)	(0.132)
$\text{PROVISIONS}_{i,t-1}$	-0.068	0.084	0.450	-0.212
	(0.315)	(1.263)	(0.678)	(0.450)
LENDING RATE_{it}	0.424**	0.213	0.324	0.666***
	(0.177)	(0.731)	(0.457)	(0.243)
LONG TERM RATE_{it}	0.491**	0.465	0.794**	0.396
	(0.237)	(0.737)	(0.399)	(0.345)
STOCK RETURNS_{it}	0.044**	0.112	0.074*	0.052***
	(0.017)	(0.082)	(0.040)	(0.017)
ΔAGG. DEMAND_{it}	1.250***	0.372	0.780***	1.161***
	(0.217)	(0.452)	(0.248)	(0.230)
$\text{ASSETS/GDP}_{i,t-1}$	0.005	0.004	0.011	0.014*
	(0.004)	(0.015)	(0.010)	(0.008)
H_0: $\text{CAP}_{i,t-1} = 0$ $\text{CAP}^2_{i,t-1} = 0$ [p-value]	[0.852]	[0.777]	[0.509]	[0.854]
Year effects	Yes	Yes	Yes	Yes
Country effects[1]	Yes	Yes	Yes	Yes
Number observations	480	480	480	480
Number countries	29	29	29	29
Number of instruments	480	73	169	383
H_0: joint validity of moment restrictions				
Sargan [p-value]	[0.655]	[0.363]	[0.739]	[0.137]
Hansen [p-value]	[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated				
Arellano-Bond for AR(2) [p-value]	[0.003]	[0.017]	[0.004]	[0.004]
Arellano-Bond for AR(3) [p-value]	[0.028]	[0.095]	[0.037]	[0.043]

Notes: [1]Fixed Effects (FE) and Arellano-Bond regressions eliminate country effects by taking first differences. Heteroskedasticity robust standard errors in parentheses. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Tables and Figures

Table 1: Bank Groups and sample with information for loan growth by Country

#	Country	Bank Group	Sample	Number of observations
1	Australia	All banks	1987-2003	17
2	Austria	All banks	1988-2008	21
3	Belgium	All banks	1982-2009	28
4	Canada†	All banks	1983-2009	27
5	Chile	All banks	1991-2009	19
6	Czech Republic	All banks	1994-2005	12
7	Denmark	All banks	1980-2008	29
8	Finland	All banks	1980-2009	30
9	France	All banks	1989-2008	20
10	Germany	All banks	1980-2008	29
11	Greece†	Commercial banks	1980-2009	30
12	Hungary	Commercial banks	1995-2008	14
13	Iceland	All banks	1980-2003	24
14	Ireland	All banks	1996-2008	13
15	Italy	All banks	1985-2009	25
16	Japan	All banks	1990-2008	19
17	Korea	All banks	1991-2008	18
18	Luxembourg	All banks	1980-2008	29
19	Mexico†	All banks	1991-2009	19
20	Netherlands	All banks	1980-2009	30
21	New Zealand	All banks	1991-2009	19
22	Norway	All banks	1980-2009	30
23	Poland	All banks	1994-2008	15
24	Portugal	Commercial banks	1980-2008	29
25	Slovak Republic	All banks	1997-2009	13
26	Spain	All banks	1980-2008	29
27	Sweden	All banks	1980-2008	29
28	Switzerland	All banks	1980-2008	29
29	Turkey	Commercial banks	1982-2009	28
30	United Kingdom	Large commercial banks	1985-2008	24
31	United States†	All banks	1980-2007	28
	All			726
	Average			23.42

Source: Own elaboration based on OECD Bank Statistics.

Notes: †Canada all banks chained with commercial banks for 1982-1987. Greece all banks chained with large commercial banks for 1979-1988. Mexico all banks chained with commercial banks for 1990-1999. US all banks chained with the sum of commercial, saving and cooperative banks for 1979.

Table 2: Number of Observations and Sample Period for Benchmark Regression by Country

	Country	Observations	Sample Period
1	Australia	13	1991 – 2003
2	Austria	2	1998 – 1999
3	Belgium	25	1983 – 2007
4	Canada	25	1984 – 2008
5	Chile	14	1996 – 2009
6	Czech Republic	5	2001 – 2005
7	Denmark	22	1981 – 2002
8	Finland	16	1988 – 2004
9	France	15	1990 – 2004
10	Germany	22	1981 – 2002
11	Greece	13	1986 – 2003
12	Hungary	8	2001 – 2008
13	Iceland	10	1994 – 2003
14	Ireland	9	1997 – 2005
15	Italy	24	1986 – 2009
16	Japan	18	1991 – 2008
17	Korea	17	1992 – 2008
18	Mexico	12	1995 – 2007
19	Netherlands	16	1994 – 2009
20	New Zealand	17	1992 – 2008
21	Norway	27	1981 – 2008
22	Poland	6	2001 – 2006
23	Portugal	11	1989 – 1999
24	Slovak Republic	8	2000 – 2007
25	Spain	22	1981 – 2002
26	Sweden	25	1981 – 2005
27	Switzerland	28	1981 – 2008
28	United Kingdom	23	1986 – 2008
29	United States	27	1981 – 2007
	All	480	1981 – 2009
	Average	16.55	1989.72 – 2005.55
	Min	2	1981 – 1999
	Max	28	2001 – 2009

Source: Own elaboration based on OECD Bank Statistics, OECD Main Economic Indicators, IFS, and National Sources.

Table 3: Bank Variables Means by Country

(in percents)

Country	$\Delta\ell_{it}$	$\text{ROE}_{i,t-1}$	$\text{CAP}_{i,t-1}$	$\text{BSL}_{i,t-1}$
Australia	5.711	9.152	10.096	7.096
Austria	5.990	8.003	4.621	16.025
Belgium	3.976	9.267	3.071	29.528
Canada	3.628	12.720	5.279	17.304
Chile	7.093	13.011	8.517	16.060
Czech Republic	2.011	9.744	8.483	23.766
Denmark	5.244	6.774	7.628	24.411
Finland	2.369	0.014	6.820	16.673
France	1.255	6.150	4.260	16.710
Germany	4.572	6.114	3.793	17.598
Greece	13.733	14.109	5.732	33.412
Hungary	13.757	15.414	9.326	16.430
Iceland	13.134	8.737	7.321	13.562
Ireland	21.998	13.356	5.911	23.902
Italy	4.826	7.307	6.435	14.829
Japan	-1.056	-1.992	3.951	19.669
Korea	12.331	-0.023	5.775	17.291
Mexico	-2.156	6.920	7.349	26.933
Netherlands	6.768	10.864	3.878	21.291
New Zealand	8.270	16.752	5.700	11.114
Norway	7.509	5.033	5.457	15.747
Poland	6.805	10.240	9.492	22.104
Portugal	10.508	7.084	9.863	21.373
Slovak Republic	4.234	12.174	7.325	25.821
Spain	5.194	8.600	7.862	18.756
Sweden	4.110	9.999	5.762	21.514
Switzerland	3.289	8.415	5.904	14.995
United Kingdom	9.240	13.102	4.560	14.950
United States	2.575	9.698	6.730	19.119
All	5.812	8.536	6.087	18.924

Source: Own elaboration based on OECD Bank Statistics and OECD Main Economic Indicators.

Table 4: Economic Conditions Means by Country

(in percents)

Country	DEPOSIT COSTS$_{i,t-1}$	PROVI-SIONS$_{i,t-1}$	LENDING RATE$_{it}$	LONG-TERM RATE$_{it}$	STOCK RETURNS$_{it}$	Δ AGG. DEMAND$_{it}$	ASSETS TO GDP$_{it}$
Australia	8.758	0.704	7.060	4.835	3.236	3.832	105.178
Austria	8.607	0.733	5.284	3.950	0.214	2.282	247.809
Belgium	20.617	0.638	6.924	4.449	7.258	2.014	291.774
Canada	6.998	0.549	4.889	4.466	3.965	3.038	140.348
Chile	11.880	1.111	7.133	4.571	2.663	4.576	100.584
Czech Republic	4.129	-1.628	4.066	2.465	14.235	3.234	109.361
Denmark	10.115	1.959	7.663	5.749	8.933	1.893	114.330
Finland	9.517	0.172	5.106	5.466	8.229	1.692	122.673
France	21.712	0.870	5.796	4.361	2.791	1.865	236.109
Germany	9.316	0.618	8.101	4.326	4.919	1.722	168.793
Greece	10.019	1.186	9.644	3.662	4.746	2.999	69.855
Hungary	8.298	0.411	4.165	1.432	4.473	3.404	73.632
Iceland	11.769	1.490	10.466	5.591	12.757	4.088	88.277
Ireland	9.511	0.196	0.997	1.567	7.517	6.659	337.898
Italy	11.190	1.197	6.517	4.371	1.165	1.452	155.749
Japan	2.907	0.564	2.450	2.098	-3.807	0.923	166.883
Korea	6.984	1.524	4.358	4.711	1.083	4.118	94.198
Mexico	20.288	1.962	5.880	4.845	9.665	2.929	46.236
Netherlands	9.225	0.305	2.511	2.704	1.642	2.213	384.141
New Zealand	6.863	0.198	7.904	4.535	1.412	3.609	137.906
Norway	9.879	0.924	6.335	4.179	8.587	2.689	80.465
Poland	7.280	1.881	7.118	4.382	11.236	2.945	57.889
Portugal	11.265	2.476	8.424	3.970	3.381	3.855	148.646
Slovak Republic	5.707	-0.395	3.463	-0.349	14.402	4.507	85.934
Spain	9.180	1.406	4.886	4.523	6.883	3.146	139.707
Sweden	12.141	0.076	6.546	4.684	10.666	1.712	97.837
Switzerland	7.339	1.001	2.759	1.853	5.185	1.602	409.050
United Kingdom	6.881	0.912	4.345	4.206	3.317	2.844	149.411
United States	6.870	0.761	5.194	3.872	6.194	3.214	93.180
All	9.991	0.864	5.725	4.010	5.427	2.695	160.274

Source: Own elaboration based on OECD Bank Statistics, OECD Main Economic Indicators, IFS, and National Sources.

Table 5: Estimations by OLS, Fixed Effects and Difference GMM

(1 lag of $\Delta\ell_{it}$)

Dependent Variable: $\Delta\ell_{it}$	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	FE	2 lags	6 lags	2 collapsed	6 collapsed
$\Delta\ell_{i,t-1}$	0.318***	0.188**	0.182**	0.182**	0.106	0.148*
	(0.0590)	(0.0799)	(0.0745)	(0.0745)	(0.0799)	(0.0802)
$\text{ROE}_{i,t-1}$	0.0505	0.0446	0.0446	0.0451	-0.00231	-0.00934
	(0.0746)	(0.0623)	(0.0582)	(0.0580)	(0.0714)	(0.0566)
$\text{CAP}_{i,t-1}$	-0.0741	-0.178	-0.203	-0.198	-0.434	-0.508
	(0.156)	(0.145)	(0.126)	(0.128)	(0.541)	(0.392)
$\text{CAP}^2_{i,t-1}$	0.00751	0.0384*	0.0373*	0.0382*	0.0312	0.0341
	(0.0191)	(0.0214)	(0.0206)	(0.0199)	(0.0709)	(0.0405)
$\text{BSL}_{i,t-1}$	0.0759	0.177*	0.191*	0.194**	0.0149	0.0564
	(0.0537)	(0.0991)	(0.0980)	(0.0961)	(0.398)	(0.320)
DEPOSIT $\text{COSTS}_{i,t-1}$	-0.243***	-0.0519	-0.0710	-0.0674	-0.222	-0.314
	(0.0695)	(0.152)	(0.147)	(0.148)	(0.236)	(0.289)
$\text{PROVISIONS}_{i,t-1}$	-0.0681	-0.428	-0.484	-0.479	-0.727	-0.632
	(0.488)	(0.533)	(0.499)	(0.498)	(1.154)	(0.738)
LENDING RATE_{it}	0.424**	0.106	0.0875	0.0939	1.500*	0.913
	(0.188)	(0.271)	(0.263)	(0.261)	(0.856)	(0.731)
LONG TERM RATE_{it}	0.491*	1.068**	1.150***	1.148***	-0.0499	0.573
	(0.254)	(0.390)	(0.393)	(0.393)	(1.014)	(0.837)
STOCK RETURNS_{it}	0.0436*	0.0269	0.0298	0.0303	0.205***	0.150***
	(0.0245)	(0.0201)	(0.0186)	(0.0187)	(0.0600)	(0.0484)
ΔAGG. DEMAND_{it}	1.250***	1.079***	1.101***	1.097***	0.694	0.515
	(0.188)	(0.211)	(0.196)	(0.194)	(0.489)	(0.345)
$\text{ASSETS/GDP}_{i,t-1}$	0.00548	-0.0309***	-0.0325***	-0.0324***	-0.103**	-0.0761***
	(0.00389)	(0.0111)	(0.0113)	(0.0110)	(0.0463)	(0.0291)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes
H_0: $\text{CAP}_{i,t-1} = \text{CAP}^2_{i,t-1} = 0$	[0.882]	[0.021]	[0.004]	[0.004]	[0.059]	[0.018]
H_0: joint validity of moment restrictions						
Sargan test			[0.134]	[0.146]	[0.053]	[0.252]
Hansen test			[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated						
Arellano-Bond for AR(2)			[0.004]	[0.004]	[0.013]	[0.014]
Arellano-Bond for AR(3)			[0.054]	[0.054]	[0.235]	[0.170]
Number of instruments			444	446	52	100
R^2	0.462	0.435				
Number observations	480	480	446	446	446	446
Number countries	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) and Difference GMM regressions eliminate country effects by taking differences. R^2 for FE corresponds to the within R^2. k lags means k lags are used to instrument each explanatory variable, *i.e.* $x_{i,t-1}, \ldots, x_{i,t-k}$ are used as instruments for Δx_{it} when x_{it} is a predetermined variable and $x_{i,t-2}, \ldots, x_{i,t-1-k}$ are used as instruments for Δx_{it} when x_{it} is an endogenous variable. Heteroskedasticity robust standard errors in parentheses. P-values in brackets. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table 6: Estimations by OLS, Fixed Effects and GMM

(2 lags of $\Delta\ell_{it}$)

Dependent Variable: $\Delta\ell_{it}$	(1)	(2)	(3)	(4)	(5)	(6)
			Difference GMM		System GMM	
	OLS	FE	2 collapsed	6 collapsed	2 collapsed	6 collapsed
$\Delta\ell_{i,t-1}$	0.215***	0.151**	0.153**	0.170**	0.243***	0.232***
	(0.0632)	(0.0630)	(0.0742)	(0.0711)	(0.0603)	(0.0623)
$\Delta\ell_{i,t-2}$	0.267***	0.208***	0.204***	0.213***	0.241***	0.241***
	(0.0629)	(0.0515)	(0.0634)	(0.0565)	(0.0618)	(0.0506)
$\text{ROE}_{i,t-1}$	0.0519	0.0465	0.0296	0.0181	0.0598	0.0617
	(0.0614)	(0.0578)	(0.0815)	(0.0564)	(0.0651)	(0.0549)
$\text{CAP}_{i,t-1}$	-0.173	-0.223*	-0.747	-0.569**	-0.389*	-0.253
	(0.156)	(0.124)	(0.466)	(0.278)	(0.221)	(0.225)
$\text{CAP}^2_{i,t-1}$	0.0127	0.0389**	0.00241	0.0221	0.0521	0.0603**
	(0.0191)	(0.0188)	(0.0642)	(0.0416)	(0.0355)	(0.0294)
$\text{BSL}_{i,t-1}$	0.107*	0.211**	0.0661	0.168	0.0886	0.0703
	(0.0553)	(0.0950)	(0.421)	(0.274)	(0.185)	(0.153)
DEPOSIT $\text{COSTS}_{i,t-1}$	-0.297***	-0.113	-0.367	-0.467	-0.486***	-0.398***
	(0.0765)	(0.142)	(0.266)	(0.301)	(0.158)	(0.147)
$\text{PROVISIONS}_{i,t-1}$	-0.0787	-0.334	-0.0118	-0.00792	0.288	0.335
	(0.453)	(0.495)	(1.025)	(0.672)	(0.678)	(0.463)
LENDING RATE_{it}	0.410**	0.0466	1.744	0.580	1.521*	0.454
	(0.187)	(0.248)	(1.078)	(0.700)	(0.840)	(0.535)
LONG TERM RATE_{it}	0.548**	1.163***	-0.0436	0.755	-0.405	0.826
	(0.269)	(0.370)	(1.191)	(0.754)	(0.895)	(0.614)
STOCK RETURNS_{it}	0.0493**	0.0347	0.225***	0.152***	0.243***	0.162***
	(0.0230)	(0.0208)	(0.0677)	(0.0460)	(0.0602)	(0.0416)
ΔAGG. DEMAND_{it}	1.193***	1.093***	0.560	0.462	0.723*	0.551**
	(0.164)	(0.215)	(0.434)	(0.304)	(0.380)	(0.229)
$\text{ASSETS/GDP}_{i,t-1}$	0.00477	-0.0291***	-0.0702	-0.0369	0.00939	0.00749
	(0.00399)	(0.0104)	(0.0549)	(0.0353)	(0.0138)	(0.0118)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Country effects[1]	No	Yes	Yes	Yes	Yes	Yes
$\Delta\ell_{i,t-1} + \Delta\ell_{i,t-2}$	0.482	0.359	0.356	0.383	0.483	0.473
H_0: $\text{CAP}_{i,t-1} = \text{CAP}^2_{i,t-1} = 0$	[0.538]	[0.028]	[0.033]	[0.048]	[0.029]	[0.067]
H_0: joint validity of moment restrictions						
Sargan test			[0.717]	[0.742]	[0.771]	[0.886]
Hansen test			[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated						
Arellano-Bond for AR(2)			[0.691]	[0.754]	[0.983]	[0.985]
Arellano-Bond for AR(3)			[0.611]	[0.642]	[0.701]	[0.700]
Number of instruments			52	100	65	113
R^2	0.510	0.467				
Number observations	464	464	430	430	464	464
Number countries	29	29	29	29	29	29

Notes: [1]Fixed Effects (FE) regressions eliminate country effects by taking first differences. R^2 for FE corresponds to the within R^2. k lags means k lags are used to instrument each explanatory variable, *i.e.* $x_{i,t-1}, \ldots, x_{i,t-k}$ are used as instruments for Δx_{it} when x_{it} is a predetermined variable and $x_{i,t-2}, \ldots, x_{i,t-1-k}$ are used as instruments for Δx_{it} when x_{it} is an endogenous variable. Heteroskedasticity robust standard errors in parentheses. P-values in brackets. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table 7: Estimates of the Effect of Bank Financial Position on Credit Growth

Dependent Variable: $\Delta\ell_{it}$	(1)	(2)	(3)	(4)	(5)	(6)
		ROE	CAP	BSL	ROE^2	BSL^2
$\Delta\ell_{i,t-1}$	0.243***	0.233***	0.266***	0.247***	0.227***	0.235***
	(0.0603)	(0.0604)	(0.0609)	(0.0614)	(0.0583)	(0.0638)
$\Delta\ell_{i,t-2}$	0.241***	0.241***	0.249***	0.235***	0.230***	0.235***
	(0.0618)	(0.0581)	(0.0607)	(0.0661)	(0.0607)	(0.0590)
$ROE_{i,t-1}$	0.0598	0.0554			0.165*	0.0568
	(0.0651)	(0.0649)			(0.0997)	(0.0631)
$ROE^2_{i,t-1}$					0.00174*	
					(0.00103)	
$CAP_{i,t-1}$	-0.389*		-0.295		-0.465**	-0.414*
	(0.221)		(0.264)		(0.230)	(0.244)
$CAP^2_{i,t-1}$	0.0521		0.0515		0.0558*	0.0453
	(0.0355)		(0.0398)		(0.0331)	(0.0349)
$BSL_{i,t-1}$	0.0886			0.0553	0.0957	0.116
	(0.185)			(0.211)	(0.184)	(0.744)
$BSL^2_{i,t-1}$						-0.00152
						(0.0183)
DEPOSIT $COSTS_{i,t-1}$	-0.486***	-0.562***	-0.479***	-0.568***	-0.486***	-0.529***
	(0.158)	(0.178)	(0.184)	(0.184)	(0.150)	(0.153)
$PROVISIONS_{i,t-1}$	0.288	0.416	-0.0590	0.0967	0.550	0.375
	(0.678)	(0.658)	(0.611)	(0.638)	(0.608)	(0.638)
LENDING $RATE_{it}$	1.521*	1.713*	1.770**	1.661**	1.339	1.802**
	(0.840)	(0.890)	(0.865)	(0.846)	(0.857)	(0.789)
LONG TERM $RATE_{it}$	-0.405	-0.737	-0.611	-0.921	-0.319	-0.652
	(0.895)	(0.951)	(0.879)	(0.946)	(0.867)	(0.876)
STOCK $RETURNS_{it}$	0.243***	0.224***	0.242***	0.239***	0.237***	0.258***
	(0.0602)	(0.0716)	(0.0686)	(0.0646)	(0.0582)	(0.0587)
ΔAGG. $DEMAND_{it}$	0.723*	0.833**	0.893**	0.858**	0.620	0.865**
	(0.380)	(0.407)	(0.402)	(0.404)	(0.384)	(0.350)
$ASSETS/GDP_{i,t-1}$	0.00939	0.00901	0.0106	0.00921	0.00892	0.0111
	(0.0138)	(0.0126)	(0.0140)	(0.0121)	(0.0129)	(0.0133)
$\Delta\ell_{i,t-1} + \Delta\ell_{i,t-2}$	0.483	0.473	0.515	0.482	0.457	0.470
H_0: $CAP_{i,t-1} = CAP^2_{i,t-1} = 0$	[0.029]		[0.076]		[0.019]	[0.023]
H_0: $ROE_{i,t-1} = ROE^2_{i,t-1} = 0$					[0.189]	
H_0: $BSL_{i,t-1} = BSL^2_{i,t-1} = 0$						[0.950]
H_0: joint validity of moment restrictions						
Sargan test	[0.771]	[0.693]	[0.638]	[0.689]	[0.869]	[0.871]
Hansen test	[1.000]	[1.000]	[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated						
Arellano-Bond for AR(2)	[0.983]	[0.972]	[0.922]	[0.967]	[0.859]	[0.985]
Number of instruments	65	56	59	56	68	71
Number observations	464	464	464	464	464	464
Number countries	29	29	29	29	29	29

Notes: System GMM estimates using, 2 collapsed lags of explanatory variables as instruments. All models consider country and year effects. Heteroskedasticity robust standard errors in parentheses. P-values in brackets. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table 8: Estimates Using Alternative Measures of Banks' Profits

Dependent Variable: $\Delta\ell_{it}$	(1)	(2)	(3)	(4)
		ROE even if E < 0	ROA	ROA and LEVERAGE
$\Delta\ell_{i,t-1}$	0.243***	0.243***	0.223***	0.233***
	(0.0603)	(0.0603)	(0.0542)	(0.0591)
$\Delta\ell_{i,t-2}$	0.241***	0.241***	0.233***	0.236***
	(0.0618)	(0.0618)	(0.0599)	(0.0602)
$\text{ROE}_{i,t-1}$	0.0598	0.0594		
	(0.0651)	(0.0652)		
$\text{ROA}_{i,t-1}$			1.917	1.882
			(1.451)	(1.845)
$\text{LEVERAGE}_{i,t-1}$				-1.570
				(1.849)
$\text{CAP}_{i,t-1}$	-0.389*	-0.399*	-0.433*	-15.40
	(0.221)	(0.223)	(0.245)	(21.27)
$\text{CAP}^2_{i,t-1}$	0.0521	0.0528	0.0505	0.799
	(0.0355)	(0.0357)	(0.0307)	(1.142)
$\text{BSL}_{i,t-1}$	0.0886	0.0884	0.0655	0.0630
	(0.185)	(0.185)	(0.180)	(0.148)
$\text{DEPOSIT COSTS}_{i,t-1}$	-0.486***	-0.486***	-0.506***	-0.415*
	(0.158)	(0.158)	(0.149)	(0.217)
$\text{PROVISIONS}_{i,t-1}$	0.288	0.285	0.561	0.0378
	(0.678)	(0.677)	(0.829)	(1.095)
LENDING RATE_{it}	1.521*	1.522*	1.484*	1.475*
	(0.840)	(0.840)	(0.841)	(0.864)
$\text{LONG TERM RATE}_{it}$	-0.405	-0.407	-0.313	-0.379
	(0.895)	(0.895)	(0.841)	(0.826)
$\text{STOCK RETURNS}_{it}$	0.243***	0.243***	0.236***	0.264***
	(0.0602)	(0.0602)	(0.0595)	(0.0642)
$\Delta\text{AGG. DEMAND}_{it}$	0.723*	0.724*	0.603	0.730*
	(0.380)	(0.380)	(0.425)	(0.415)
$\text{ASSETS/GDP}_{i,t-1}$	0.00939	0.00939	0.0112	0.00900
	(0.0138)	(0.0138)	(0.0144)	(0.0149)
$\Delta\ell_{i,t-1} + \Delta\ell_{i,t-2}$	0.483	0.483	0.457	0.469
H_0: $\text{CAP}_{i,t-1} = \text{CAP}^2_{i,t-1} = 0$	[0.029]	[0.029]	[0.025]	[0.692]
H_0: $\text{ROA}_{i,t-1} = \text{LEVERAGE}_{i,t-1} = 0$				[0.490]
H_0: joint validity of moment restrictions				
Sargan test	[0.771]	[0.771]	[0.629]	[0.810]
Hansen test	[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated				
Arellano-Bond for AR(2)	[0.983]	[0.983]	[0.984]	[0.947]
Number of instruments	65	65	65	68
Number observations	464	464	464	463
Number countries	29	29	29	29

Notes: System GMM estimates using, 2 collapsed lags of explanatory variables as instruments. All models consider country and year effects. Heteroskedasticity robust standard errors in parentheses. P-values in brackets. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table 9: Estimates Using Alternative Measures of Banks' Liquidity

Dependent Variable: $\Delta\ell_{it}$	(1)	(2)	(3)	(4)	(5)
		BSL * SMALL	restricted sample	SEC + RES / ASSETS	DEPOSITS / ASSETS
$\Delta\ell_{i,t-1}$	0.243***	0.358***	0.405***	0.228***	0.243***
	(0.0603)	(0.0713)	(0.0925)	(0.0628)	(0.0599)
$\Delta\ell_{i,t-2}$	0.241***	0.0558	0.227***	0.232***	0.265***
	(0.0618)	(0.0858)	(0.0819)	(0.0577)	(0.0477)
$\text{ROE}_{i,t-1}$	0.0598	0.414**	-0.291***	0.0681	0.0874
	(0.0651)	(0.175)	(0.0987)	(0.0650)	(0.0661)
$\text{CAP}_{i,t-1}$	-0.389*	-0.963***	-0.674*	-0.392*	-0.358
	(0.221)	(0.348)	(0.394)	(0.235)	(0.250)
$\text{CAP}^2_{i,t-1}$	0.0521	0.0145	0.0292	0.0491	0.0472
	(0.0355)	(0.0363)	(0.0357)	(0.0338)	(0.0332)
$\text{BSL}_{i,t-1}$	0.0886		0.191		
	(0.185)		(0.183)		
$\text{BSL}_{i,t-1} * \text{SMALL}_{i,t-1}$		0.00874*			
		(0.00526)			
$\text{(SEC+RES)/ASSETS}_{i,t-1}$				-0.0588	
				(0.131)	
$\text{DEPOSITS/ASSETS}_{i,t-1}$					-0.174*
					(0.0908)
$\text{DEPOSIT COSTS}_{i,t-1}$	-0.486***	-0.241	-0.644**	-0.489***	-0.563***
	(0.158)	(0.251)	(0.313)	(0.152)	(0.171)
$\text{PROVISIONS}_{i,t-1}$	0.288	-0.00191	-1.859*	0.289	0.593
	(0.678)	(1.138)	(1.037)	(0.659)	(0.582)
LENDING RATE_{it}	1.521*	-0.531	0.0682	1.833**	1.824*
	(0.840)	(0.541)	(0.531)	(0.911)	(0.952)
$\text{LONG TERM RATE}_{it}$	-0.405	0.556	1.279	-0.462	-0.405
	(0.895)	(1.107)	(0.819)	(0.893)	(0.818)
$\text{STOCK RETURNS}_{it}$	0.243***	-0.0357	0.122	0.233***	0.207***
	(0.0602)	(0.0887)	(0.0814)	(0.0606)	(0.0682)
$\Delta\text{AGG. DEMAND}_{it}$	0.723*	-0.271	-0.771	0.868**	0.802**
	(0.380)	(0.785)	(0.863)	(0.379)	(0.395)
$\text{ASSETS/GDP}_{i,t-1}$	0.00939	-0.0233**	-0.0205	0.0113	-0.00333
	(0.0138)	(0.0116)	(0.0166)	(0.0150)	(0.0143)
$\Delta\ell_{i,t-1} + \Delta\ell_{i,t-2}$	0.483	0.414	0.632	0.460	0.508
H_0: $\text{CAP}_{i,t-1} = \text{CAP}^2_{i,t-1} = 0$	[0.029]	[0.00008]	[0.046]	[0.022]	[0.068]
H_0: joint validity of moment restrictions					
Sargan test	[0.771]	[0.002]	[0.002]	[0.779]	[0.423]
Hansen test	[1.000]	[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated					
Arellano-Bond for AR(2)	[0.983]	[0.940]	[0.171]	[0.970]	[0.992]
Number of instruments	65	65	65	65	65
Number observations	464	249	249	464	464
Number countries	29	18	18	29	29

Notes: System GMM estimates using, 2 collapsed lags of explanatory variables as instruments. All models consider country and year effects. Heteroskedasticity robust standard errors in parentheses. P-values in brackets. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table 10: Estimates Using Alternative Measures of Banks' Capital

Dependent Variable: $\Delta\ell_{it}$	(1)	(2)	(3)	(4)
$\Delta\ell_{i,t-1}$	0.243***	0.240***	0.237***	0.232***
	(0.0603)	(0.0586)	(0.0635)	(0.0625)
$\Delta\ell_{i,t-2}$	0.241***	0.240***	0.244***	0.236***
	(0.0618)	(0.0626)	(0.0619)	(0.0605)
$\text{ROE}_{i,t-1}$	0.0598	0.0474	0.0555	0.0591
	(0.0651)	(0.0660)	(0.0628)	(0.0644)
$\text{CAP}_{i,t-1}$	-0.389*			
	(0.221)			
$\text{CAP}^2_{i,t-1}$	0.0521			
	(0.0355)			
$\text{CAP}_{i,t-1} * (\text{CAP}_{i,t-1} \geq P25)$		0.0754		
		(0.807)		
$\text{CAP}_{i,t-1} * (\text{CAP}_{i,t-1} \geq 4\%)$			0.292	
			(0.363)	
$\text{CAP}_{i,t-1} * (\text{CAP}_{i,t-1} \geq 6\%)$				0.258
				(0.218)
$\text{BSL}_{i,t-1}$	0.0886	0.105	0.0919	0.0753
	(0.185)	(0.212)	(0.185)	(0.177)
$\text{DEPOSIT COSTS}_{i,t-1}$	-0.486***	-0.478***	-0.509***	-0.551***
	(0.158)	(0.174)	(0.168)	(0.171)
$\text{PROVISIONS}_{i,t-1}$	0.288	0.198	0.427	0.504
	(0.678)	(0.671)	(0.708)	(0.715)
LENDING RATE_{it}	1.521*	1.404*	1.561*	1.707**
	(0.840)	(0.798)	(0.869)	(0.861)
$\text{LONG TERM RATE}_{it}$	-0.405	-0.476	-0.464	-0.544
	(0.895)	(0.889)	(0.931)	(0.933)
$\text{STOCK RETURNS}_{it}$	0.243***	0.210***	0.233***	0.241***
	(0.0602)	(0.0551)	(0.0640)	(0.0650)
$\Delta\text{AGG. DEMAND}_{it}$	0.723*	0.669*	0.740*	0.883**
	(0.380)	(0.368)	(0.400)	(0.375)
$\text{ASSETS/GDP}_{i,t-1}$	0.00939	0.00550	0.00917	0.0128
	(0.0138)	(0.0112)	(0.0133)	(0.0146)
$\Delta\ell_{i,t-1} + \Delta\ell_{i,t-2}$	0.483	0.479	0.482	0.467
H_0: $\text{CAP}_{i,t-1} = \text{CAP}^2_{i,t-1} = 0$	[0.029]			
H_0: joint validity of moment restrictions				
Sargan test	[0.771]	[0.542]	[0.767]	[0.700]
Hansen test	[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated				
Arellano-Bond for AR(2)	[0.983]	[0.985]	[0.947]	[0.998]
Number of instruments	65	62	62	62
Number observations	464	464	464	464
Number countries	29	29	29	29

Notes: System GMM estimates using, 2 collapsed lags of explanatory variables as instruments. All models consider country and year effects. Heteroskedasticity robust standard errors in parentheses. P-values in brackets. ***, **, * denote significant at 1%, 5% and 10%, respectively.

Table 11: Robustness Checks I: Definition of Deposit Costs, Provisions and Organization of Bank Sector

Dependent Variable: $\Delta\ell_{it}$	(1)	(2)	(3)	(4)	(5)	(6)
		DEPOSIT RATE	LARGE	restricted sample	LOAN PROVISIONS	restricted sample
$\Delta\ell_{i,t-1}$	0.243***	0.300***	0.350***	0.350***	0.247***	0.225***
	(0.0603)	(0.0708)	(0.0709)	(0.106)	(0.0757)	(0.0732)
$\Delta\ell_{i,t-2}$	0.241***	0.265***	0.0783	0.212**	0.302***	0.306***
	(0.0618)	(0.0477)	(0.0841)	(0.0825)	(0.0533)	(0.0551)
$\text{ROE}_{i,t-1}$	0.0598	0.0607	0.407**	-0.301***	-0.0339	0.0414
	(0.0651)	(0.0633)	(0.183)	(0.0730)	(0.0594)	(0.0614)
$\text{CAP}_{i,t-1}$	-0.389*	-0.110	-0.876***	-0.648*	-0.135	-0.256
	(0.221)	(0.186)	(0.310)	(0.358)	(0.234)	(0.287)
$\text{CAP}^2_{i,t-1}$	0.0521	0.0790**	0.0243	0.0142	0.107***	0.102***
	(0.0355)	(0.0317)	(0.0367)	(0.0409)	(0.0347)	(0.0377)
$\text{BSL}_{i,t-1}$	0.0886	0.395**	0.163	0.204	0.538***	0.453**
	(0.185)	(0.186)	(0.190)	(0.178)	(0.179)	(0.201)
$\text{DEPOSIT COSTS}_{i,t-1}$	-0.486***		-0.370	-0.297	-0.388***	-0.506***
	(0.158)		(0.228)	(0.208)	(0.140)	(0.116)
DEPOSIT RATE_{it}		1.280				
		(0.823)				
$\text{PROVISIONS}_{i,t-1}$	0.288	-0.0816	0.155	-1.972**		0.324
	(0.678)	(0.859)	(1.105)	(0.854)		(0.754)
$\text{LOAN PROVISIONS}_{i,t-1}$					-1.476*	
					(0.819)	
LENDING RATE_{it}	1.521*	0.471	-0.330	0.0128	1.366**	1.711**
	(0.840)	(0.794)	(0.470)	(0.471)	(0.652)	(0.840)
$\text{LONG TERM RATE}_{it}$	-0.405	-0.284	0.634	1.184	-0.252	-0.0590
	(0.895)	(1.250)	(0.714)	(0.876)	(0.676)	(0.773)
$\text{STOCK RETURNS}_{it}$	0.243***	0.225***	-0.00534	0.0745	0.228***	0.231***
	(0.0602)	(0.0463)	(0.0797)	(0.0960)	(0.0686)	(0.0695)
$\Delta\text{AGG. DEMAND}_{it}$	0.723*	0.928***	-0.178	-0.599	0.746***	0.721**
	(0.380)	(0.356)	(0.735)	(0.797)	(0.242)	(0.315)
$\text{ASSETS/GDP}_{i,t-1}$	0.00939	0.00618	-0.0196**	-0.0221*	0.0151	0.0189
	(0.0138)	(0.0134)	(0.00992)	(0.0132)	(0.0104)	(0.0145)
$\text{LARGE}_{i,t-1}$			-0.0645			
			(0.0585)			
$\Delta\ell_{i,t-1} + \Delta\ell_{i,t-2}$	0.483	0.565	0.429	0.562	0.549	0.530
H_0: $\text{CAP}_{i,t-1} = \text{CAP}^2_{i,t-1} = 0$	[0.029]	[0.031]	[0.000]	[0.079]	[0.00002]	[0.000001]
H_0: joint validity of moment restrictions						
Sargan test	[0.771]	[0.648]	[0.002]	[0.0005]	[0.317]	[0.206]
Hansen test	[1.000]	[1.000]	[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated						
Arellano-Bond for AR(2)	[0.983]	[0.433]	[0.894]	[0.223]	[0.669]	[0.664]
Number of instruments	65	65	68	65	65	65
Number observations	464	443	254	254	354	354
Number countries	29	29	29	29	29	29

Notes: System GMM estimates using, 2 collapsed lags of explanatory variables as instruments. All models consider country and year effects. Heteroskedasticity robust standard errors in parentheses. P-values in brackets. ***, **, * denote significant at 1%, 5% and 10%, respectively.

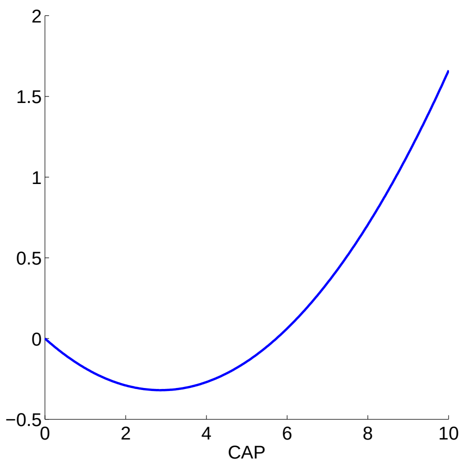
Table 12: Robustness Checks II: Controls for Real Activity

Dependent Variable: $\Delta\ell_{it}$	(1)	(2)	(3)	(4)
$\Delta\ell_{i,t-1}$	0.243***	0.266***	0.254***	0.216***
	(0.0603)	(0.0629)	(0.0636)	(0.0605)
$\Delta\ell_{i,t-2}$	0.241***	0.243***	0.219***	0.253***
	(0.0618)	(0.0635)	(0.0724)	(0.0614)
$\text{ROE}_{i,t-1}$	0.0598	0.0804	0.0333	0.0694
	(0.0651)	(0.0658)	(0.0710)	(0.0684)
$\text{CAP}_{i,t-1}$	-0.389*	-0.490**	-0.547*	-0.343
	(0.221)	(0.200)	(0.314)	(0.217)
$\text{CAP}^2_{i,t-1}$	0.0521	0.0608	0.0354	0.0598**
	(0.0355)	(0.0388)	(0.0338)	(0.0296)
$\text{BSL}_{i,t-1}$	0.0886	0.140	0.256	0.299*
	(0.185)	(0.219)	(0.235)	(0.182)
$\text{DEPOSIT COSTS}_{i,t-1}$	-0.486***	-0.481***	-0.402	-0.266
	(0.158)	(0.166)	(0.248)	(0.225)
$\text{PROVISIONS}_{i,t-1}$	0.288	0.362	-0.0184	0.498
	(0.678)	(0.702)	(0.624)	(0.666)
LENDING RATE_{it}	1.521*	1.081	1.629*	1.317*
	(0.840)	(0.861)	(0.890)	(0.766)
$\text{LONG TERM RATE}_{it}$	-0.405	-0.187	-0.892	-0.626
	(0.895)	(0.947)	(0.916)	(0.865)
$\text{STOCK RETURNS}_{it}$	0.243***	0.280***	0.251***	0.242***
	(0.0602)	(0.0733)	(0.0702)	(0.0482)
$\text{ASSETS/GDP}_{i,t-1}$	0.00939	0.00526	0.00311	0.00264
	(0.0138)	(0.0145)	(0.0114)	(0.0120)
$\Delta\text{AGG. DEMAND}_{it}$	0.723*			0.771*
	(0.380)			(0.418)
ΔGDP_{it}		0.340		
		(0.600)		
$\Delta\text{CONSUMPTION}_{it}$			-0.0997	
			(1.062)	
$\Delta\text{INVESTMENT}_{it}$			0.236	
			(0.402)	
$\Delta\text{GOVERNMENT}_{it}$			1.395*	
			(0.785)	
$\text{INFLATION}_{i,t-1}$				-0.404
				(0.287)
UNEMPLOYMENT_{it}				-0.398
				(0.344)
$\Delta\ell_{i,t-1} + \Delta\ell_{i,t-2}$	0.483	0.509	0.474	0.469
H_0: $\text{CAP}_{i,t-1} = \text{CAP}^2_{i,t-1} = 0$	[0.029]	[0.003]	[0.093]	[0.011]
H_0: $\Delta\text{CONSUMPTION}_{it} = \Delta\text{INVESTMENT}_{it} = \Delta\text{GOVERNMENT}_{it} = 0$			[0.028]	
H_0: joint validity of moment restrictions				
Sargan test	[0.771]	[0.889]	[0.942]	[0.676]
Hansen test	[1.000]	[1.000]	[1.000]	[1.000]
H_0: residuals are serially uncorrelated				
Arellano-Bond for AR(2)	[0.983]	[0.986]	[0.728]	[0.898]
Number of instruments	65	65	71	71
Number observations	464	464	464	462
Number countries	29	29	29	29

Notes: System GMM estimates using, 2 collapsed lags of explanatory variables as instruments. All models consider country and year effects. Heteroskedasticity robust standard errors in parentheses. P-values in brackets. ***, **, * denote significant at 1%, 5% and 10%, respectively.

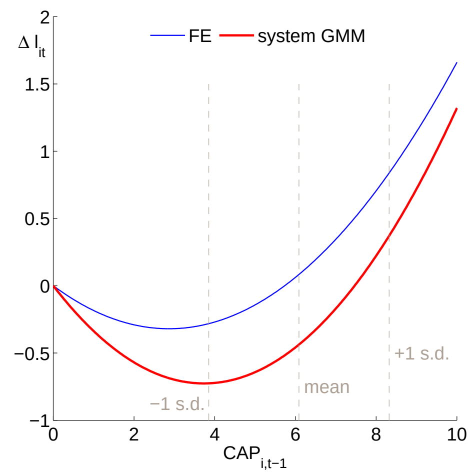
Figure 1: Predicted Credit Growth by CAP.

(a) Fixed Effects



Based on point estimates from FE estimation, Table 6 column 2: -0.223 CAP + 0.0389 CAP^2.

(b) System GMM



Based on point estimates from system GMM estimation, Table 6 column 5: -0.389 CAP + 0.0521 CAP^2.